X-VENTISO by earthcore®

Meridian Draft Controllers

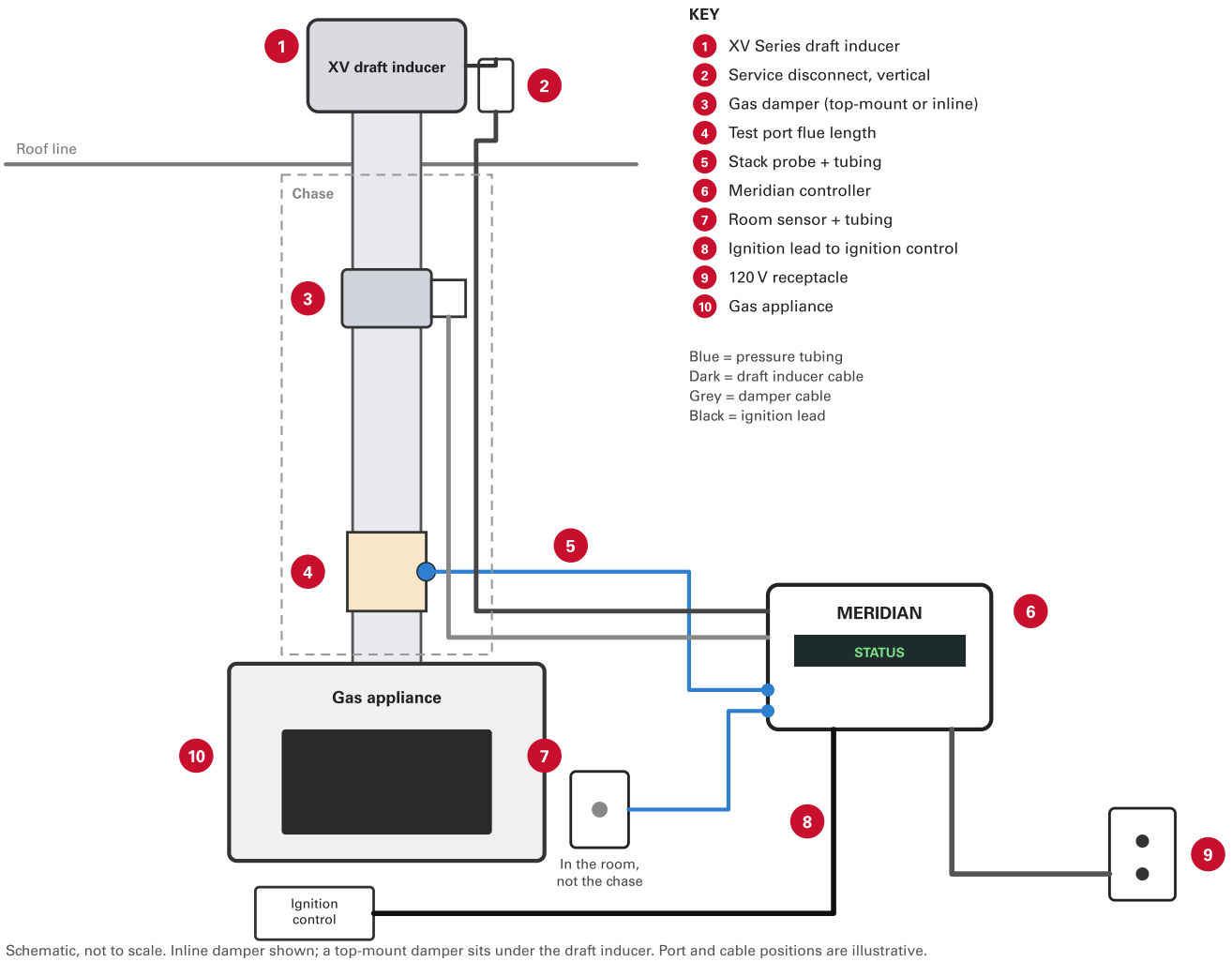
Installation, Operation and Maintenance

XV-MERD-CTRL Meridian: one flue, one XV Series draft inducer
XV-MERD-DUO Meridian DUO: two flues, each held on its own (Appendix D)
Self-modulating draft control for gas applications.

Three or four flues, or Meridian with VMASS: XV-INTG (Appendix C). Call 800.642.2920 before you install a multi-flue system.

System Overview

Every part of a Meridian system and how it connects, in one view. The configuration pages in Section 3 show the same system with the real components, for top-mount and inline dampers.



Schematic, not to scale. Inline damper shown; a top-mount damper sits under the draft inducer. Port and cable positions are illustrative.

Two references, one draft. The stack probe (5) reads the flue. The room sensor (7) reads the room the appliance serves, never the chase. Meridian holds draft as the difference between the two, so it answers whatever the house is doing.

1 Read First

Read this manual fully before installing, and leave it with the homeowner or building owner. Installation and service are for qualified personnel familiar with the codes that apply to the job.

DANGER: Disconnect, lock out and tag all power before installing or servicing. Failure to do so can cause fire, shock or serious injury.

DANGER: Meridian is for gas appliances only. Never use it on a solid fuel (wood, pellet, coal) appliance or on any cooking appliance. Cooking exhaust, gas or solid fuel, carries grease that clogs the stack probe. Solid fuel and cooking: use the XV-WBC.

WARNING: The gas appliance must never fire into a flue that has not been proven open. Never bypass, jumper or defeat the draft proving or the gas interlock. Never wire a switch, remote or relay to the ignition module as well as to Meridian.

CAUTION: Do not install, use or service in an explosive or hazardous environment. Follow all national, state and local codes and the appliance and flue manufacturers' instructions. Where they differ from this manual, the code governs.

THE THREE MOST COMMON INSTALL MISTAKES. CHECK THESE BEFORE YOU CLOSE THE CHASE.

1. **Pressure tubing pinched, kinked or swapped.** Meridian measures draft through two tubes: one from the stack probe, one from the room sensor. A tube crushed behind framing, kinked at a bend, sagging into a low loop, or on the wrong port is the most common cause of a Meridian alarm. Route both tubes where they stay open and can be reached later, in rigid tubing where practical (Section 4). A partly pinched tube may not alarm. It can make the draft inducer run loud, because the restriction creates an artificial pressure difference that Meridian responds to.

2. **Service disconnect shorted out.** The disconnect box at the draft inducer is NEMA 3: rain-resistant, **not waterproof**. Mount it **vertical only, with the draft inducer cable entering at the top** and the controller cable leaving at the bottom. Any other position lets water in and shorts the switch.



3. **Voltage on Blue + Orange.** The ignition demand wires already carry 3.3 VDC from Meridian. Close them with a dry contact only. Line voltage, 24 VAC or a remote's battery power on these wires damages the controller.

> **The controller is sealed at the factory.** There is nothing inside to adjust and no speed to set: Meridian sets draft on its own. Opening the controller voids the warranty. If an alarm will not clear, call 800.642.2920.

What this manual covers

1. Read First
2. What You Need
3. Install the System
4. Pressure Sensing: Stack Probe and Room Sensor
5. Make the Connections
6. Start-Up and Commissioning
7. How It Works
E. Planning Before the Walls Close
Owner Quick Reference
8. Automation and Building Systems
9. Annual Maintenance
10. Troubleshooting and Alarm Codes
11. Specifications
12. Startup Checklist and Commissioning Record
A. Ignition Module Connections
B. On/Off Control Options
C. More Than One Flue, and VMASS (XV-INTG)
D. Meridian DUO (Two Flues)

The system in one paragraph

Meridian runs one XV Series draft inducer and holds draft automatically. It measures pressure at two points, in the flue through the stack probe and in the room through the room sensor, and continuously adjusts the draft inducer to hold a set draft between them. When the room is pulled negative, Meridian pulls harder; when conditions ease, it backs off and runs quieter. On every call it proves the damper open and proves draft before it releases the gas appliance to light. All connections are factory-wired plug-in Molex. Only the controller plugs into a 120 V receptacle; the draft inducer and damper are powered by the controller.

2 What You Need

	Meridian (XV-MERD-CTRL)
Use on	Vented gas appliances: fireplaces, inserts, heaters and other gas-fired heating appliances with an electronic ignition control
Not for	Solid fuel, cooking appliances (gas or solid fuel), standing pilot / millivolt valves, vent-free appliances
How draft is held	Continuous modulation on the flue-to-room pressure difference. No speed to set.
How draft is proven	Stack pressure probe in the flue, referenced to the room sensor
Damper	Required by X-VENTISO on every Meridian system, sold separately (see Section 3). Gas top-mount (XV-GFD, XV-TMD) or gas inline (XV-INLD), proven open before the appliance lights. Never a solid fuel damper (XV-SFD).
Appliance connection	Ignition lead (black 4-pin) to the appliance ignition control: proven draft relay plus ignition demand (gas interlock)
Alarm	Visual, on the controller's status display. Also readable through BACnet or Modbus (Section 8).
Horizontal (sidewall) termination	Permitted, with the sidewall adapter
Draft inducer	XV150, XV250 or XV350, sized to the appliance (call for sizing help)
Designed for	NFPA 54 installations

In the box

- Meridian controller (sealed), with 8 ft power cord
- 4 ft ignition lead: black 4-pin Molex, Black, Red, Blue and Orange wires; two SIT Proflame 2 terminal blocks factory-installed on it
- Stack pressure probe
- Room sensor
- Pressure tubing: two 20 ft lengths, one for the stack probe and one for the room sensor (Meridian DUO: four)
- This manual

Sold separately

- XV Series draft inducer and XV Series fan adapter sized to the flue
- Gas damper: top-mount (XV-GFD, XV-TMD) or inline (XV-INLD)
- Test port flue length and test port plug adapter
- Vibration dampener (accessory)
- Ignition kits: XV-IGN-ADPT-RS (Robertshaw 780-715 U); XV-IGN-PFAK (switch or automation on Proflame 2)
- Extension cables: 20, 50 or 100 ft, or custom lengths
- 4-pin extension cable, only if the ignition control or on/off contact is beyond reach of the 4 ft ignition lead
- XV-BACnet INTF gateway or Modbus, chosen with the order and set up at the factory (Section 8)
- XV-INTG, for more than one controller on one call (Appendix C)

Before you start, confirm the site

- **Power:** a 120 V, 15 A grounded receptacle within 8 ft of the controller (cord length). The same duplex usually also feeds the appliance's ignition control.
- **Controller location:** indoors or under cover, dry, and accessible after the finish is complete. NEMA 1: it needs protection from moisture, not conditioned space. Never exposed outdoors. Away from heat, heavy vibration and high-power wiring. Near the appliance's ignition control, within reach of the 4 ft ignition lead.
- **Room sensor location:** in the same room as the appliance, not in the chase (Section 4). Plan the tubing route from there to the controller.
- **Cable route:** we recommend conduit from the roof to the chase as a pull path for install and future replacement. Outside, run conduit downward from the disconnect box so water drains away. One continuous cable is best. Any extension connection must stay accessible, never inside conduit or a closed wall.
- **Vent:** a test port flue length can be installed as the first flue section above the appliance. Never drill the vent (Section 3).

