X-VENTISO by earthcore®

# Controlled Power Series GBC-DUO and WBC-DUO Draft Controllers

## Installation, Operation and Maintenance

Two flues. One controller. One wall control.

**XV-GBC-DUO** Gas applications, two flues
**XV-WBC-DUO** Solid fuel applications, two flues

For use with two XV Series draft inducers on one appliance. For three or four flues (XV-MULTICTRL), call before you install.

# 1 Read First

Read this manual fully before installing, and leave it with the homeowner. 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.

**WARNING:** Do not install, use or service in an explosive or hazardous environment.

**CAUTION:** Follow all national, state and local codes. Where they differ from this manual, the code governs.

## THE TWO MOST COMMON INSTALL CALLS. CHECK THESE BEFORE YOU CALL.

1. **The system will not turn on.** The system only runs when **both** of these are true: **(1)** the 4 ft ignition connector cable is plugged into the back of the wall control (MUC), and **(2)** its blue and orange wires are closed. WBC-DUO: through a switch (turned on), remote or automation contact, or joined with the factory-installed lever nut. GBC-DUO: the appliance's ignition control closes them when it calls. Miss either one and the controller never gets a call to run.

2. **A fan disconnect shorted out.** Each draft inducer has its own disconnect box. It is NEMA 3: rain-resistant, **not waterproof**. Mount both **vertical only, with the fan cable entering at the top** and the controller cable leaving at the bottom. Any other position lets water in and shorts the switch.




**The controller is sealed at the factory.** There is nothing inside to adjust. Opening the controller voids the warranty. The only setting you make is fan speed, using the slider on the wall control (see Section 6). If an alarm will not clear, call 800.642.2920.

### What this manual covers

1. Read First
2. Which Controller, What You Need
3. Install the GBC-DUO (Gas)
4. Install the WBC-DUO (Solid Fuel)
5. Mount the Wall Control

A. Ignition Module Connections

6. Start Up and Set Fan Speed
7. How It Works
8. Troubleshooting
9. Specifications
10. Startup Checklist and Commissioning Record

B. On/Off Control Options

C. More Than One Flue (XV-MULTICTRL)

### The system in one paragraph

The DUO runs two XV Series draft inducers on one appliance as **one system**: one controller, one wall control, one speed. Both draft inducers start together and are proven every time the system runs; if either flue fails to prove, the wall control alarms. GBC-DUO also proves both dampers open and holds the gas appliance off until both flues prove draft. WBC-DUO proves draft by motor current and alarms per NFPA 211. All connections are factory-wired Molex plugs. Only the controller plugs into a 120 V receptacle. Each draft inducer plugs into the controller (3-pin Molex) and is powered by the controller.

## 2 Which Controller, What You Need

| | XV-GBC-DUO (Gas) | XV-WBC-DUO (Solid Fuel) |
|---|---|---|
| **Use on** | One appliance with two flues (large, see-through or multi-sided) | |
| **How draft is proven** | A stack pressure probe in each flue | Each draft inducer's motor current (no probe) |
| **Dampers** | A gas flue damper in each flue (top mount or inline), proven open before the appliance lights | A top mount solid fuel damper (SFD) on each flue, or no dampers with an XV-DMPJUMP on each damper lead |
| **Appliance connection** | 4 ft ignition connector cable from the wall control to the appliance ignition control (gas interlock) | 4 ft ignition connector cable from the wall control to a switch, remote receiver or automation contact, or a lever nut jumper |
| **Fan speed** | One slider sets both. **Same XV Series model on both flues** (mixed pairs not designed), similar flue size and height, or call first. | |
| **Alarm** | One audible and visual alarm at the wall control for both flues | |
| **Sidewall termination** | Permitted, with the sidewall adapter | **Not permitted** |
| **Designed for** | NFPA 54 installations | NFPA 211 installations |
| **More than two flues** | XV-MULTICTRL: one wall control for a DUO plus a single (three flues) or two DUOs (four). Same fuel only. Appendix C; call before you install. | |

### In the box

- DUO controller (sealed) with mounting feet, 6 ft power cord
- Wall control (MUC) with 6-pin extension cable
- Two CR2032 back-up batteries in tray
- **4 ft ignition connector cable**: black 4-pin Molex to the back of the wall control
- **GBC-DUO:** two stack pressure probes and tubing (one per flue); two SIT Proflame 2 terminal blocks, factory-connected to the ignition connector cable
- **WBC-DUO:** lever nut, installed on blue and orange of the ignition connector cable, and two XV-DMPJUMP damper jumpers (to run without dampers)

