

ORTAL
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Ortal Power Vent System Manual



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Table of Contents

Safety Considerations 3

Overview 4

Ortal Power Vent System Installation 6

 Ortal Inline Power Vent System Clearances 8

 Ortal Inline Power Vent Box Dimensions 10

Flush Horizontal Termination Power Vent System Installation 13

 Flush Horizontal Termination 20

Electrical Wiring Requirements 22

Venting Runs Installation 24

 Ortal Power Vent Run Lengths 27

Pressure Switch Installation 28

Ortal Power Vent System Operation 30

Troubleshooting 33

Appendix A: Ortal Inline Power Vent Parts List 36

Appendix B: Flush Horizontal Termination Parts List 37

Appendix C: Control Box Parts List 39

Appendix D: Ortal Power Vent System Diagram 40

Appendix E: Ortal Power Vent Technical Data 41

Safety Considerations



WARNING – Be sure to review all safety warnings and installation guidelines contained in this manual.



WARNING – Be sure to review all safety warnings and installation guidelines contained in the Ortal fireplace installation manual.



WARNING – Electrical components. Be sure that all electrical connections are properly installed, insulated and secured to avoid potential ELECTRICAL SHOCK and FIRE HAZARD and malfunction of the system. Consult local building code requirements.



Important – It is imperative that all materials and objects used to carry out the installation are materials certified or specified by Ortal Heating Solutions and are suitable for use. Do NOT install the system with different materials or objects than those approved for installation by Ortal Heating Solutions.



Important – Exceeding the restrictions imposed by Ortal Heating Solutions can cause damage to the function of the fireplace and/or to the living space in which the fireplace and vent system are installed. The installation must be carried out according to the instructions listed in this manual. Ortal will not be responsible for any damage caused by improper installation.

Overview

Ortal Heating Solutions offers the best in aesthetic heating technology. The Ortal Power Vent System is an optional accessory component to the Ortal direct vent gas fireplace. It enhances the fireplace, and provides alternate installation configurations not available with typical direct vent runs.

Our system provides for increased flexibility of fireplace installation in single family homes, multi-family homes, and commercial settings.

The Ortal Power Vent is a fan that creates an exhaust air flow, forcing the exhaust through the inner pipe. This creates a suction of fresh air that enters and draws in through the outer pipe.

Ortal Power Vent System advantages:

- No required minimum vertical distance off the top of the firebox before elbowing.
- Smaller diameter vent pipe (5 inches).
- Longer allowable vent runs.
- No restrictions on vertical to horizontal run ratio.
- Allows up to 6 elbows (560 degrees)
- Downhill venting allowed up to 6 feet.

This manual is designed to aid in installation of the Ortal Power Vent System with the Ortal fireplace installation manual. This manual only describes the Ortal Power Vent System.

Ortal fireplaces operate using direct vent technology. The vent types, *Inline* and *Flush Horizontal Termination*, differ in the Power Vent location along the chimney path. The *Inline* is located inline of the chimney path. The *Flush Horizontal Termination* is located at the end of the chimney path.

Notes:

- You must select the correct Ortal Power Vent System when you order the Ortal fireplace unit. This system cannot be retro-fitted.
- Before installing the Ortal Power Vent System, read and understand all instructions. Consider installation location and vent runs, including any structural requirements, clearances for rough and finished materials, and local codes.

Ortal Power Vent System Installation

Review the installation detail per project plans.

Make sure that all the materials, system components, and tools necessary are present, and in good condition.

Follow these steps:

1. Firebox installation:

It is recommended to position the Fireplace in the final location. Venting and power vent systems can be installed before or after firebox.

- a. With the firebox installation, place the Ortal Power Vent control box by the fireplace access panel.
- b. Connect the **Air pressure cable (G24)** to the pressure switch located in the Ortal Power Vent control box and secure. *See connection 1 in Figure 19: Wire Connection System on page 23.*
- c. Connect the control box to the terminals:
 - i. Connect **CABLE V6 (SASCB)** to the terminal with 4 pins (the solenoid should already be installed in the flex line between the GV60 valve and the burner). *See connection 2 in Figure 19: Wire Connection System on page 23.*
 - ii. Connect the **Relay Cable (SASLVU)** to the AUX port on the receiver terminal with 2 pins to the control box with a 2-pin connector. *See connection 3 in Figure 19: Wire Connection System on page 23.*

Make sure all connections are tight and secure.

2. Install the venting components. Ensure that all pipe connections are sealed, supported, and have clearances maintained as outlined previously in this manual.
3. Position the Ortal Power Vent (*see Venting Runs Installation on page 24*), and secure in place, maintaining required clearances per local building codes.

Notes:

- **For Inline:** The Ortal Inline Power Vent must be placed a minimum of 9 feet from the firebox, up to a maximum of 45 feet.
 - **For Flush Horizontal Termination:** The Power Vent must be placed a minimum of 9 feet from the firebox, up to a maximum of 65 feet.
 - The Ortal Power Vent may be physically positioned closer than 9 feet depending on pipe configuration.
4. After running the **65 Feet Power Cord (M120)**, insert the cable pig tailed end to the Ortal Power Vent box through the Cable clamp.
Open the Ortal Power Vent box service Door and Connect the cable pig tailed end to the one located in the Power Vent box. Make sure all connections are tight and secure. *See connection 5 in Figure 19: Wire Connection System on page 23.*
 5. Termination:
Affix a cap at the pipe termination point to prevent water and foreign objects from entering the pipe.
Use and follow the vent manufacture instructions for termination.

6. Connect the fireplace to the gas line.

Gas connections should be completed by a certified gas fitter/ licensed plumber, and in accordance with local building codes.

7. Connect the Ortal Power Vent control box to the Electrical outlet junction box.

Electrical connections should be completed by a certified electrician, and in accordance with local building codes.

Ortal Inline Power Vent System Clearances

This section describes the Ortal Inline Power Vent system clearance dimensions for building materials.

Follow these steps:

1. Clearance diagram is displayed below. *See Ortal Inline Power Vent Box Dimensions on page 10.*
 - a. 24-inch clearance in front of access panel for service and removal. *See Figure 1: Inline Power Vent Box Dimensions and Safety Clearance on page 10.*
 - b. 12-inch clearance above axillary fan for cooling (if axillary fan is part of fan box assembly). *See Figure 1: Inline Power Vent Box Dimensions and Safety Clearance on page 10.*
 - c. 2-inch clearance on Ortal Power Vent sides and bottom. *See Figure 1: Inline Power Vent Box Dimensions and Safety Clearance on page 10.*

2. Access Panel for Ortal Power Vent
 - a. Minimum 18-inch x 18-inch access panel required for service.
 - b. The Ortal Power Vent must be located in an area with a minimum 8 cubic feet of free air space to keep the component operating temperature cool. In addition, the access panel must be louvered to allow for a minimum of 75 sq. inches of free air space.
3. Ortal Power Vent Mounting
 - Mount the Ortal Power Vent per local code requirements, and follow the manufacturer's instructions for securing venting.