3 Install the System

Pick your damper configuration first. The two configuration pages show every part and every connection; the steps below follow them. Damper installation details are in the damper's own manual, XV-IM-DMP.

Configuration	Damper	Page
Meridian with top-mount damper	Gas top-mount damper at the termination, under the draft inducer	Page 6
Meridian with inline damper	Gas inline damper in the flue run, below the roof line, with an XV Series fan adapter at the termination	Page 7

At the appliance

1. Install the appliance and its ignition control per the appliance manufacturer's instructions.
2. Install the X-VENTISO test port flue length as the first section above the appliance flue adapter. It carries the factory-built port for the stack probe.
3. Mount the Meridian controller near the appliance's ignition control, in a spot that stays accessible after installation, with the status display where a technician can read it. Fasten it to a wall or framing through the mounting fins at each end, with fasteners suited to the surface. Overall size: Section 11.

In the flue

4. **Damper (required).** Codes do not require a flue damper, but energy codes require most new homes to pass a blower door test, and an open flue is a large, permanent hole in the air barrier. X-VENTISO requires a gas damper on every Meridian system for that reason. Top-mount: at the termination, under the draft inducer. Inline: between two flue sections, inside the chase. Keep the actuator accessible. Install per XV-IM-DMP.
5. **Stack probe.** Insert the probe into the test port plug adapter on the test port flue length (Section 4).

Do not drill the vent. Drilling or modifying factory-built vent can void its listing. The test port flue length provides a factory-built probe port. On a retrofit where one cannot be installed, call 800.642.2920 first.

At the termination

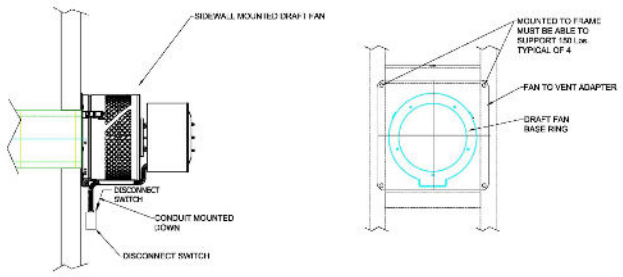
6. Install the XV Series fan adapter sized to the flue, or use the top-mount damper as the mounting base. Install the vibration dampener, if used, then mount the draft inducer with the supplied hardware.
7. Mount the service disconnect box vertically. Run the draft inducer cable and the damper cable to the controller, with exterior conduit running downward.

MOUNT THE DISCONNECT VERTICAL. NO EXCEPTIONS.

The service disconnect box is NEMA 3: rain-resistant, not waterproof. Mount it vertical with the cable from the draft inducer entering at the top and the cable to the controller leaving at the bottom. Flat, sideways or upside down, water gets in and shorts it out.

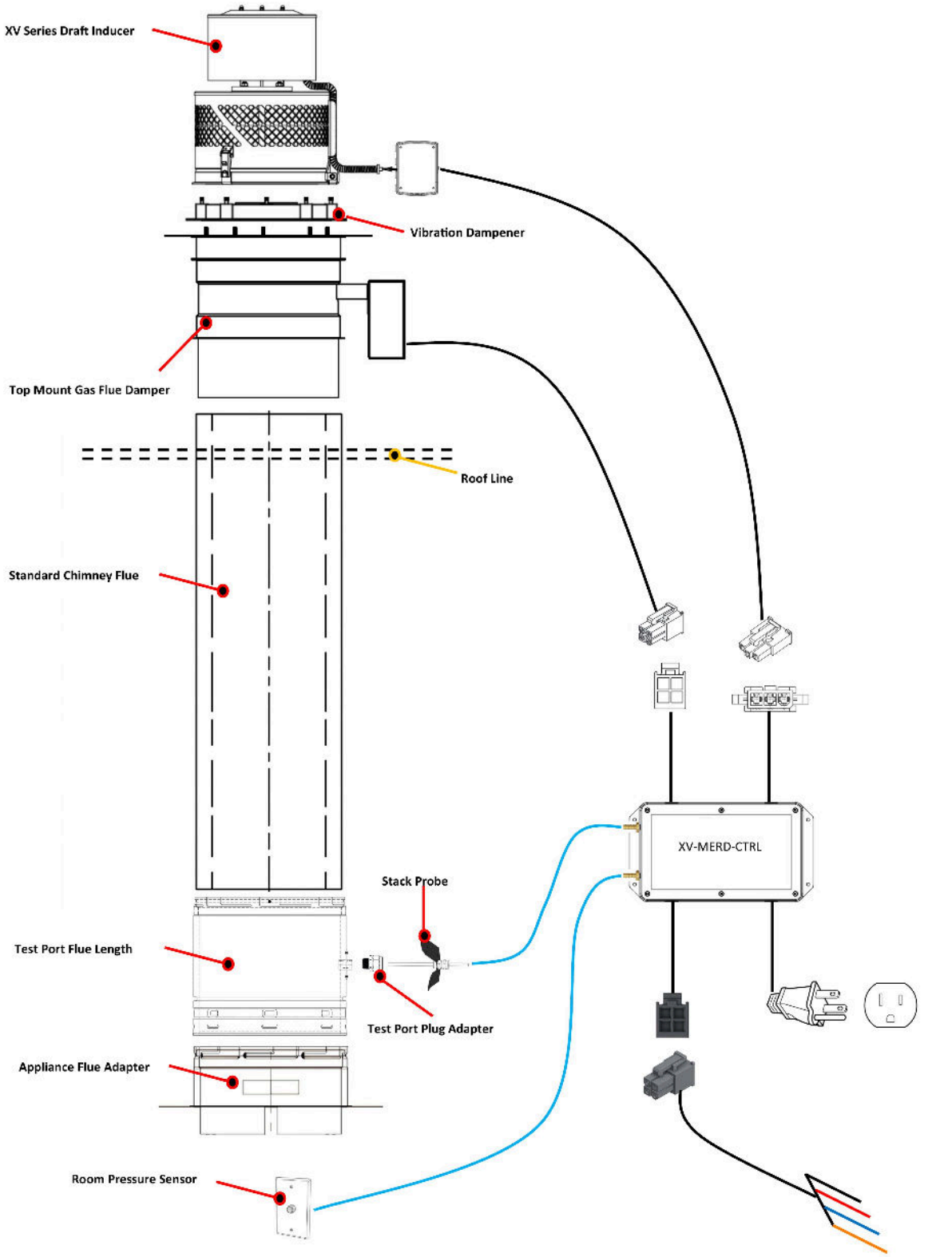
Sidewall (horizontal) termination

Anchor the adapter to wall framing at four points, able to support at least 150 lb. Flash every wall penetration and seal the adapter to the structure with non-hardening waterproof sealant.



Adapter anchored to framing at four points, 150 lb minimum. Disconnect below the draft inducer, conduit run downward.

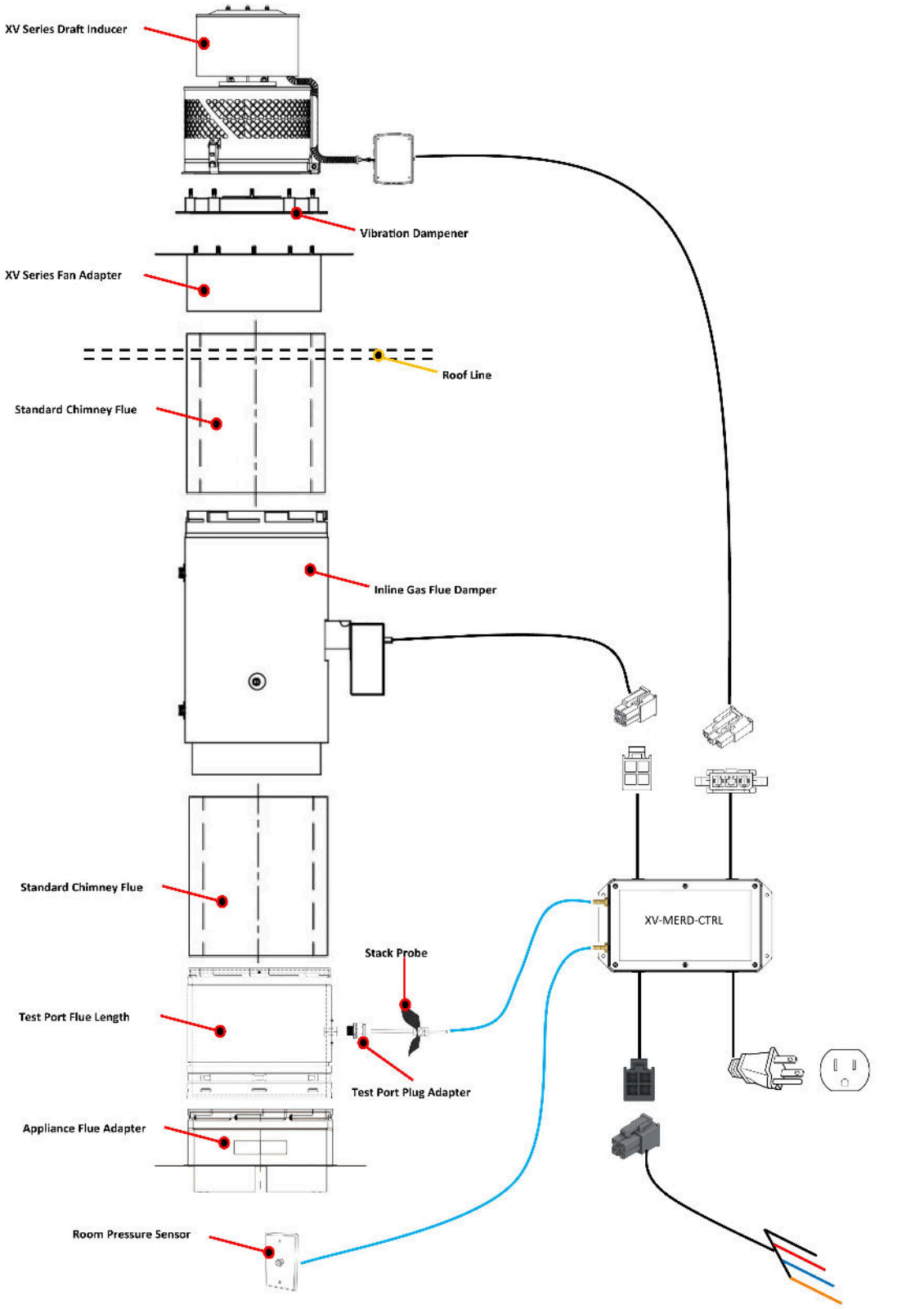
XV-MERD-CTRL with Top-Mount Damper



Molex Configuration	Connection
White 4 Pin	Damper
White 3 Pin	Draft Inducer
Black 4 pin	Ignition Connection

Ignition Wire	Connection
Black	Interlock Demand Circuit
Red	Interlock Demand Circuit
Blue	Low Voltage Appliance Enable Relay
Orange	Low Voltage Appliance Enable Relay

XV-MERD-CTRL with Inline Damper



Molex Configuration	Connection
White 4 Pin	Damper
White 3 Pin	Draft Inducer
Black 4 pin	Ignition Connection

Ignition Wire	Connection
Black	Interlock Demand Circuit
Red	Interlock Demand Circuit
Blue	Low Voltage Appliance Enable Relay
Orange	Low Voltage Appliance Enable Relay

4 Pressure Sensing: Stack Probe and Room Sensor

Meridian reads draft as the difference between two pressures: the flue, through the stack probe, and the room, through the room sensor. Everything it does depends on those two readings, so the probe, the sensor and the tubing between them deserve the most care on the job.