### Sold separately

- Two XV Series draft inducers (same model) and two XV Series fan adapters, sized to the flues
- Vibration dampeners (accessory, one per draft inducer)
- Dampers, one per flue: gas flue damper, top mount or inline (GBC-DUO); top mount solid fuel damper (WBC-DUO)
- GBC-DUO: two test port flue lengths with test port plug adapters
- XV-IGN-ADPT-RS (Robertshaw); XV-IGN-PFAK (Proflame 2 switch or automation)
- Fan extension cables (20, 50, 100 ft or custom); 4-pin extension cable if the switch is out of reach

### Before you start, confirm the site

- **Power:** a 120 V grounded duplex receptacle within 6 ft of the controller, on a 15 A circuit. **Two XV350 draft inducers: 20 A circuit required.** On gas jobs the same duplex also feeds the gas valve control box.
- **Controller location:** indoors, dry, accessible after the finish is complete. Between 5 and 104°F, no condensing humidity. Away from heat, vibration and high-power wiring. Gas: near the gas valve control box, within the distance the appliance manufacturer allows. Both fan and damper cables must reach it.
- **Conduit:** we recommend conduit from the roof to the chase as a pull path for install and future replacement: one 3/4 in. conduit per flue (its fan and damper cables), or all four cables in one 1 in. conduit. Outside, run it downward from each disconnect box so water drains away.
- **Cable length:** one continuous cable per draft inducer is best. Any extension connection must stay accessible, never inside conduit or a closed wall.
- **Solid fuel:** UL 103 or UL 103HT vent at the appliance manufacturer's clearances. Confirm a working smoke alarm is present in the home (supplied by the building), especially on retrofits.

# 3 Install the GBC-DUO (Gas)

Each flue is installed exactly like a single GBC flue. Do every flue step twice, once per flue. The two configuration pages (6 and 7) show every part and every connection.

| Configuration | Dampers | Page |
|---|---|---|
| **GBC-DUO with top mount dampers** | A top mount gas flue damper at each termination, under the draft inducer | Page 6 |
| **GBC-DUO with inline dampers** | An inline gas flue damper in each flue run, below the roof line | Page 7 |

## At the appliance

1. Install the fireplace and its ignition control per the appliance manufacturer's instructions.
2. In **each** flue, install an 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 GBC-DUO controller near the gas valve control box, in a spot that stays accessible after installation. Attach the four mounting feet to the back of the controller and fasten to a wall or framing with four fasteners suited to the surface.

## In each flue

4. Install the damper for your configuration. **Top mount:** at the termination, seated flush on the last flue section. **Inline:** between two standard flue sections. Either way, keep it accessible for service.
5. Insert a stack probe into the test port plug adapter on each test port flue length. Connect each probe's tubing to the **lower** pressure port on its side of the controller. Keep tubing free of kinks.

> **Do not drill the vent.** Drilling or otherwise modifying factory-built vent pipe can void the vent manufacturer's listing. The test port flue length provides a factory-built probe port so you never have to. On a retrofit where a test port flue length cannot be installed, call 800.642.2920 before going further.

## At each termination

6. Install the XV Series fan adapter sized to the flue (inline configuration), or use the top mount damper as the mounting base (top mount configuration).

> **Sidewall (horizontal) termination, gas only:** anchor each 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.

7. If the job includes the vibration dampener accessory, install it first. Mount the draft inducer with the supplied hardware.
8. Mount each fan disconnect box **vertically**. Run each fan cable and damper cable to the controller, with exterior conduit running downward.

> **MOUNT BOTH DISCONNECTS VERTICAL. NO EXCEPTIONS.**
>
> Each fan disconnect box is NEMA 3: rain-resistant, not waterproof. Mount it vertical with the **cable from the fan 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.

## Make the connections

| Molex | From | To |
|---|---|---|
| White 3-pin (two) | Controller, one lead per flue | Draft inducer on that flue |
| White 4-pin (two) | Controller, one lead per flue | Damper on that flue |
| Black 6-pin | Controller | Wall control (MUC), through the 6-pin extension |
| Black 4-pin | Back of the wall control (MUC), on the 4 ft ignition connector cable | Appliance ignition control. SIT Proflame 2: plug the factory-connected terminal blocks into X4 and X13. Robertshaw 780-715 U: use adapter XV-IGN-ADPT-RS. **Required: without it the system never gets a call to run.** |

Keep each flue's draft inducer, damper and stack probe on that flue's side of the controller, as the drawing shows. **Label both ends** of every fan and damper cable "Flue 1" or "Flue 2": one alarm covers both flues, so labels speed troubleshooting.