Ortal Inline Power Vent Box Dimensions

This section describes the Power Vent box dimensions and safety clearances.

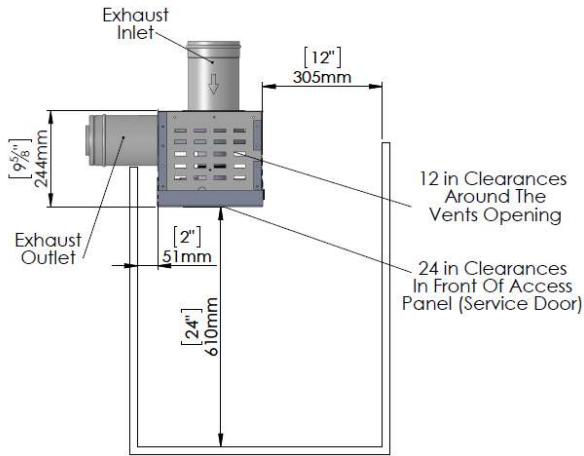


Figure 1: Inline Power Vent Box Dimensions and Safety Clearance

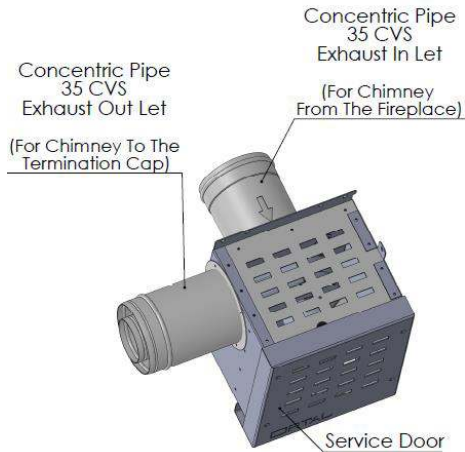


Figure 2: Inline Power Vent Box Dimensions

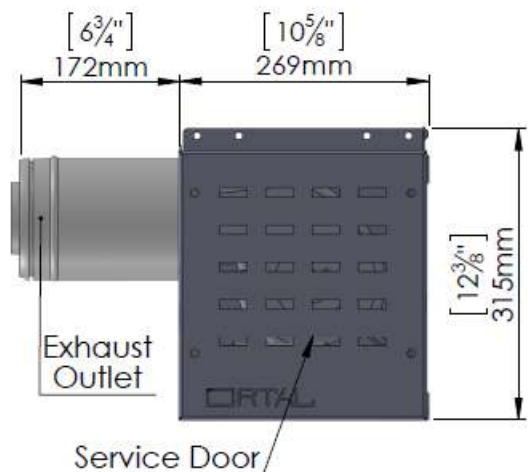


Figure 3: Inline Power Vent Box Dimensions

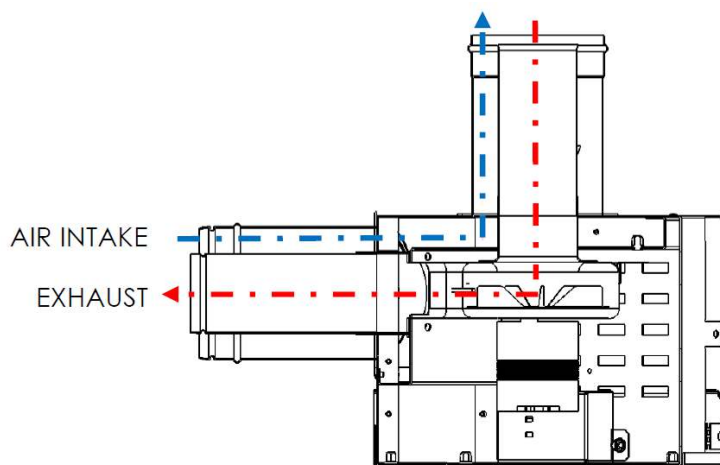


Figure 4: Inline Power Vent Box Dimensions and Safety Clearance

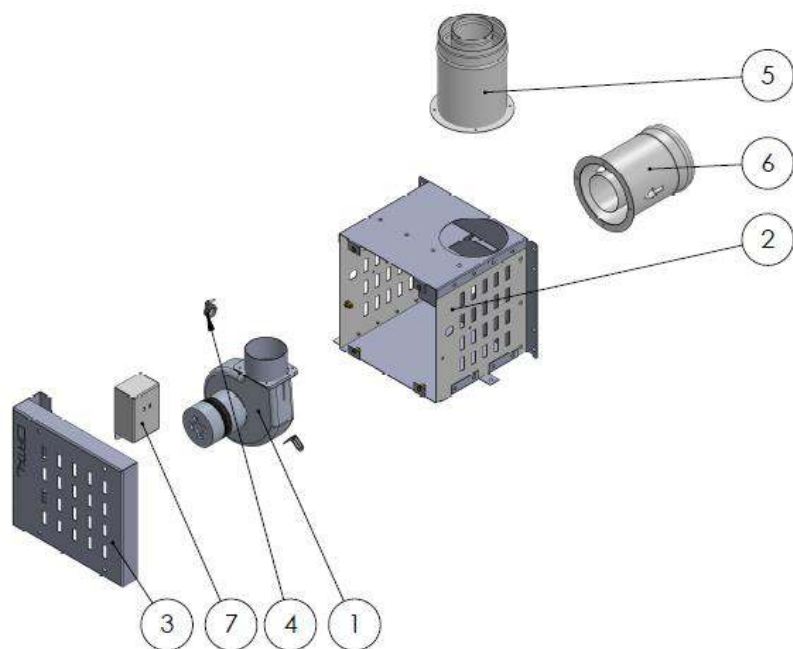


Figure 5: Inline Power Vent Main Parts

Table 1: Inline Power Vent Main Parts List

Item	Part #	Description	Quantity
1	SSM01	ORTAL Power Vent Fan PL20UL0080	1
2	SASSM1FZ	ORTAL Power Vent Fan Box	1
3	SSM1F03	ORTAL Power Vent Service Door	1
4	SSM11	Cable clamp	1
5	G84	Adaptor 35 CVS Outlet	1
6	G85	Adaptor 35 CVS Inlet	1
7	SSM1F09	High V box	1

Flush Horizontal Termination Power Vent System Installation

This section describes the Flush Horizontal Termination installation.