Stack probe

- Insert the probe into the test port plug adapter on the test port flue length until it seats. Keep the probe opening clear.
- Connect its tubing to the **upper** pressure port on the side of the controller.
- Keep the tubing off the flue surface and out of the flue's clearance zone.

Room sensor

- Mount it **in the room the appliance serves**, on an interior wall, where it reads the room the way an occupant feels it.
- **Never in the chase.** A chase is not the room: its pressure follows the attic and the outdoors, not the living space.
- Keep it away from the appliance opening, exterior doors, windows, supply registers and return grilles. A gust or a register blowing on it gives a false reading.
- Connect its tubing to the **lower** pressure port on the side of the controller.

Tubing: both runs

WHERE PRACTICAL, RIGID TUBING IS ALWAYS RECOMMENDED.

Meridian adjusts the draft inducer from what the two tubes tell it. A tube that is pinched, kinked or partly clogged creates an artificial pressure difference. Meridian responds to it by speeding the draft inducer up, and the system can run loud with nothing else wrong. Rigid tubing prevents that: it cannot be pinched or kinked when the wall is closed, it does not sag into low loops where condensate collects, and it holds its route behind the finish for the life of the system. Flexible tubing is acceptable on runs of 20 ft or less where it can be routed and protected as below.

Rule	Why
No kinks, no pinches. Gradual bends only.	A restricted tube creates an artificial pressure reading that can make the draft inducer run loud; a fully closed tube can cause an alarm.
No low loops. Run the tube level or falling toward one end.	Condensate collects in a low loop and blocks the reading.
Never route a tube where it can be crushed: behind framing, under drywall screws, through a tight bore.	Most tubing failures happen when the chase is closed.
Each run is supplied as one 20 ft length. Longer than that: rigid or metal tubing is required.	Long flexible runs sag and kink, and every splice is a leak point.
Check each tube is on its own port. Never swap them.	Swapped tubes invert the reading: Meridian runs high and alarms.
Leave the tubing reachable at the controller and the probe.	Service checks start here (Section 10).

CAUTION: Pressure tubing is the most common cause of a Meridian alarm, and of a draft inducer that runs loud. Before you call, check both tubes end to end: a pinch behind a panel, a kink at a bend, water in a low loop, debris in the probe, or a tube pulled off a port.

5 Make the Connections

Everything on Meridian plugs in. There is no field wiring at the controller and none at the roof. The only field wiring is at the appliance's ignition control (Appendix A), and on the on/off contact if a switch, remote or automation contact is used (Appendix B).

Molex	From	To
White 3-pin	Controller	Draft inducer (through the service disconnect)
White 4-pin	Controller	Gas damper. Required: with nothing on this port, the damper never proves open and the appliance never lights.
Black 4-pin	Controller (ignition lead)	Appliance ignition control. Required: without it the appliance never gets a call and never lights.

Ignition wire	Function	SIT Proflame 2
Black and Red	Proven draft relay. Closes only after Meridian proves draft; releases the appliance to light.	X4
Blue and Orange	Ignition demand. The call that starts the system: the appliance's call, or a switch, remote or automation contact.	X13

> **Ignition module wiring:** see Appendix A for SIT Proflame 2, Dexen 593-592, Robertshaw 780-715 U and Resideo / Honeywell S8610U. The ignition lead is the same 4-wire lead used across X-VENTISO gas controllers, so every connection in Appendix A uses the same four wires. Module not listed? Call 800.642.2920 before wiring.

NEVER PUT VOLTAGE ON BLUE + ORANGE. Blue and Orange already carry 3.3 VDC from Meridian (sinking input). Close them with a dry contact only: the appliance's dry relay output, a switch, a remote receiver contact or an automation relay. Never connect line voltage (120 V), 24 VAC or a remote's battery power to them.

Match the damper to the controller

The damper's 4-pin Molex is the same on gas and solid fuel dampers, so either one physically plugs in. Meridian takes **gas dampers only** (XV-GFD, XV-TMD, XV-INLD). A solid fuel damper (XV-SFD) on Meridian does not work, and Meridian will not enable the gas appliance.

Finish

1. Confirm all gas connections are complete between service, gas valve and burner, and leak-checked, per the appliance manual.
2. Plug the appliance's ignition control and the Meridian controller into the receptacle. Do not call for heat until you complete the Startup Checklist (Section 12).

Low-voltage wiring runs

The on/off wiring (Blue and Orange) runs up to 300 ft on 18 AWG. Keep it away from line-voltage conductors: run alongside high-voltage wiring, it can pick up noise or induced voltage and make the input unreliable, even with good wiring and a good relay. Cross line-voltage wiring at right angles where it must cross.

6 Start-Up and Commissioning

There is no speed to set on Meridian. It holds draft on its own from the first call. Commissioning is proving that every safety works and that draft holds under the worst conditions the house can create.

First call

1. Complete Startup Checklist parts A and B (Section 12).
2. With power on and no call, the display reads **Off**.
3. Call for heat (Proflame 2: AUX on at the remote, then the appliance's on command; other modules: the switch, remote or automation contact).
4. The display reads **Starting**: the draft inducer starts, the damper opens and proves open, and Meridian proves draft. Only then does it release the appliance to light.
5. The display reads **Running**. The appliance lights and runs normally.
6. Let the appliance reach normal operating temperature before the checks below. Commission hot, not at cold start.

Prove the safeties

7. **Damper proving.** End the call and let the post-purge finish. Unplug the damper's 4-pin at the controller, then call for heat. The appliance must not light, and the display reads **ALARM 2** (Section 10). Plug the damper back in; the alarm clears and the system starts normally.
8. **Loss of draft.** With the appliance running, turn off the service disconnect at the draft inducer. Meridian must show an alarm and shut the appliance down through the interlock. Turn the disconnect back on; the system recovers once the fault clears.

Worst case

9. With the appliance running, turn on the range hood, the dryer and every bath fan, and close interior doors. You will hear the draft inducer speed up as Meridian answers the room going negative. Check for spillage at the appliance's opening or draft hood per the appliance manual. There should be none, and no alarm.
10. If the draft inducer runs noticeably harder with the exhaust running, or Meridian alarms or spills only then, the house is short of makeup air. That is a makeup air question, not a controller setting (Section 7, When the house runs negative). Call 800.642.2920 about VMASS.

Finish

11. Cycle the system off and on at least three times. Each time, confirm Starting, Running, then **Purging** (15 seconds) and Off, with no alarm.
12. Fill in the Commissioning Record (Section 12). Show the owner how to turn the system on and off, what the display normally reads, and that an alarm means calling the installer.

WARNING: Never leave the system in service with a safety test that failed. If the appliance lights with the damper unplugged, or keeps running with the draft inducer off, turn off the appliance, check the ignition wiring against Appendix A, and call 800.642.2920.

7 How It Works

Sequence of operation

Step	What happens
1. Call for heat	The appliance (or a switch, remote or automation contact) closes Blue + Orange. Meridian never fires the appliance: the appliance's own control initiates the call.
2. Draft inducer starts	The draft inducer starts as soon as the call comes in.
3. Damper proves open	Meridian confirms the damper is open before going further. If it does not prove open, the appliance does not light.
4. Draft proven	Meridian drives the flue-to-room pressure difference to its setpoint and proves positive draft.
5. Appliance released	Only with draft proven does the proven draft relay (Black + Red) close and release the appliance to light.
6. Continuous modulation	Meridian holds the setpoint as conditions change: wind, stack temperature, and exhaust equipment pulling the room negative. It answers the pressure difference only, so it does not need to know why the room changed.
7. Call ends, flue purged	The interlock releases the appliance. The draft inducer runs a 15-second post-purge to clear the flue, shown on the display as Purging, then stops.
If draft is lost	If draft cannot be held at any point, Meridian shows an alarm, shuts the appliance down through the interlock, and runs the post-purge to clear the flue.
Power loss	The proven draft relay opens, so the appliance shuts off, including appliances with battery-backup ignition. The gas damper springs closed and seals the flue. When power returns, nothing lights until a new call proves the damper open and proves draft.

Status display

Meridian spells out its status on the display on its face.

Status	What it means
Off	Powered, no call. Blue + Orange are open.
Starting	Called. Meridian is proving the damper open and proving draft before it releases the appliance.
Running	Draft proven, appliance released, Meridian modulating. What the owner should see whenever the appliance is on.
Purging	The call has ended. The draft inducer runs 15 seconds to clear the flue, then the display returns to Off.
ALARM 1 to ALARM 4	A fault. See Section 10.

7 How It Works (continued)

Why the room sensor matters

A control that holds a fixed flue pressure cannot see a range hood turn on. Meridian measures draft against the room, so its target moves with the house: when exhaust equipment pulls the room negative, Meridian pulls harder to keep flue gas moving up the flue, then eases back. The same room-referenced sensing runs in VMASS, which answers the same pressure with makeup air.

When the house runs negative: Meridian and VMASS

Meridian's draft inducer speed is a direct reading of the house. In a room near neutral pressure, Meridian holds draft at a low, quiet speed. When the house is negative, every bit of draft has to be pulled against the room before flue gas moves up the flue, so Meridian runs the draft inducer faster for as long as the room stays negative. Tight construction does this on its own; range hoods, dryers, bath fans and central vacuums add to it.

Meridian is doing its job when this happens: draft is held and the appliance vents safely. What changes is how hard it has to work. A draft inducer that runs noticeably faster whenever the exhaust is on, or all the time in a very tight house, is telling you the house is short of air, not that the controller is set wrong.

> **Meridian manages the exhale. VMASS manages the inhale.** VMASS brings tempered outdoor air into the zone, controlled by the same kind of room pressure reading Meridian uses. As the room comes back toward neutral, Meridian has less to pull against and backs down on its own. For homes and buildings where exhaust is significant, design the zone with both. Meridian and VMASS can share one call through XV-INTG (Appendix C). Call 800.642.2920 for VMASS sizing.