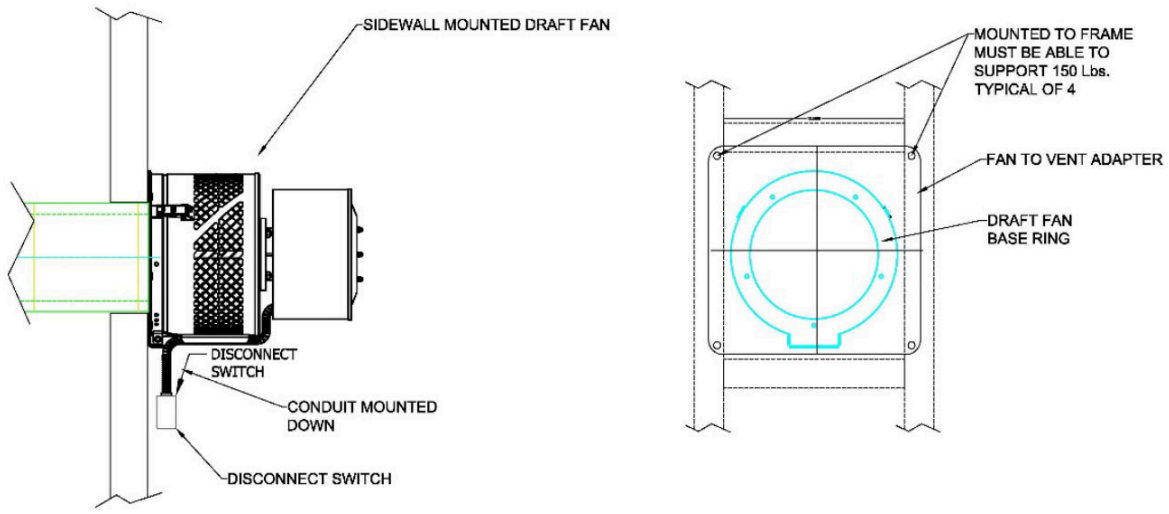
| Ignition wire | Function | SIT Proflame 2 |
|---|---|---|
| Black and Red | Proven draft relay (releases the appliance once both flues prove draft) | X4 |
| Blue and Orange | Ignition demand (the appliance's call for the system to run) | X13 |

> **Ignition module wiring:** the GBC-DUO uses the same ignition connector cable as the single GBC and wires to the ignition module identically. See Appendix A for Proflame 2, Dexen, Robertshaw 780-715 U and Resideo / Honeywell S8610U connections.