Follow these steps:

1. Prepare an opening size $12 \frac{5}{16}$ inches x $13 \frac{7}{8}$ inches
 - a. Insert the Blower Box into position.

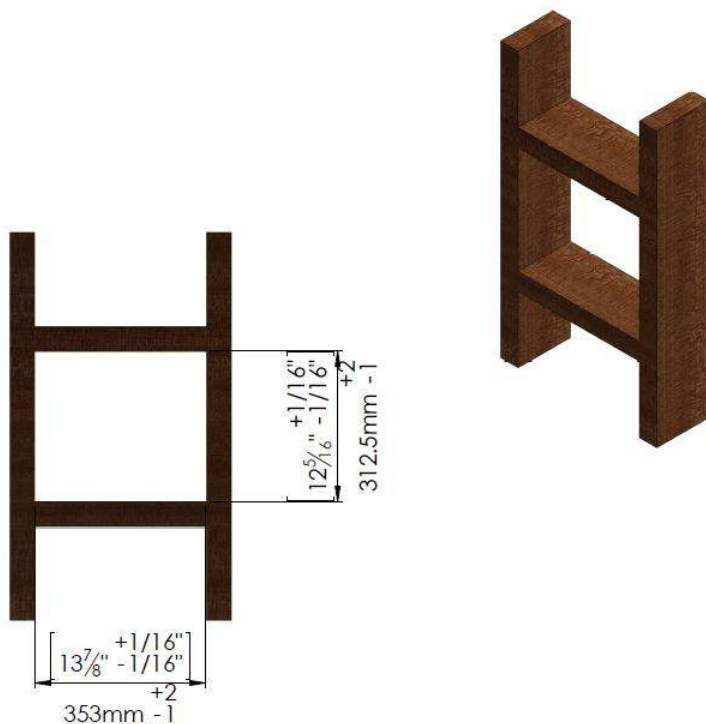


Figure 6: Prepare and Insert Blower Box

- b. Prepare the Wall Flush.
The wall finish should be no deeper than 1¼ inches.

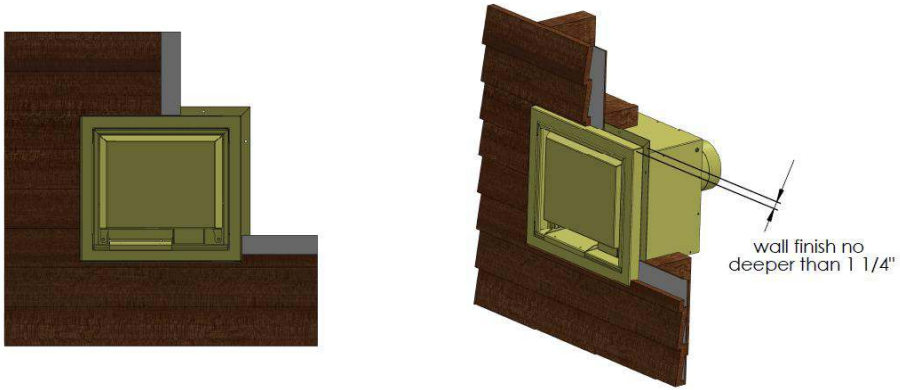


Figure 7: Wall Flush Preparation

- c. Position and secure the 'inner wall plate' (Draft stop) into place.

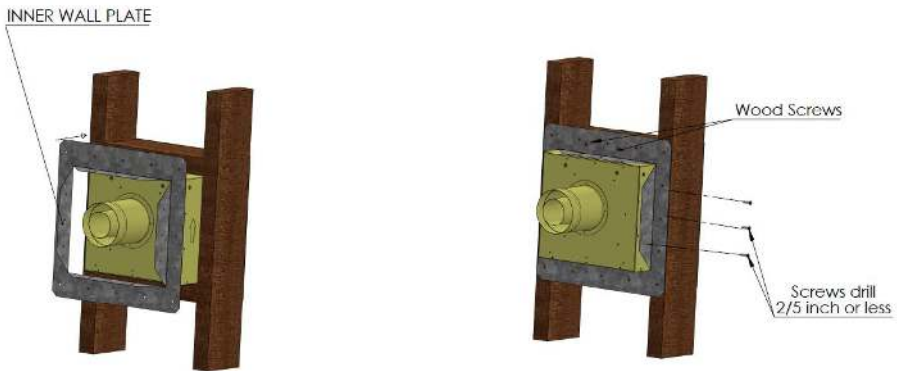


Figure 8: Position and Secure Inner Wall Plate

- d. Position the retaining external cover into place.

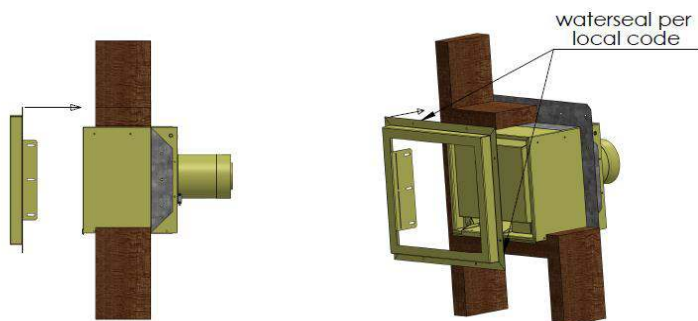


Figure 9: Retaining External Cover Position

Note the wall material layers:

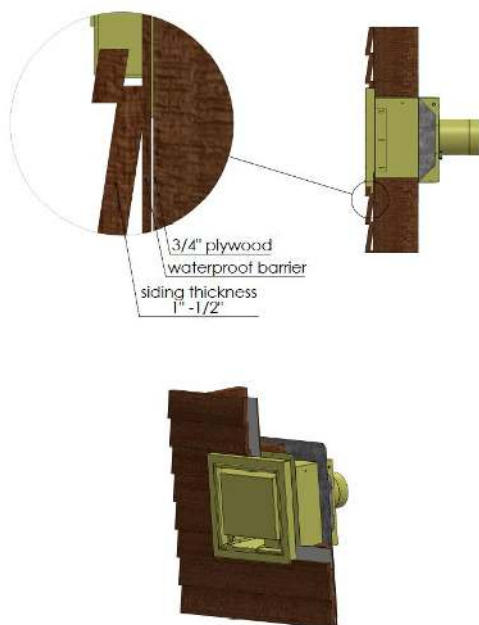


Figure 10: Wall Material Layers

2. For wall thickness greater than 7 1/2 inches and up to a maximum of 16 inches:
 - a. Connect the two parts together (Image 1 below), insert the assembly into the wall, and hold them (Images 2 and 3 below)