8 Automation and Building Systems

On/off: one contact

Blue + Orange is the call that starts the system. On a Proflame 2 appliance the Proflame remote is the on/off control through X13 (AUX). On Dexen, Robertshaw and Resideo / Honeywell modules, and on Proflame 2 with the XV-IGN-PFAK kit, Blue + Orange take a wall switch, a hearth remote receiver or a home automation relay (Appendix B). Field installs include Lutron and Crestron; any platform that can close a dry contact works.

> **Automation turns the system on and off. It never fires the appliance.** Draft proving, the damper and the gas interlock stay with Meridian, whatever is on Blue + Orange.

Building automation: BACnet or Modbus

Choose BACnet or Modbus when you order. It is set up at the factory before the controller ships, so no one opens the controller and there is nothing to configure in the field. For BACnet, Meridian ships with the XV-BACnet INTF gateway integrated, one per controller, and the BAS connects over BACnet/IP with a standard Ethernet cable.

Point	Access	Description
Run status	Read	On / off
Draft pressure	Read	Flue-to-room pressure difference, in. w.c.
Alarm status	Read	Active / clear, including loss of draft
Draft inducer speed	Read	Speed, percent
Damper position	Read	Open / closed
System enable	Write	Enable or disable the Meridian system. Does not fire the appliance.

Points list, object list and register map: call 800.642.2920. Operating settings cannot be changed through the BAS.

More than one device on one call: XV-INTG

XV-INTG splits one call to two controllers: two Meridians on one appliance with two flues, Meridian DUO plus Meridian for three flues, or Meridian with VMASS so one call starts the draft and the makeup air together. See Appendix C.

9 Annual Maintenance

Annual inspection is required to keep the warranty. Inspect the system once a year, at the same visit as the appliance service, and after any work in the chase or the room. Power off and locked out for steps 1 to 6.

Item	Check
Stack probe	Remove from the test port plug adapter. Opening clear of soot, debris and insects. Reseat fully.
Room sensor	Clear and unobstructed. Nothing new nearby that blows on it: a relocated register, a fan, new furniture against it.
Pressure tubing	Both runs end to end: no kinks, cracks, pinches or water in low loops; each on its own port.
Damper	Per XV-IM-DMP: opens freely, closes fully, seal intact, lead accessible.
Draft inducer and disconnect	Impeller turns freely, no debris, mounting secure. Service disconnect still vertical, cable entering at the top, no water or corrosion behind the front cover. Do not open the sealed back compartment. Exterior conduit still runs downward.
Connections	Every Molex seated; extension connections accessible, not in conduit or a closed wall.
Operation	Power on. Run start-up steps 3 to 5 and the damper proving test (Section 6). Record the visit below.

Service record

Date	Technician	Findings / work done

Never open the controller. It is sealed at the factory and has no field-serviceable parts. Meridian carries a 2-year warranty, valid with proper installation and a documented annual inspection. Skipping the inspection, or opening the controller, voids the warranty. Keep this record with the manual.

10 Troubleshooting and Alarm Codes

Every check below can be done without opening the controller. If these do not solve it, unplug the controller for 10 seconds and plug it back in. If the alarm returns, call 800.642.2920 with the alarm code. Do not open the controller.

Symptom	Check
Display dark	Receptacle has power; controller plugged in.
Display reads Off, appliance will not start	Ignition lead plugged in. Blue + Orange closed by the call: Proflame 2, AUX on at the remote and the remote synced to the module; other modules, the switch on, remote or automation contact closed.
Draft inducer not turning (alarm on the display)	Service disconnect mounted vertical, draft inducer cable at the top, no water inside (a flat or sideways box takes on water and shorts out). Disconnect switch is on: open the front cover of the disconnect box; do not open the sealed back compartment. 3-pin and any extension connections seated. Cable undamaged; impeller turns freely.
Display reads Running, appliance will not light	Black + Red wired per Appendix A; original switch removed from the module. Then the appliance's own troubleshooting.
Draft inducer runs loud or high all the time	Almost always the tubing: pinched or kinked inside a wall, clogged, holding water in a low loop, or swapped. Check both runs end to end before anything else. Then: room sensor in the chase or in a draft. Tubing clear and it runs harder only when the house is pulled negative: the house is short of makeup air (Section 7, VMASS).
Spillage at the opening, no alarm	Exhaust equipment running: the house is short of makeup air (Section 6, step 10). Room sensor location.

Alarm codes

On an alarm, Meridian shuts the appliance down through the interlock, runs the post-purge, and shows the alarm on its display as ALARM and the code number, for example **ALARM 2**. Alarms are also readable through BACnet or Modbus. Meridian uses four codes.

Display	Meaning	Most likely cause	Check
ALARM 1	Draft not proven: the pressure switch circuit is open.	Most often: pressure tubing clogged, pinched, kinked, or off a port. Also: draft inducer off or not turning, flue blocked.	Tubing end to end, stack probe clear (Section 4). Service disconnect on, dry and mounted vertical; draft inducer turning. Flue and termination clear.
ALARM 2	Damper not proven open: the damper limit circuit is open.	Damper lead unplugged or damaged. Damper obstructed or stuck. Solid fuel damper (XV-SFD) connected.	4-pin damper lead seated at both ends. Damper opens freely (XV-IM-DMP). Gas damper only.
ALARM 3	Damper or draft fault (ALARM 1 and ALARM 2 together). A closed damper keeps the flue from drafting, so the pressure reading is wrong too.	Damper not opening, or a tubing problem.	The damper first, then the tubing, as for ALARM 1 and ALARM 2.
ALARM 4	Flue pressure reading above its high limit.	Tubes swapped or on the wrong port. Water in a tube. Wind gusting at the termination.	Each tube on its own port, no water in low loops. If it follows the wind, call.

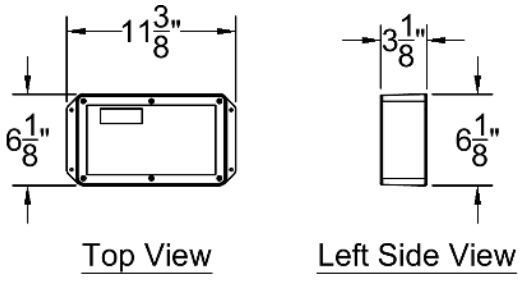
Clearing an alarm: the alarm clears on its own once the cause is fixed, or by cycling power. Cycling power does not fix anything: if the cause is still there, Meridian goes straight back into alarm. Fix the cause first.

Conditions outside the controller that can cause an alarm

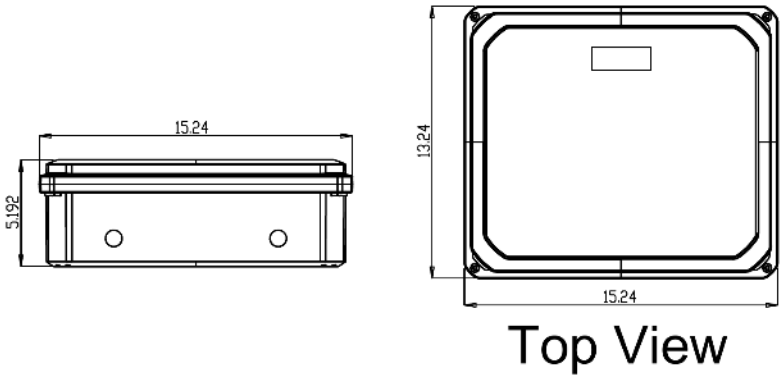
Severe room depressurization from exhaust equipment, wind and weather at the termination, and natural draft at cold start. An occasional alarm under these conditions is the system doing its job. Repeated alarms mean the tubing, the flue or the home's makeup air needs a look.

11 Specifications

Models	XV-MERD-CTRL (Meridian), one flue. XV-MERD-DUO (Meridian DUO), two flues (Appendix D).
Application	Vented gas appliances with an electronic ignition control. Not for solid fuel or cooking appliances.
Electrical rating	Meridian: 120 VAC, 50/60 Hz, 6.0 A. Meridian DUO: 120 VAC, 50/60 Hz, 12.0 A; with two XV350s, a 20 A circuit.
Power connection	8 ft cord, 3-prong grounded plug (NEMA 5-15P), to a standard 120 V, 15 A receptacle (both models).
Low-voltage circuits	Class 2, from the controller's internal power supply
On/off input (Blue / Orange)	3.3 VDC from the controller (sinking input). Dry contact only; never apply outside voltage. Up to 300 ft on 18 AWG.
Proven draft relay (Black / Red)	Dry relay contact, rated 3 A at 250 VAC and 3 A at 30 VDC
Connections	Factory-wired, plug-in Molex: white 3-pin draft inducer, white 4-pin damper, black 4-pin ignition lead (4 ft)
Draft control	Continuous modulation, holding a setpoint on the flue-to-room pressure difference
Draft proving	Stack pressure probe in the flue, referenced to the room sensor
Damper	Gas top-mount (XV-GFD, XV-TMD) or inline (XV-INLD), proven open before ignition. Required, sold separately.
Draft inducers	XV150, XV250, XV350
Alarm	Visual, coded on the status display; alarm status readable over BACnet or Modbus
Post-purge	15 seconds
Building automation	BACnet/IP (XV-BACnet INTF, factory-integrated, Ethernet) or Modbus, chosen with the order
Enclosure	NEMA 1 (indoor or under cover, protected from moisture). Sealed at the factory; no field-serviceable parts.
Dimensions	W x H x D, overall. Meridian: 11-3/8 x 6-1/8 x 3-1/8 in. (289 x 156 x 79 mm), including mounting fins; same enclosure as Controlled Power GBC and WBC. Meridian DUO: 15-1/4 x 13-1/4 x 5-3/16 in. (387 x 336 x 132 mm).
Operating environment	0 to 120°F (-18 to 49°C), dry. Same as the VMASS controller. Protect from moisture; no condensing humidity.
Listings	ETL Listed (c/us), Intertek 4007025. Conforms to UL 508 (Industrial Control) and UL/ULC 378 (Draft Equipment).
Designed for	NFPA 54 installations
Warranty	2 years, valid with proper installation and a documented annual inspection (Section 9). Skipping the inspection or opening the controller voids the warranty. Not covered: water or weather damage.



Meridian (XV-MERD-CTRL), in.



Meridian DUO (XV-MERD-DUO), in.

12 Startup Checklist and Commissioning Record

Do not skip steps. Skipping steps can create a hazardous condition or damage equipment.

A. Before power

1	Power off at the receptacle and the service disconnect.	YES / NO
2	Receptacle voltage verified (120 V).	YES / NO
3	Gas appliance (not solid fuel, not a cooking appliance), installed per its manual; gas connections complete and leak-checked.	YES / NO
4	All components installed and secure; controller indoors or under cover, accessible.	YES / NO
5	Stack probe seated in the test port plug adapter; room sensor in the room (not the chase).	YES / NO
6	Both tubes on their own ports; no kinks, pinches or low loops.	YES / NO
7	Gas damper installed per XV-IM-DMP, 4-pin connected.	YES / NO
8	All Molex connections seated; extension connections accessible, not in conduit or a closed wall.	YES / NO
9	Service disconnect mounted vertical, cable from the draft inducer entering at the top.	YES / NO
10	Ignition lead wired per Appendix A; original switch removed from the module.	YES / NO
11	Draft inducer and termination clear of debris, tools and people.	YES / NO

WARNING: Go on only when the system is complete. The next steps energize the controller and moving equipment.