## Finish

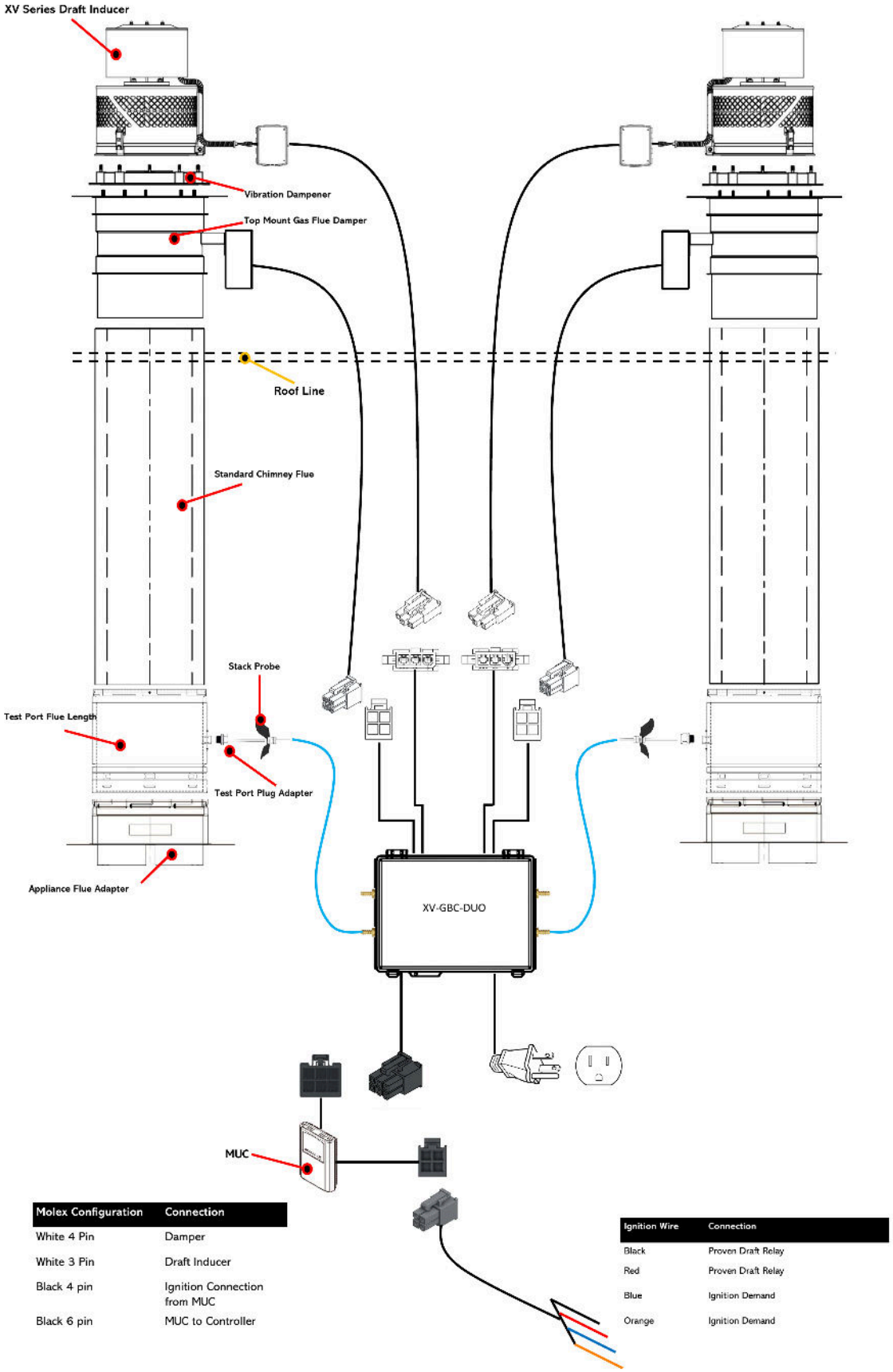
9. Confirm all gas connections are complete between service, gas valve control box and burner (main and pilot), per the appliance manual.
10. Plug the gas valve control box and the GBC-DUO controller into the duplex receptacle. Do not start the system until you complete the Startup Checklist (Section 10).

## Sidewall (horizontal) termination, gas only




Each adapter anchored to framing at four points, 150 lb minimum. Disconnect below the fan, conduit run downward.