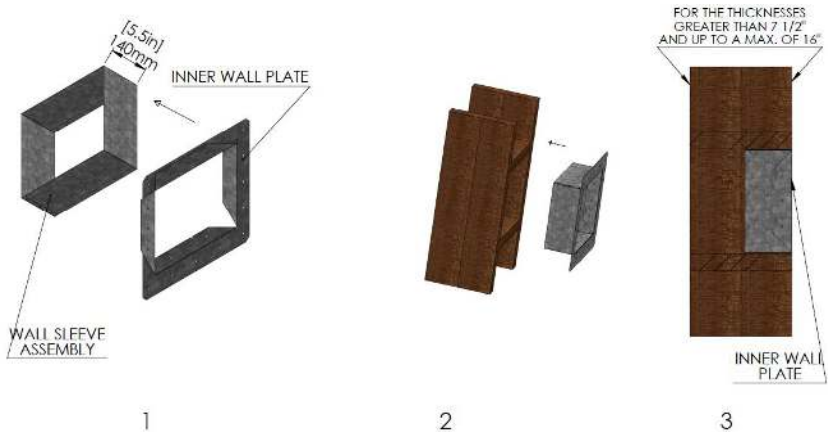


Figure 11: Wall Thickness Greater than 7 1/2 Inches

- b. Position the Blower Box into position.

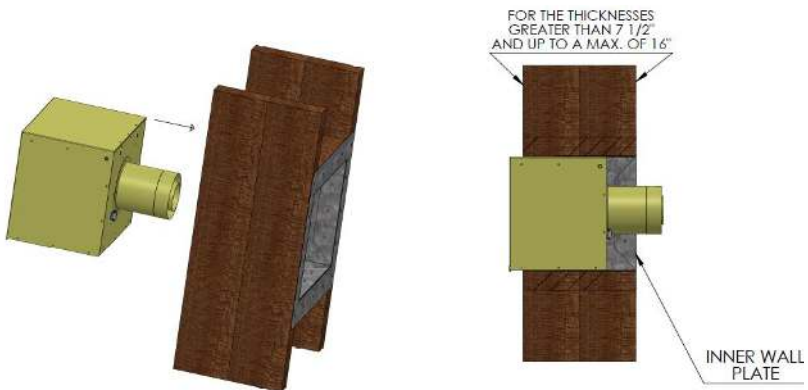


Figure 12: Position Blower Box

3. For Non-Flush Scenarios:
Install the Ortal Power Vent using the previous instructions
(See Step 2a Figure 11, on page 16.) Refer to the illustration.

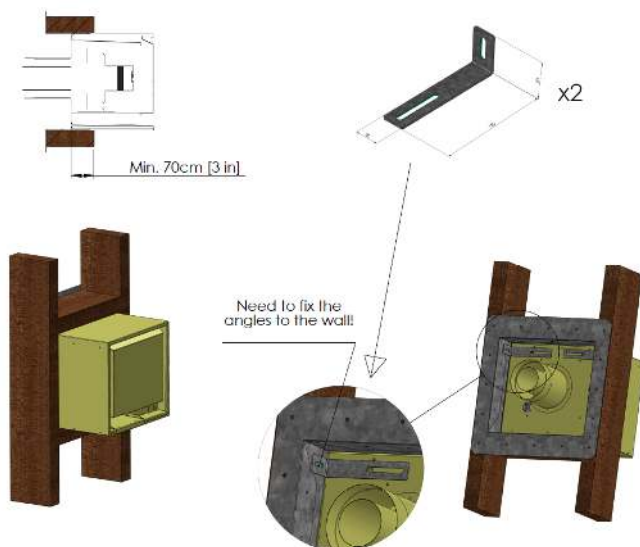


Figure 13: Non-Flush Scenario

4. For Non-Flush Scenarios:

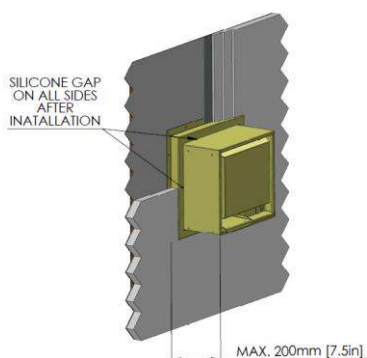


Figure 14: Non-Flush and Stucco Wall

5. For Stucco Walls:

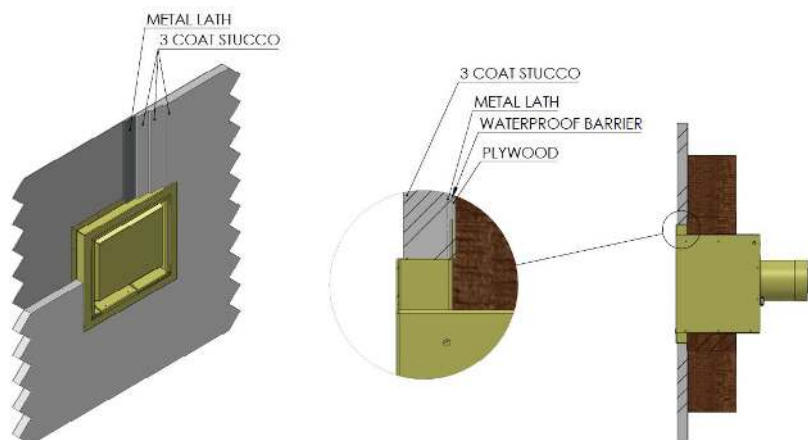
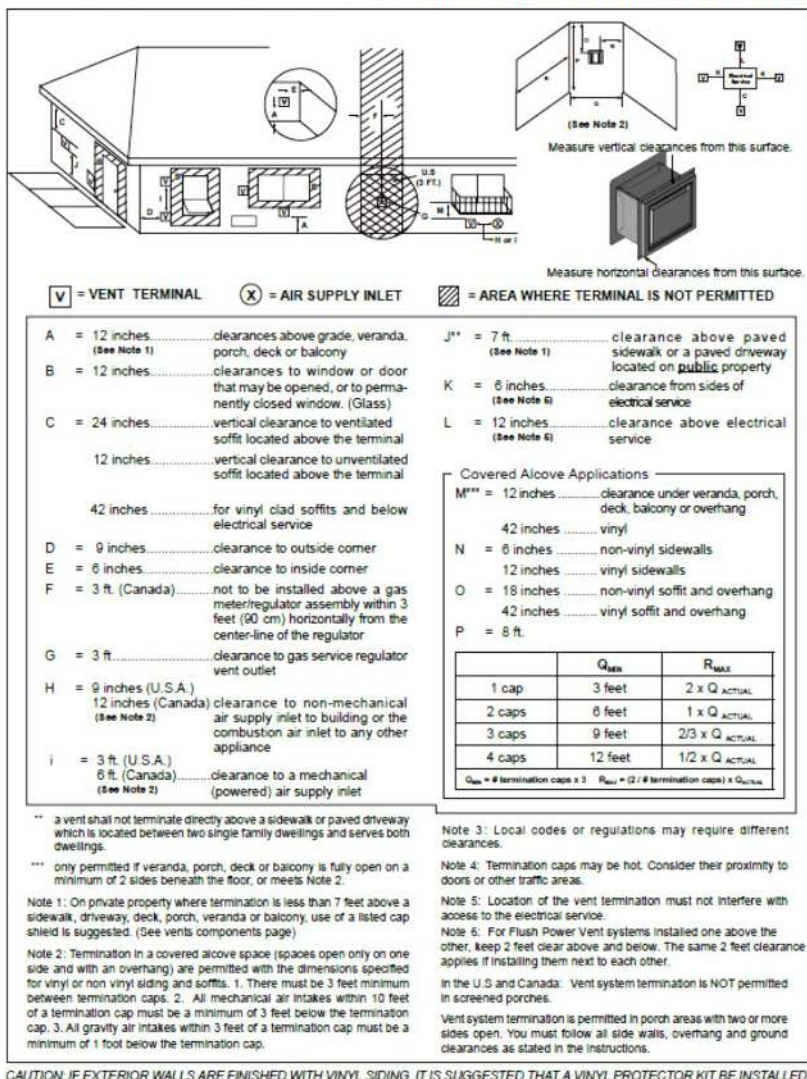