B. Power up and commissioning

1	Disconnect on; controller and ignition control plugged in; display reads Off.	YES / NO
2	Proflame 2 only: remote synced, AUX on.	YES / NO
3	Call for heat: Starting, then Running; appliance lights only after Running.	YES / NO
4	Damper proving test: damper unplugged, appliance does not light, alarm shown (Section 6).	YES / NO
5	Loss of draft test: disconnect off while running, appliance shuts down, alarm shown.	YES / NO
6	Worst case: all exhaust running, doors closed, no spillage and no alarm.	YES / NO
7	Cycled three times: Starting, Running, Purging (15 s), Off, no alarm.	YES / NO
8	Owner shown on/off, the normal display, and what an alarm means.	YES / NO

Controller serial		**Draft inducer model**	
Damper model		**Appliance / ignition control**	
BAS (BACnet / Modbus / none)		**Installer / date**	

A Appendix A: Ignition Module Connections

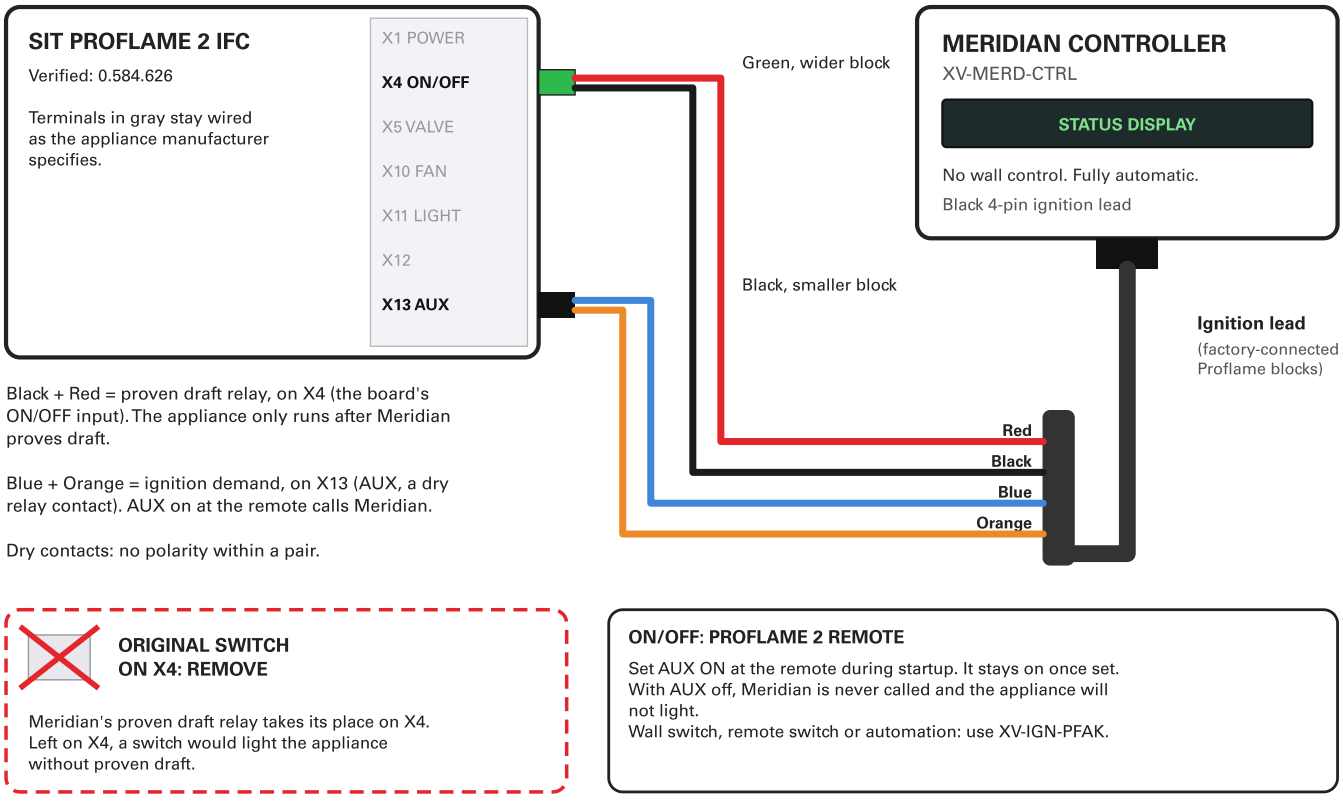
Meridian connects to the appliance's ignition control through the ignition lead. **Black + Red** are the proven draft relay: the appliance can only light after Meridian proves draft. **Blue + Orange** are the ignition demand: the call that starts the system. Black + Red is a dry relay contact, rated 3 A at 250 VAC or 30 VDC. Blue + Orange carries 3.3 VDC from Meridian: close it with a dry contact only. Neither pair has polarity.

Always: verify against the appliance manufacturer's wiring diagram; the appliance's instructions govern. Never leave a switch or remote wired directly to the module: it bypasses draft proving. Module not shown here? Call 800.642.2920 before wiring.

SIT Proflame 2

The ignition lead's two terminal blocks come factory-installed: plug them onto the module's native terminals. Black + Red land on X4, the board's low-voltage (3.3 V) ON/OFF input, in place of the original ON/OFF switch. Blue + Orange land on X13 (AUX). X13 is a dry relay contact: it closes when AUX is on and puts no voltage on Blue + Orange. Verified on SIT Proflame 2 IFC 0.584.626. The Proflame 2 remote is the on/off control: turn AUX ON at the remote during startup; it stays on once set. Leave the module's own connections as the appliance manual specifies. To run a Proflame 2 appliance from a wall switch, remote switch or home automation, use the XV-IGN-PFAK kit (next page).

Ignition wire	Function	Proflame 2 terminal
Black and Red	Proven draft relay	X4: green, wider terminal block
Blue and Orange	Ignition demand	X13: black, smaller terminal block

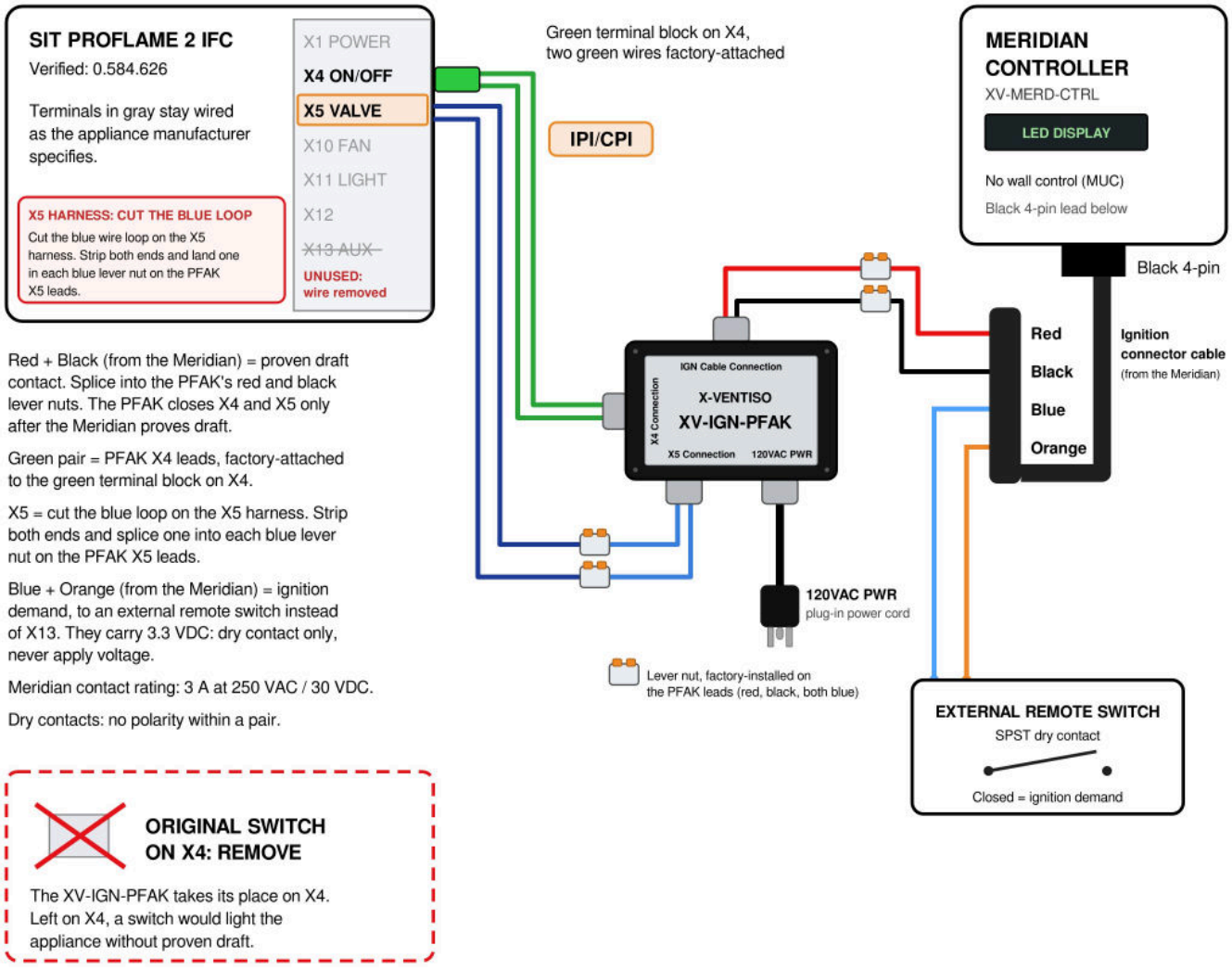


Meridian's proven draft relay replaces the original ON/OFF switch on X4. AUX on X13 calls Meridian.

SIT Proflame 2 with a switch, remote or automation: XV-IGN-PFAK

On its own, a Proflame 2 appliance runs only from its Proflame remote. To run it from a wall switch, remote receiver or automation contact instead, add the XV-IGN-PFAK kit. The PFAK takes over X4 and X5 and closes them only after Meridian proves draft. That frees Blue + Orange for any on/off option in Appendix B. X13 is not used.