Figure 15: Stucco Walls



CAUTION: IF EXTERIOR WALLS ARE FINISHED WITH VINYL SIDING, IT IS SUGGESTED THAT A VINYL PROTECTOR KIT BE INSTALLED.

Figure 16: Horizontal Termination Clearances

NOTE: For Vertical termination clearances, see page 66 of our Installation Manual for Built-In Models.

Flush Horizontal Termination

The *Flush Horizontal Termination* is located at the end of the vent run.

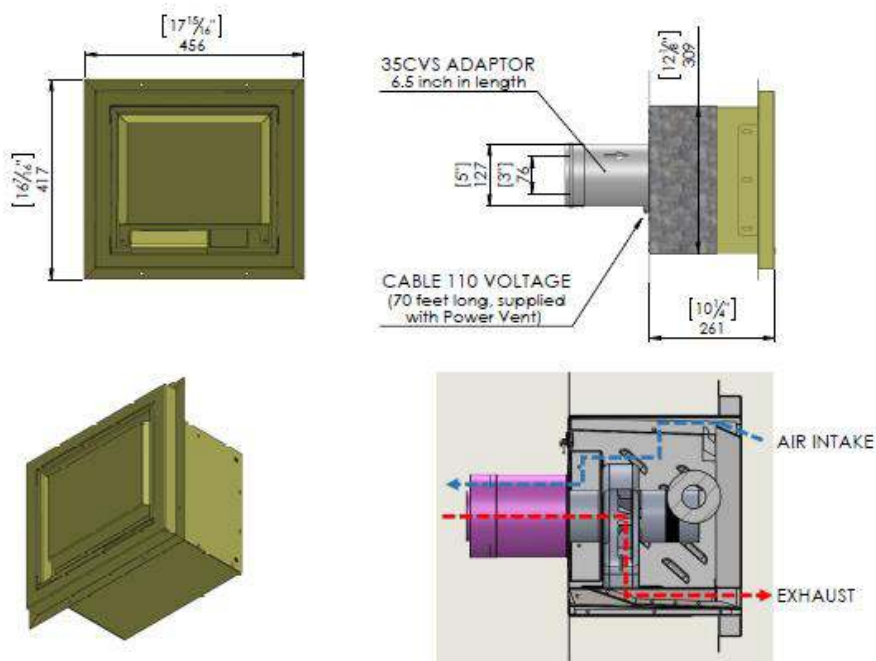


Figure 17: ORTAL Flush Horizontal Termination Power Vent Box dimensions

* Clearances are per the venting run installation instructions.

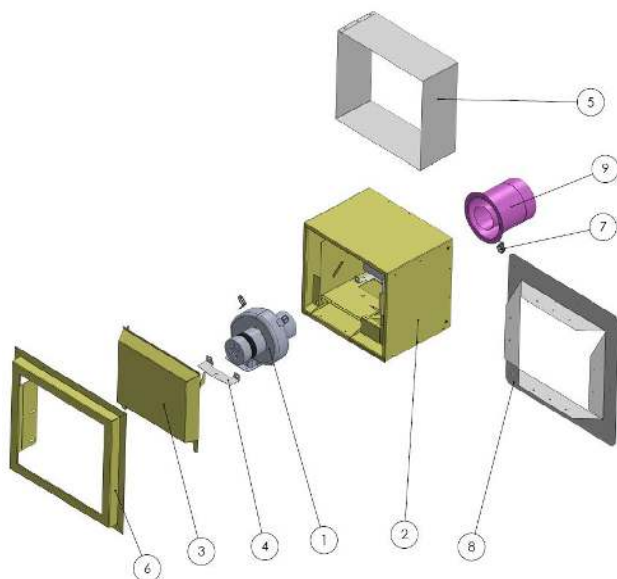


Figure 18: Flush Horizontal Termination Parts location

Table 2: Flush Horizontal Termination Parts List

Item	Part #	Description	Quantity
1	SSM01	ORTAL Power Vent Fan PL20UL0080	1
2	SASSMF1FZ	Ortal Power Vent Fan Box	1
3	SSMF1F01	Ortal Power Vent Service Door	1
4	SSMF1F15	Coordinator6	1
5	SSMF1F03	Casing	1
6	SSMF1F02	Mounting Flange	1
7	SSM11	Cable clamp	1
8	SSMF1F04	Draft stop	1
9	G85	Adaptor 35 CVS Inlet	1

Electrical Wiring Requirements

The Ortal Power Vent System plugs into a 110V 20 amp dedicated line.

Notes:

- You must have a 4-gang electrical outlet located beneath the firebox near the access panel location according to local code, when you connect multiple fireplace features such as a double glass barrier, interior lights, 6V transformer, and/or the Ortal Power Vent System.
- The system does not operate in case of a power failure.

Venting Runs Installation

This section describe the Power Vent run and installation considerations.