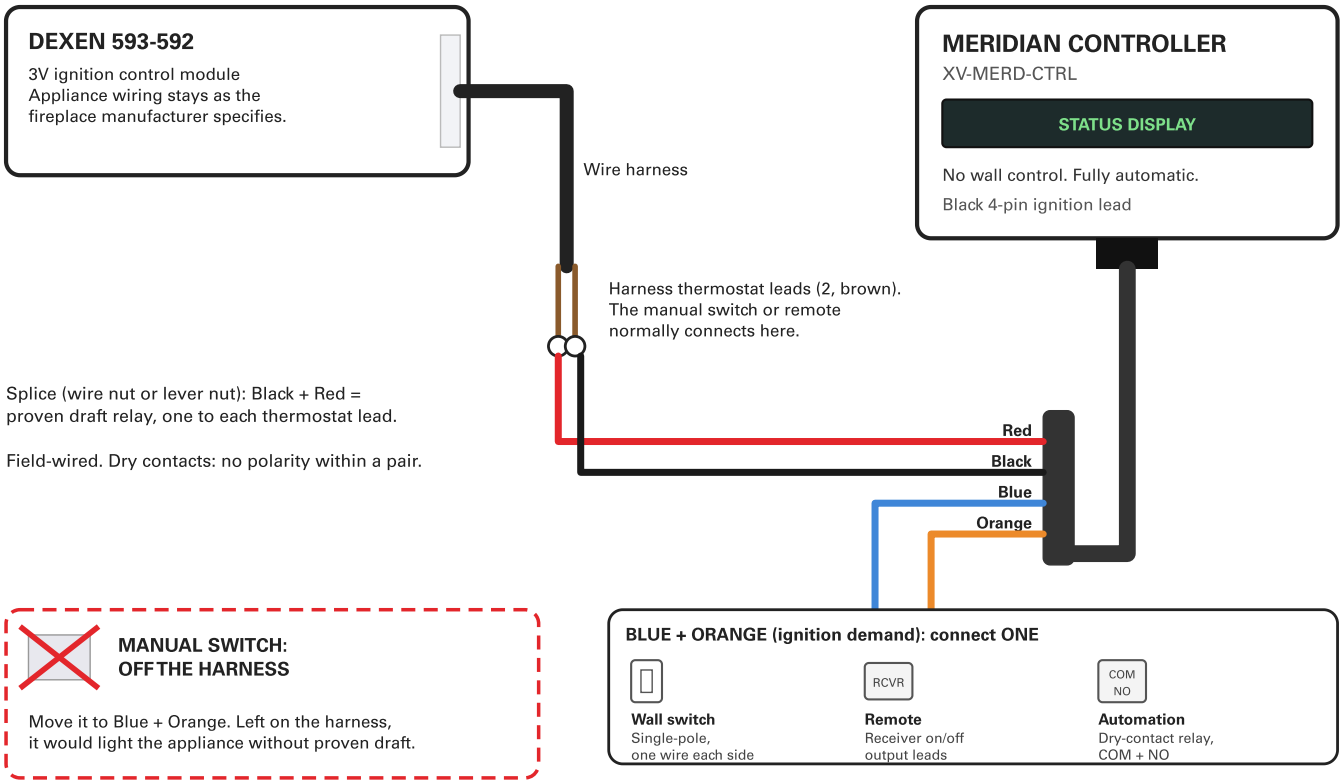
1. Remove the Proflame blocks from the ignition lead: green on Red and Black, black on Blue and Orange. Loosen each screw with a small flathead and pull the wire out. The ends are already stripped.
2. Remove the original ON/OFF switch from X4. Plug the PFAK's green X4 block onto X4.
3. X5: cut the blue wire loop on the X5 harness. Strip both ends and land one in each blue lever nut on the PFAK's X5 leads.
4. Land the ignition lead's Red and Black in the PFAK's red and black lever nuts.
5. Connect Blue + Orange to the switch, remote receiver or automation contact (Appendix B). Dry contact only.
6. Plug the PFAK's power cord into a 120 V receptacle.



XV-IGN-PFAK with Meridian: the PFAK closes X4 and X5 only after draft is proven.

Dexen 593-592

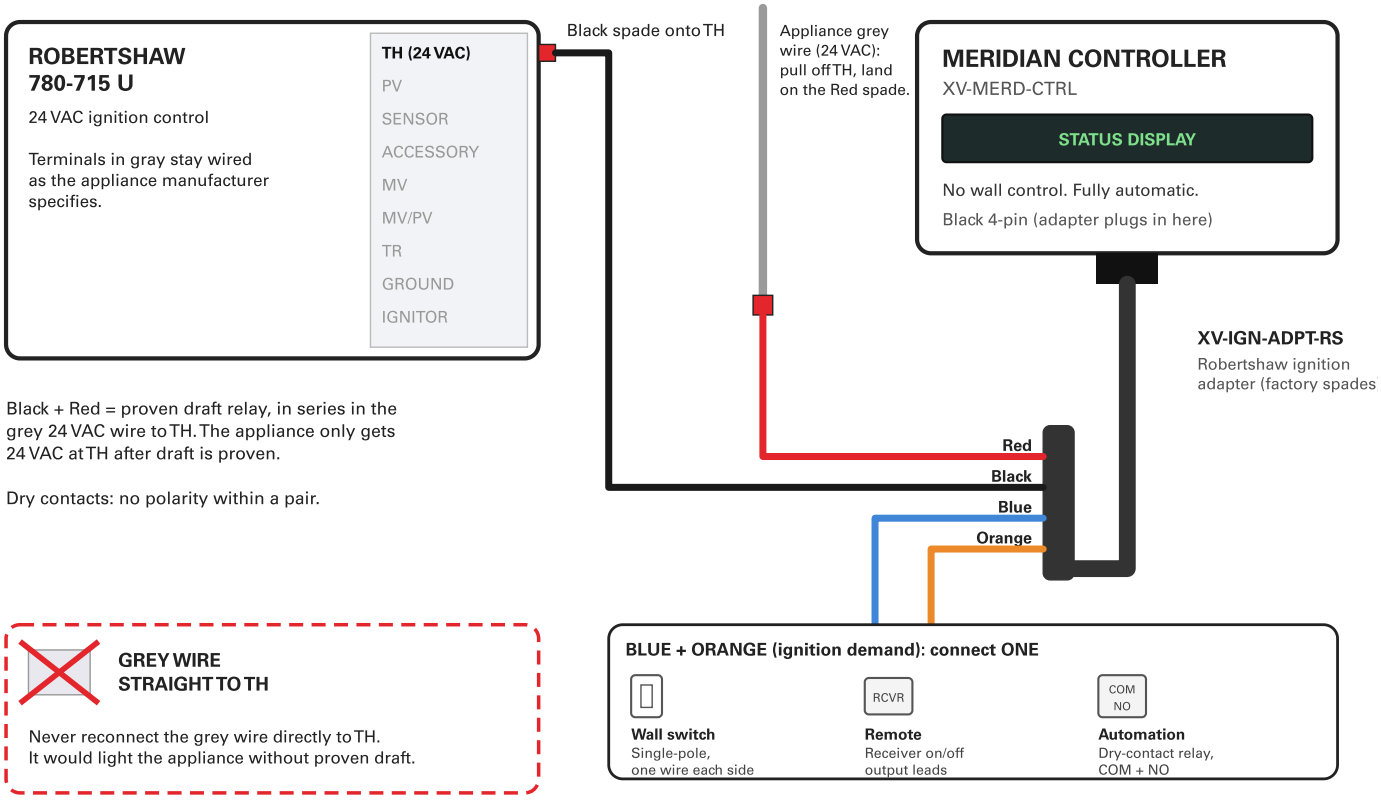
Meridian sits between the call source and the module. Splice Black and Red, one to each of the harness's two thermostat leads. Move the manual switch or remote from the harness to Blue + Orange.



Remove the manual switch from the harness. It moves to Blue + Orange.

Robertshaw 780-715 U (24 VAC): use adapter XV-IGN-ADPT-RS

Order XV-IGN-ADPT-RS. It plugs into Meridian's black 4-pin in place of the standard ignition lead, with factory spade terminals on Black and Red. No splicing at the module. (1) Pull the appliance's grey wire spade off the module's TH (24 VAC) terminal. (2) Push the adapter's Black spade onto TH. (3) Connect the grey wire's spade to the adapter's Red spade. (4) Plug the adapter into Meridian's black 4-pin. (5) The adapter ships with a lever nut on Blue and Orange for other controllers. On Meridian, remove it and connect Blue and Orange to the on/off control (Appendix B).

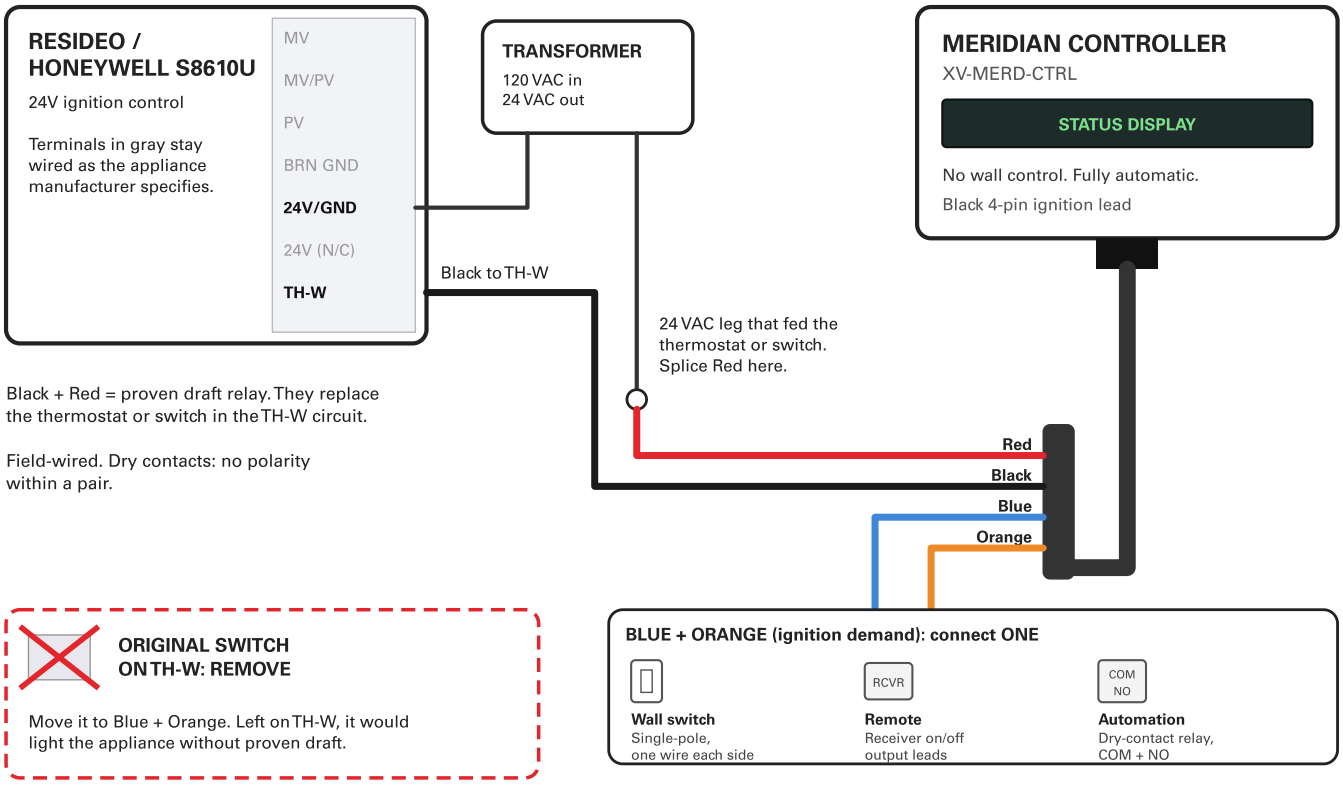


The proven draft relay sits in series in the grey 24 VAC wire to TH.

Resideo / Honeywell S8610U (24V)

The same control is sold under both names; the wiring is identical. On 24V modules, the call for heat is the thermostat circuit: the transformer's 24 VAC leg runs through the thermostat or switch to TH-W. Meridian's proven draft relay takes the thermostat's place in that circuit, and the original switch moves to Blue + Orange.

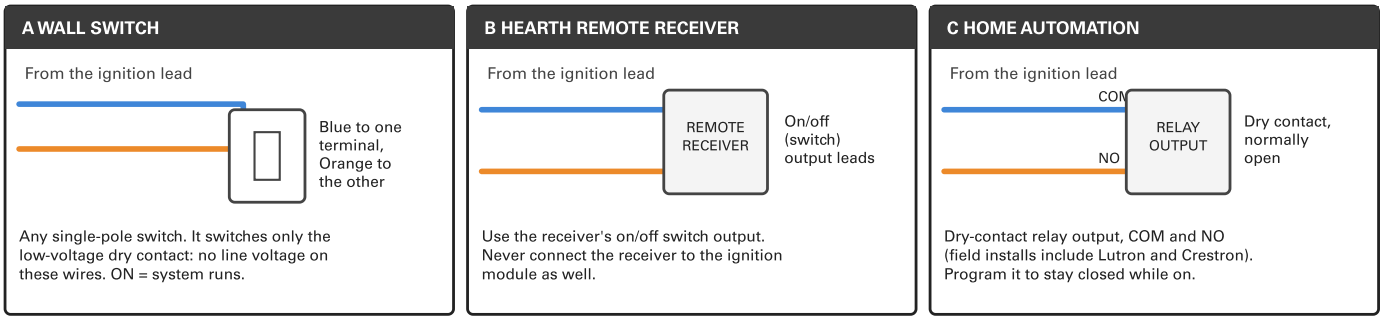
Ignition wire	Function	S8610U connection
Black	Proven draft relay	TH-W
Red	Proven draft relay	Transformer 24 VAC leg that fed the thermostat (other leg stays on 24V/GND)
Blue and Orange	Ignition demand	Switch, remote or automation dry contact



The original switch or thermostat comes off TH-W and moves to Blue + Orange.

B Appendix B: On/Off Control Options

These options apply on Dexen, Robertshaw and Resideo / Honeywell modules, and on Proflame 2 with the XV-IGN-PFAK kit. Blue + Orange on the ignition lead is the call that starts the system. Close the contact and the system runs; open it and the appliance shuts off and the flue purges. Pick one.



NEVER PUT VOLTAGE ON BLUE + ORANGE. Blue + Orange already carry 3.3 VDC from Meridian. Close them with a dry contact only. Never connect line voltage (120 V), 24 VAC or a remote's battery power to them.

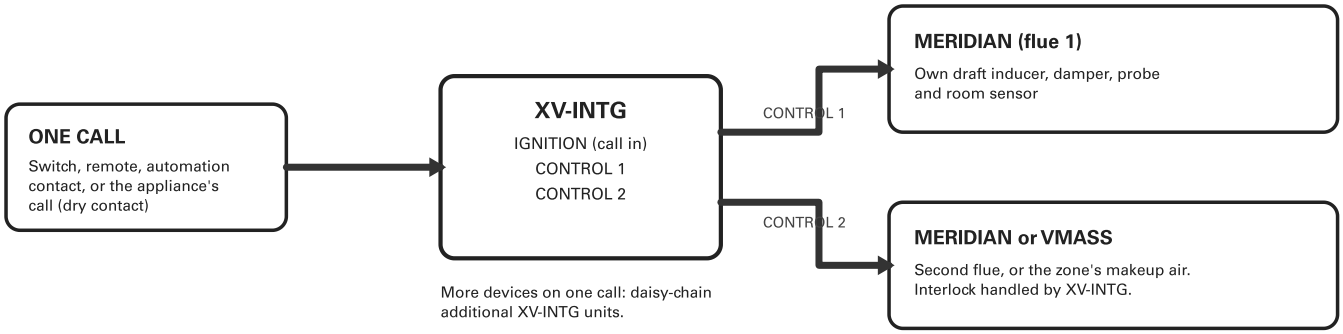
No lever nut, no jumper. Meridian does not ship with a lever nut. A gas appliance needs a real call through its interlock: never join Blue + Orange permanently.

One control at a time. Only one control on Blue + Orange at a time. Never wire the same switch, remote or relay to the ignition module as well: that bypasses draft proving.

C Appendix C: More Than One Flue, and VMASS (XV-INTG)

XV-INTG takes one call and passes it to two controllers. Each controller keeps its own draft inducer, damper, stack probe, room sensor and 120 V power, and each holds its own flue on its own. XV-INTG handles the gas interlock for the whole system: it splits the call to each controller and carries the interlock back to the appliance itself, so there is no interlock wiring between controllers. Use it for:

- **Three flues:** Meridian DUO plus Meridian. **Four flues:** two Meridian DUOs. (Two flues: use Meridian DUO.)
- **Meridian with VMASS:** one call starts the draft and the zone's makeup air together. When the call ends, VMASS keeps supplying air for 20 seconds while the flue purges.
- **More devices on one call:** daisy-chain additional XV-INTG units. Each connects two controllers.



> XV-INTG is a low-voltage signal device; it carries no line voltage. Wire it per the instructions that ship with it, and call 800.642.2920 before you install. Works on Meridian and VMASS. For Controlled Power (GBC, WBC), use XV-MULTICTRL instead.

D Appendix D: Meridian DUO (Two Flues)

Meridian DUO (XV-MERD-DUO) is two Meridian controllers in one enclosure, for one gas appliance with two flues: large single-face fireplaces, see-through and multi-sided units, and linear fireplaces with two collars. Each flue has its own draft inducer, damper, stack probe and room reference, and each is measured and modulated on its own, so each gets the draft it needs even when the two behave nothing alike. Everything in this manual applies to each flue; the differences are below. The two configuration pages that follow show every part and every connection.

	Meridian DUO
Flues	Two. Three or four: add Meridian or a second DUO through XV-INTG (Appendix C).
Draft inducers	Two XV Series draft inducers, one per flue, each sized to its flue. Different models on the two flues: call 800.642.2920 first.
Dampers	Two gas dampers, one per flue. Required, sold separately.
Pressure sensing	Two stack probes, one per flue. Two room sensors, or one with the Y splitter (below).
Appliance connection	One 4 ft ignition lead, two SIT Proflame 2 terminal blocks factory-installed. Wired exactly as Appendix A. Both flues must pass every check (damper proven open, draft proven) before the appliance can light. A fault on either flue opens the proven draft relay and shuts the appliance down, whatever the other flue is doing.
Power	One 8 ft cord. 120 VAC, 12.0 A. With two XV350s, a dedicated 20 A circuit.
Connections	Per flue: white 3-pin draft inducer, white 4-pin damper. One black 4-pin ignition lead.
Mounting	Metal mounting brackets, factory-attached. Fasten through the brackets with fasteners suited to the surface; never open the cover. Dimensions: Section 11.

In the box

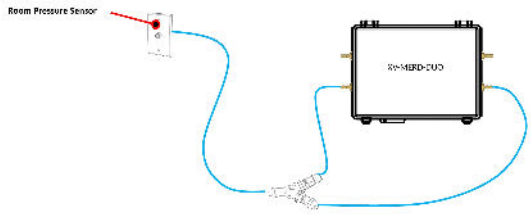
Meridian DUO controller (sealed), 8 ft power cord · 4 ft ignition lead with Proflame 2 terminal blocks · two stack probes · two room sensors · pressure tubing, four 20 ft lengths · one 1/4 in. plastic Y splitter · this manual.

Ports

Each side of the controller serves one flue: two pressure ports and that flue's cables. Connect each flue's tubes to the ports on its own side, the same way as the single Meridian: stack probe to the **upper** port, room sensor to the **lower** port. The configuration pages show both sides.

One room sensor instead of two (optional)

Architects and designers often want as little on the wall as possible. Every Meridian DUO ships with a 1/4 in. plastic Y splitter so one room sensor can serve both flues. Run the room sensor's tube to the splitter, then one tube from the splitter to each flue's room port. Cut the three runs from the supplied tubing. Both flues then share one room reference. That works because the two flues sit side by side over one firebox: each draws the same mixed air from the whole fireplace, not from one side of it. Where a see-through opens into two different rooms, we still recommend both sensors, one in each room. Each flue still serves the whole fireplace. In the event of a fault, a sensor in each room lets the technician assess which room is pulling negative.