Follow these steps:

1. Install the 5 inch (3 inch inner) vent pipe according to manufacturer's instructions.
2. Seal and secure the venting pipes according to the manufacturer's instructions.

Note: This is critical to ensure optimal Ortal Power Vent fireplace performance, and to prevent air from the living area from entering into the venting system, and the exhaust air from being forced into the living area.

- a. Make sure that the inner and outer gasket rings are intact.
 - b. Make sure that each connection between all the venting components is securely twist locked.
 - c. When you remove or install pipe, ensure that the guides are correctly aligned for proper fireplace function.
3. Downhill vent runs:
 - a. Install the vent pipe with a total vertical drop of 6 feet.
 - b. Allow up to six 90 degree offsets or equal (i.e., 540 total degrees of offset/angles).
 4. Vent Pipe Clearances:
 - a. From the firebox to termination, consider the following details. See *Figure 20, Figure 21, and Figure 22 on page 25*:
 - i. Vertical run: 1-inch radius.
 - ii. Horizontal run.
 - Top (90 degrees), 3 inches
 - Bottom and sides (270 degrees), 1 inch

For more information on vent pipe clearance details, see the *Ortal Fireplace Installation Manual*.

- b. Make sure NO combustible materials are near the venting pipes. Venting pipes can reach temperatures as high as 400°C/752°F.

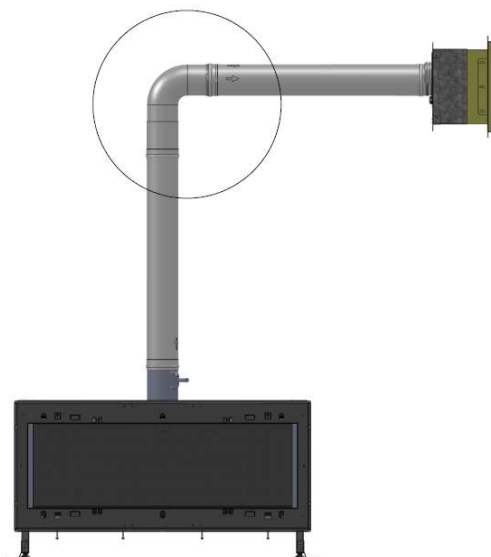


Figure 20: Chimney Course Schematic

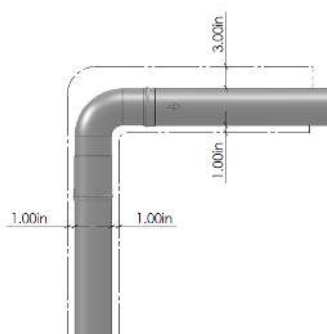


Figure 21: Required Clearances Around Chimney

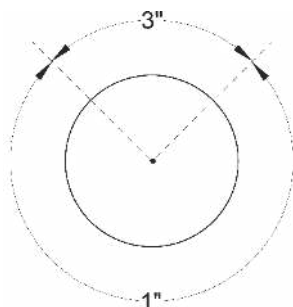


Figure 22: Required Clearances Around Chimney – Cross-section

5. Vent Connections

a. Vent Pipe:

- i. Ensure that the pipes being used are intact and without flaw (i.e. no holes, tears, open seams, corrosion or other issues that may inhibit the proper function of the pipe with the pipe with the Ortal Power Vent System.)
- ii. Pipes must be installed using supports, a minimum of every three feet or per local code, the stricter of the two. Without proper support, the venting may separate, which can result in weakening the long-term sealant or otherwise cause damage to sealed venting integrity.
- iii. Secure all connections per venting manufacturer's instructions.

b. Sealing:

- Follow the venting manufacturer's instructions regarding vent pipe sealing.

Notes:

- Failure to properly seal the venting can prevent the system from working properly and can result in damage to the fireplace and/or the surrounding building.
- Damaged seals can cause pressure loss which might cause function failure in the fireplace.

Ortal Power Vent Run Lengths

Table 3: Ortal Power Vent Run Lengths Limitation

Model	Maximum exhaust length for Inline Power Vent	Maximum exhaust length for <i>Flush Horizontal Termination</i> Power Vent
Series 40	75 feet	65 feet
Series 75	90 feet	
Series 110/130	90 feet	
Series 150/170	80 feet	
Series 200/250	75 feet	

*Natural Gas (NG) and Propane (LP)

Notes:

Inline Ortal Power Vent

- Install the Ortal Power Vent a minimum of 9 feet (linear vent length) from the firebox, and a maximum of 45 feet distance from the firebox.
- Note: a condensation drain is not required for any vent run length.

Flush Horizontal Termination for the Ortal Power Vent

- The Ortal Power Vent must be installed a minimum of 9 feet (linear vent length) from the firebox, up to a maximum 65 feet from the firebox.

Pressure Switch Installation

This section provides a general description for the Ortal Power Vent pressure switch component.

The pressure switch senses air flow when the Ortal Power Vent is activated, and transmits an electrical signal to the Ortal Power Vent control module, which then releases combustible gas to the fireplace, and enables it to operate.

The pressure switch is an Ortal safety feature that prevents fireplace operation if the fan is not active. The fireplace can only operate if the glass enclosure is correctly positioned. Because the Ortal Power Vent control box must sit flat on the floor, incorrect orientation can cause the pressure switch to fail.

For pressure switch assembly and setup best practices, see Figure 23 and Figure 24 on page 29.

IMPORTANT: Make sure that the adapter and Ortal Power Vent control box nuts are tightened correctly (using 16mm and 11mm wrench), and that the pressure tube is properly connected with no leaks. Operate the Ortal Power Vent system prior to closing the walls to check that the system is operating correctly.



Figure 23: Pressure Switch Connection to Ortal Power Vent Power Box



Figure 24: Pressure Switch Connection to the Chimney

Ortal Power Vent System Operation

This section describes the Ortal Power Vent operation instructions and functionality.

Note: Only use the TV14 or T16 remote control and receiver included with the fireplace kit.

Follow these steps:

1. An Ortal fireplace equipped with an Ortal Power Vent System is controlled in the same manner as a standard Ortal fireplace. The fireplace and flame control is switched on/off and adjusted in the same way.

See the Ortal Fireplace Manual, and the Mertik Maxitrol Manual for more information.

2. When the fan is connected to electricity, a red LED light displays on the fan and control boxes.

A red LED light indicates that live electricity is supplied to the fan system.

3. A white LED light displays in the control box when the fireplace is ignited with the remote control.

A white LED light indicates that the Ortal Power Vent Control system sends a command to the fan to turn on.

4. When the fan begins to work, the pressure switch identifies pressure in the exhaust pipe (as compared to the air inlet, a closed system). The Ortal Power Vent System verifies that the system is closed and active as a direct vent system. When the pressure threshold is passed (varies per fireplace model), the pressure switch turns on a green LED light in the control box, and sends an electrical signal to the gas solenoid, which opens the gas between the GV60 valve and the burner port.

The pilot flame is NOT a part of the Ortal Power Vent System electrical sub-system, but works the same as with a standard Ortal fireplace. *Pilot issues are not related to the Ortal Power Vent system.*

5. Gas Solenoid
 - a. When the gas solenoid opens, a blue LED light momentarily displays in the control box.
 - b. When the gas solenoid closes, a yellow LED light momentarily displays in the control box.
6. The Ortal Power Vent system operates with 110V 10 amps, no batteries. This system must have a dedicated power line. In the event of a power failure, the system does not operate.

Table 4: LED Lights indication

Color	Action	Location
Red	Electricity is sent to the fan.	Control Box
White	PV system is given command to turn on.	Control Box
Green	Air pressure threshold is passed.	Control Box
Blue	Solenoid open, gas is released (burner on, pilot on).	Control Box
Yellow	Solenoid closed, gas flow is stopped (burner off, pilot on).	Control Box

Note: When initially turning on the fireplace, the pilot switches on, and *only* then does the rest of the burner ignite (as with a standard Ortal fireplace).



Important - Before turning on the fireplace for the first time, ensure that the system is installed according to the above instructions; review the system sketches above, and ensure that all systems are properly connected.



Important – It is imperative before turning on the fireplace for the first time, to review the booklet instructions concerning the fireplace installation, and verify that the installation has been completed according to the instructions in this booklet. If for any reason after installation, the fireplace does not work properly, the system must not be turned on until the installation is verified.

Troubleshooting

This section contains common troubleshooting descriptions and solutions.



Important – The fireplace and fan must be turned off at the first sign of any problem. Do NOT manipulate the system while the fireplace and the fan are turned on. Look for the appropriate solution. ***If the solution to the problem is ineffective, contact Ortal support.***

Issue: Pilot fails to ignite.

Solution: The pilot operation is not correctly connected to the Fan Exhaust System operation. Consult your primary Ortal fireplace manual or local Ortal representative for troubleshooting solutions.

Issue: The fan is noisy.

Solution: The blower is too tightly fastened to the box. Loosen the bolts. There is an issue with the blower fan. Inspect for defects, foreign objects, or obstructions.

Issue: High or “ghostly” flames.

Solution: Confirm restrictor size. Adjust or change the restrictor. Refer to the restrictor table for correct calibrations. Check the connection to the exhaust pipe, and confirm that it is sealed correctly. If the situation is not resolved, contact Ortal support. A restrictor other than what is indicated in the table may be advised.

Issue: The pilot is on, but the burner and Fan Exhaust are not operating properly.

Solution: The pressure switch does not recognize pressure in the vent, and causes the gas solenoid to be closed.

Consider the following:

- i. Refer to the LED table. If a light that should be on does not display, failure is indicated.
- ii. Confirm that the control box is in a level position with the directional arrow up.
- iii. Make sure the pressure switch is correctly installed and connected to the pressure switch tube.
- iv. Confirm that all terminations in the control box are properly connected.
- v. Look for obstruction.
- vi. Check exhaust pipe connection.
- vii. Check the gas tube between the GV60 valve and the burner port.
- viii. The inlet pressure is too low, too high, or not in the required range. Check with gas provider.

Issue: The pilot is on, the fan is on, but the burner does not operate.

Solution: A possible gas solenoid failure. The gas solenoid is not open, OR a wire (see termination #2) from control to gas solenoid is not connected, OR there is no proven draft.

Issue: The pilot is on, the burner is on, but the fan does not operate.

Solution: Definite failure with the gas solenoid. Shut down the system due to high CO levels in the fireplace. If the fireplace does not immediately shut down, manually turn off the fireplace.

Issue: The burner is on, but disengages without the use of the remote control (it goes off by itself).

Solution: Confirm that the remote control unit is a T16 or TV14 models. A standard Ortal (Mertik) remote control may activate the system, but it does not allow it to remain in operation. Confirm that the pilot is sealed and on.

Issue: The burner turns on and off.

Solution: Make sure the pressure switch is properly installed and connected to the pressure switch tube.



Important – The fireplace and fan must be turned off at the first sign of any problem. Do NOT manipulate the system while the fireplace and the fan are turned on. Look for the appropriate solution. If the solution to the problem is ineffective, contact Ortal support.

Appendix A: Ortal Inline Power Vent Parts List

Table 5: Ortal Inline Power Vent Parts List

Item	Part #	Description	Location	Quantity
1	SSM01	ORTAL Power Vent Fan PL20UL0080	Fan assembly	1
2	SASSM1FZ	ORTAL Power Vent Fan Box	Fan assembly	1
3	SSM1F03	ORTAL Power Vent Service Door	Fan assembly	1
4	SSM11	Cable clamp	Fan assembly	1
5	G84	Adaptor 35 CVS Outlet	Fan assembly	1
6	G85	Adaptor 35 CVS Inlet	Fan assembly	1
7	SSM1F09	High V box	Fan assembly	1
8	SSM04	Transformer and Receiver	Fan assembly	1
9	M120	65 feet Power Cord	Fan assembly	1
10	SASCB	Electronic Control Terminal (operated by Mertik Remote Control)	Control Box (near fireplace)	1
11	SSMC05	Pressure Switch	Control Box	1
12	G24	Pressure Switch Tube	Control Box	1
13	SM_M38	Data Termination	Control Box	1
14	SM_M36	Receiver Termination	Control Box	1
15	G20	Gas Solenoid	Between valve and burner	1
16	SM_M40	Gas Solenoid Termination	Between valve and burner	1
17	SASSMDF	Venting Adapters Series 40 to 80: 4/6 direct vent chimney to 3/5 co-axial chimney Series 110 to 250: 5/8 direct vent chimney to 3/5 co-axial chimney	Comes with Power Vent System to attach to Firebox	1
18	G73	Universal Receiver	Comes with firebox	1
19	T16/TV14	Remote Control (with lights or Air blowers)	Comes with firebox	1

Appendix B: Flush Horizontal Termination Parts List

This appendix lists and describes the Ortal Flush Horizontal Termination parts list.