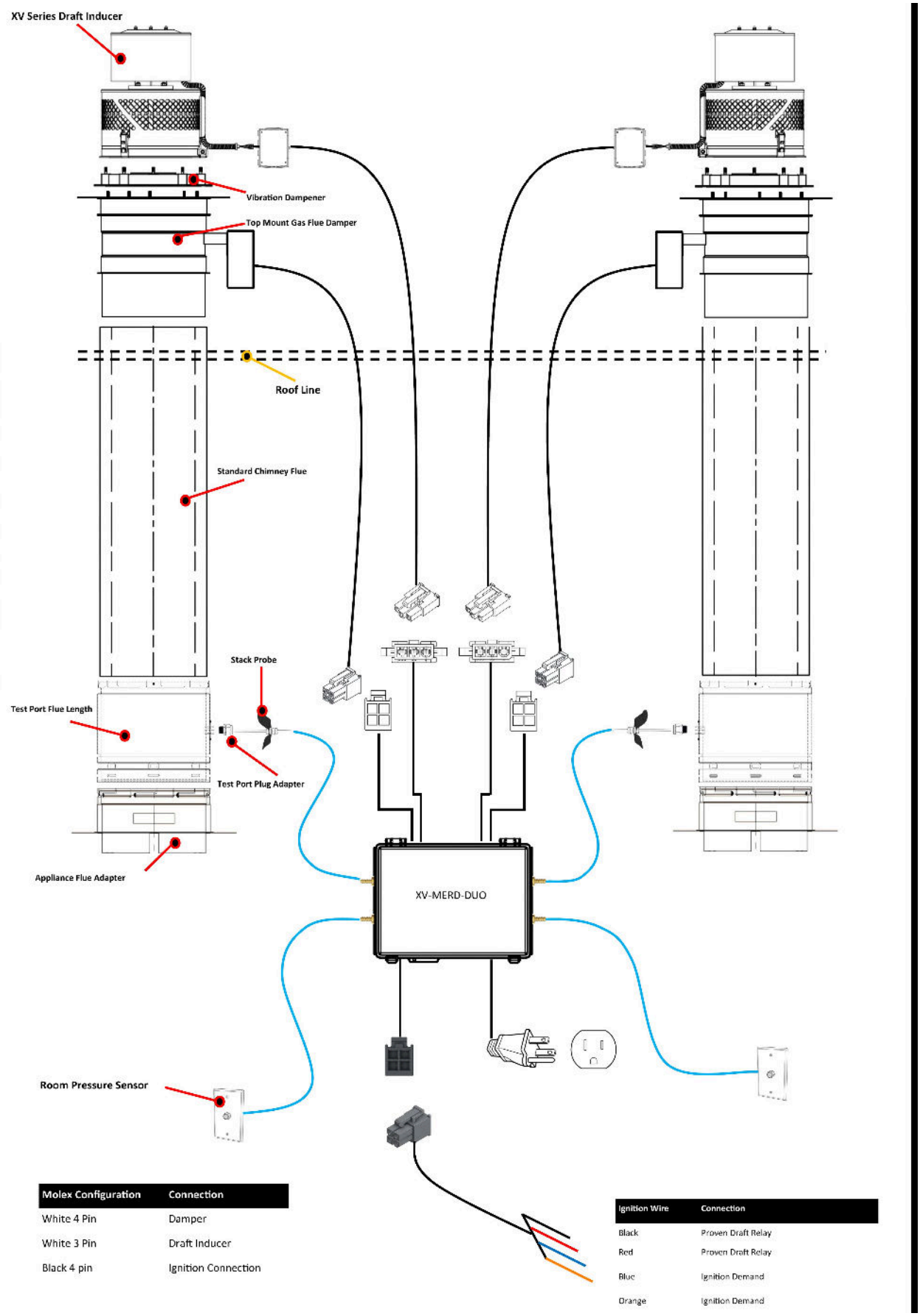


One room sensor through the Y splitter to both room ports. Tubing rules in Section 4 apply to every run.

Commissioning

Run every Section 6 test on each flue in turn: unplug one damper at a time for the damper proving test, and turn off one service disconnect at a time for the loss-of-draft test. Record both draft inducer models on the Commissioning Record.

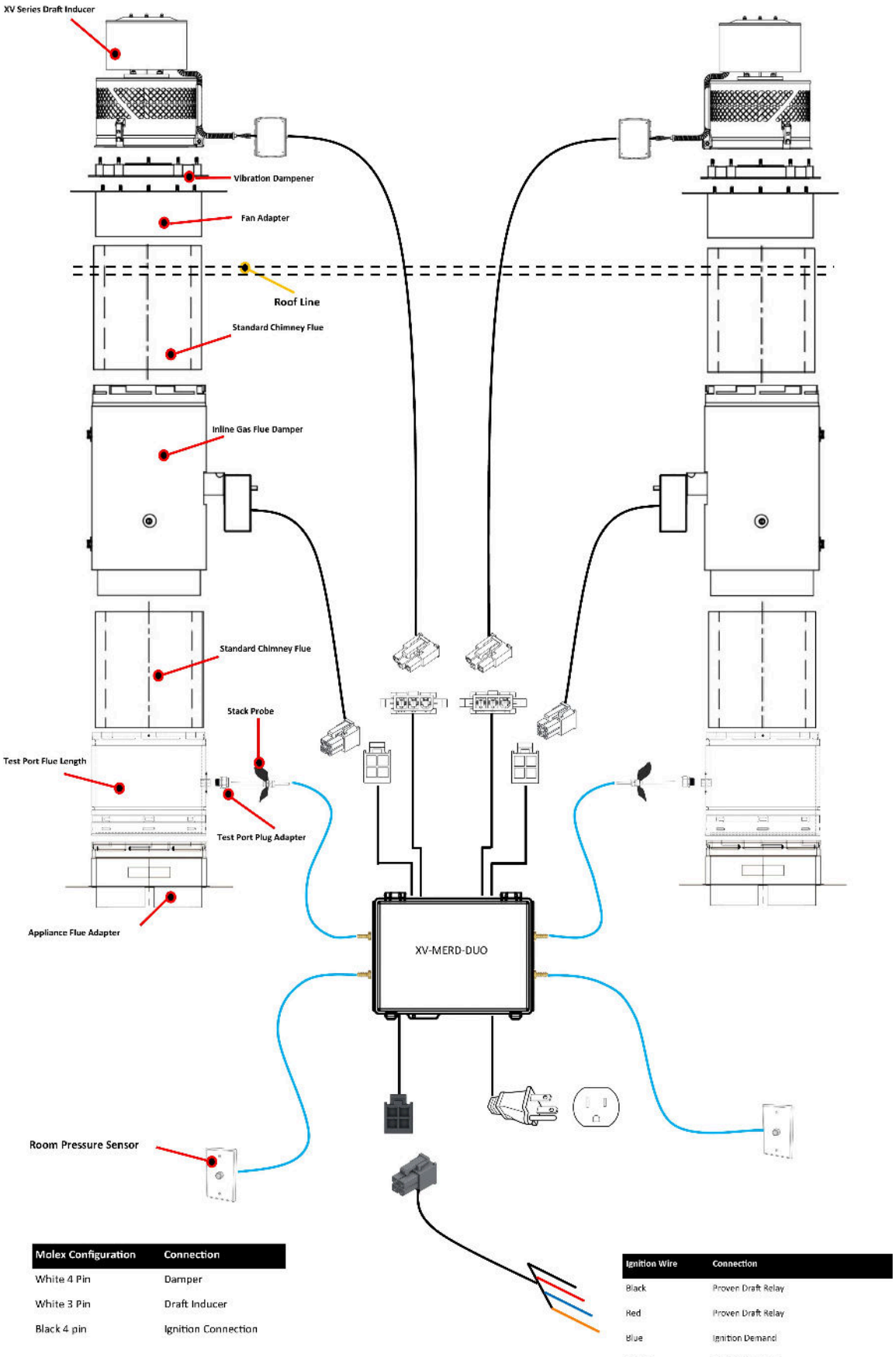
XV-MERD-DUO with Top-Mount Dampers



Molex Configuration	Connection
White 4 Pin	Damper
White 3 Pin	Draft Inducer
Black 4 pin	Ignition Connection

Ignition Wire	Connection
Black	Proven Draft Relay
Red	Proven Draft Relay
Blue	Ignition Demand
Orange	Ignition Demand

XV-MERD-DUO with Inline Dampers



Molex Configuration	Connection
White 4 Pin	Damper
White 3 Pin	Draft Inducer
Black 4 pin	Ignition Connection

Ignition Wire	Connection
Black	Proven Draft Relay
Red	Proven Draft Relay
Blue	Ignition Demand
Orange	Ignition Demand

E Appendix E: Planning Before the Walls Close

For builders, designers and the trades on site. Most Meridian service calls trace back to decisions made before drywall: a tube pinched behind framing, a controller closed in, a sensor in the wrong room. Walk this list with the framer, electrician and finish carpenter while everything is still open.

Locations

- ☐ **Controller.** Accessible after the finish, indoors or under cover and dry (NEMA 1). Within reach of the 4 ft ignition lead and the appliance's ignition control, and within 8 ft of the receptacle. Status display readable by a technician.
- ☐ **Receptacle.** 120 V, 15 A grounded. Meridian DUO with two XV350s: a dedicated 20 A circuit.
- ☐ **Room sensor.** In the room the appliance serves, never the chase. Interior wall, away from the appliance opening, exterior doors, windows, supply registers and return grilles. Standard single-gang wall plate. DUO on a see-through between two rooms: one in each room.
- ☐ **Damper.** Actuator reachable for service: at the termination (top-mount), or behind an access panel in the chase (inline).
- ☐ **Test port flue length.** First flue section above the appliance flue adapter. Never drill the vent.

Routes

- ☐ **Pressure tubing.** Rigid tubing wherever practical; required over 20 ft. No low loops. Protected wherever it passes through framing. Mark both routes on the plans and leave both ends reachable.
- ☐ **Draft inducer and damper cables.** Conduit from the roof to the chase as a pull path. Outside, conduit runs downward from the service disconnect. Any extension connection stays accessible, never in conduit or a closed wall.
- ☐ **On/off wiring.** Blue + Orange to the switch, remote or automation location: 18 AWG, up to 300 ft, kept away from line-voltage conductors.
- ☐ **Building automation.** Choose BACnet or Modbus when the controller is ordered. BACnet: an Ethernet drop at the controller location.

The zone

- ☐ **Exhaust.** List what pulls air from the zone: range hood, dryer, bath fans, central vacuum. In tight construction, plan makeup air with the fireplace, not after it: VMASS (Section 7).
- ☐ **Before drywall.** Both tubes tested open end to end, controller location confirmed, sensor box set, conduit pulled, photos taken of every route.

Owner Quick Reference

Your fireplace has a Meridian draft control system. It runs a draft inducer at the top of the flue and adjusts it continuously so the fireplace always vents properly, whatever the house or the weather is doing. You do not need to do anything for it to work. Use the fireplace the way you normally would.

What you will notice

- A short pause when you turn the fireplace on. Meridian proves the flue is open and drafting before the fireplace lights.
- The draft inducer runs for 15 seconds after you turn the fireplace off, to clear the flue.
- The draft inducer may speed up when the range hood, dryer or bath fans are running. That is Meridian keeping the fireplace venting while the house is pulled negative.

What the controller display shows

Display	Meaning
Off	Fireplace off
Starting	Checking the flue before it lights
Running	Normal operation
Purging	Clearing the flue after it turns off
ALARM 1 to 4	A fault. The fireplace is shut off. Call your installer.

Call your installer if

- The display shows **ALARM**. Note the number and tell your installer.
- The fireplace will not light, or shuts off on its own.
- The draft inducer sounds much louder than usual, all the time.

Please do not

- Open the controller. It is sealed and opening it voids the warranty.
- Cover, paint over or block the room sensor on the wall.
- Unplug the controller or turn off the service disconnect, except for service.

Once a year

Have the system inspected with the fireplace's annual service. The 2-year warranty requires it.

DANGER: If you smell gas, do not operate any electrical switch or the fireplace. Leave the building and call your gas supplier or 911 from outside. If a carbon monoxide alarm sounds, get everyone outside and call 911.

Installed by		**Phone**	
Date installed		**Controller location**	

Leave this manual with the homeowner, with the appliance's own instructions. It has the commissioning record and everything a service technician needs.

X-VENTISO by earthcore®

Meridian Draft Controllers

XV-MERD-CTRL · XV-MERD-DUO

TECHNICAL SUPPORT **800.642.2920** x-ventiso.com

earthcore · 6899 Philips Industrial Blvd., Jacksonville, FL 32256

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