Table 6: Ortal Flush Horizontal Termination Parts List

Item	Part #	Description	Location	Quantity
1	SSM01	Ortal Power Vent Fan PL20UL0080	Fan assembly	1
2	SASSMF1FZ	Ortal Power Vent Fan Box	Fan assembly	1
3	SSMF1F01	Ortal Power Vent Service Door	Fan assembly	1
4	SSMF1F15	Coordinator6	Fan assembly	1
5	SSMF1F03	Casing	Fan assembly	1
6	SSMF1F02	External cover	Fan assembly	1
7	SSM11	Cable clamp	Fan assembly	1
8	SSMF1F04	Draft stop	Fan assembly	1
9	G85	Adaptor 35 CVS Inlet	Fan assembly	1
10	SSM04	Transformer and Receiver	Fan assembly	1
11	M120	65 feet Power Cord	Fan assembly	1
12	SASCB	Electronic Control Terminal (operated by Mertik Remote Control)	Control Box (near fireplace)	1
13	SSMC05	Pressure Switch	Control Box	1
14	G24	Pressure Switch Tube	Control Box	1
15	SM_M38	Data Termination	Control Box	1
16	SM_M36	Receiver Termination	Control Box	1
17	G20	Gas Solenoid	Between valve and burner	1
18	SM_M40	Gas Solenoid Termination	Between valve and burner	1

Item	Part #	Description	Location	Quantity
19	SASSMDF	Venting Adapters <i>Series 40 to 80:</i> 4/6 direct vent chimney to 3/5 co-axial chimney <i>Series 110 to 250:</i> 5/8 direct vent chimney to 3/5 co-axial chimney	Comes with Ortal Power Vent System to attach to Firebox	1
20	G73	Universal Receiver	Comes with firebox	1
21	T16/ TV14	Remote Control (with lights or air blowers)	Comes with firebox	1

Appendix C: Control Box Parts List

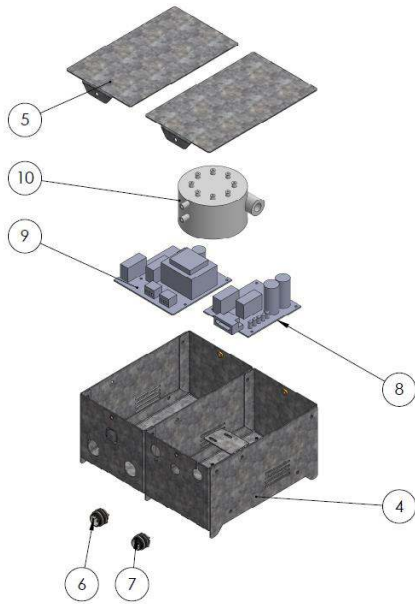


Figure 25: Control Box

Table 7: Control Box Parts List

#	Serial #	Description	Part #	Quant.
1	SSMC08	P.V. Base Control Box	CB 01	1
5	SSMC09	P.V. Cover Control Box	CB 02	2
6	SM_M36	Microphone Socket 3.8 2P	Microphone Socket 3.8	1
7	SM_M40	Microphone Socket 3.8 4P	Microphone Socket 3.8	1
8	SSM11	Cable Clamp	Orbit	2-3
9	SSMC04	Electric Circuit V6	Panel Electronic 6V	1
10	SSM04	High Voltage Panel	Panel Electronic High 6V	1

Appendix D: Ortal Power Vent System Diagram

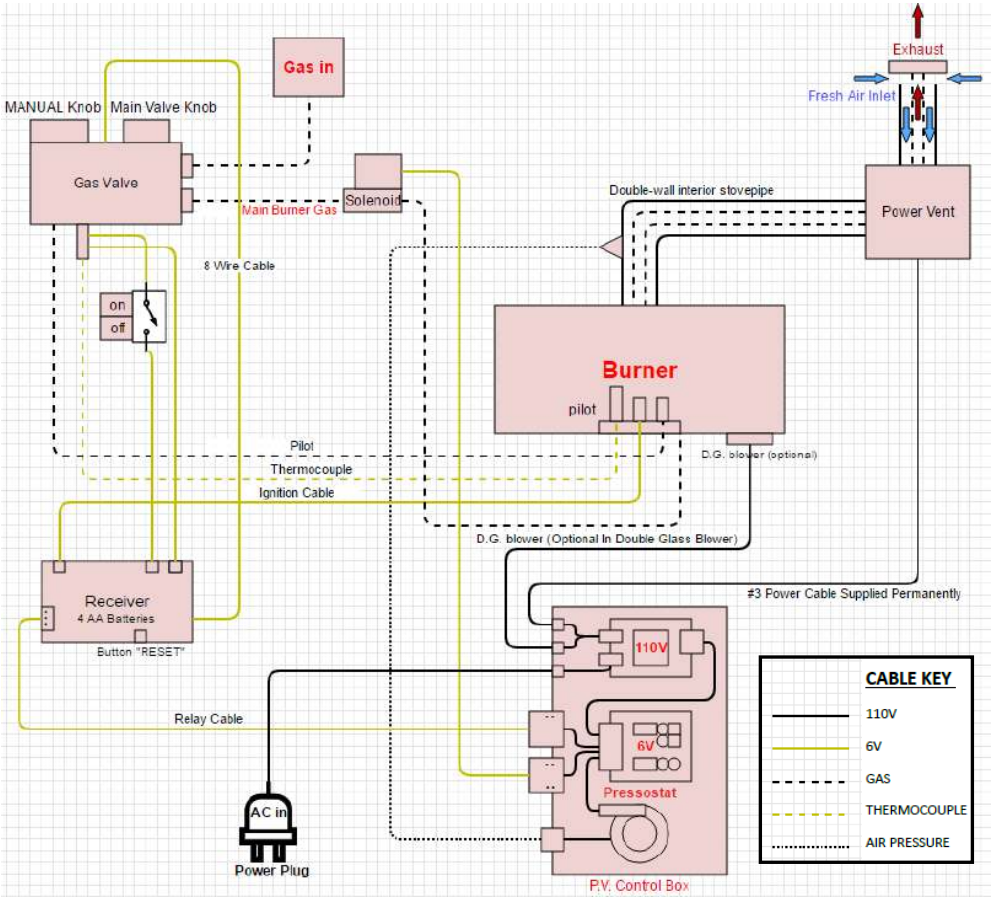


Figure 26: Ortal Power Vent System Diagram

Appendix E: Ortal Power Vent Technical Data

Table 8: Ortal Power Vent Technical Data

Data	Value
Voltage	230V/110V
Frequency	50/60Hz
Power Consumption	35W
Maximum Airflow	150 m3/h
Maximum Noise	46.5 dB(A)
Insulation Class	F
Thermal Protection	Self-restoring T.P.
Housing Material	Aluminized steel
Impeller Material	Inox AISI430