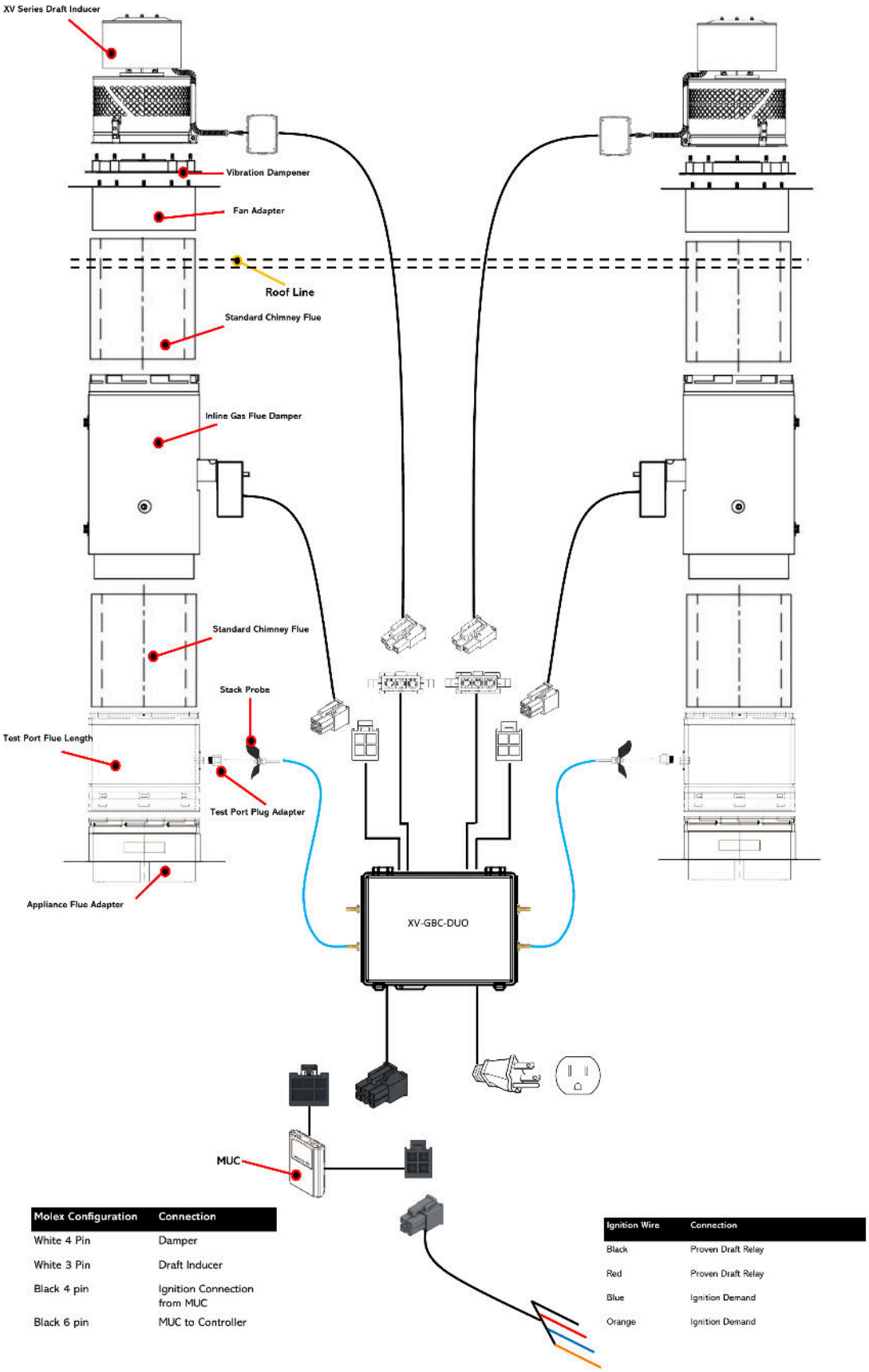
# XV-GBC-DUO with Top Mount Dampers




| Molex Configuration | Connection |
|---|---|
| White 4 Pin | Damper |
| White 3 Pin | Draft Inducer |
| Black 4 pin | Ignition Connection from MUC |
| Black 6 pin | MUC to Controller |

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

# XV-GBC-DUO with Inline Dampers




| Molex Configuration | Connection |
|---|---|
| White 4 Pin | Damper |
| White 3 Pin | Draft Inducer |
| Black 4 pin | Ignition Connection from MUC |
| Black 6 pin | MUC to Controller |

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

# 4 Install the WBC-DUO (Solid Fuel)

**Solid fuel:** vertical termination only, never horizontal. Use only solid fuel dampers (SFD); gas dampers are not heat-rated for solid fuel, even though the plug fits.

| Configuration | Damper leads on the controller | Page |
|---|---|---|
| **WBC-DUO with no dampers** | An XV-DMPJUMP on **each** white 4-pin lead. **Required:** never leave a lead open. | Page 9 |
| **WBC-DUO with solid fuel dampers** | A top mount solid fuel damper on each white 4-pin lead | Page 10 |

1. Install the appliance per its instructions. Mount the WBC-DUO controller near it, accessible, within 6 ft of the receptacle and in reach of both fan cables. Attach the four mounting feet and fasten to a wall or framing.
2. At **each** termination: **No dampers:** install the XV Series fan adapter sized to the flue. **Solid fuel dampers:** install the top mount solid fuel damper, seated flush on the last flue section, and keep it accessible.
3. Install the vibration dampener, if used, then mount each draft inducer with the supplied hardware. Label both ends of every cable "Flue 1" or "Flue 2".
4. Mount each fan disconnect box **vertically**. Run each fan cable (and damper cable, if used) to the controller, with exterior conduit running downward.

**MOUNT BOTH DISCONNECTS VERTICAL. NO EXCEPTIONS.**

Each fan disconnect box is NEMA 3: rain-resistant, not waterproof. Mount it vertical with the **cable from the fan 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.

5. Make the connections:

| Molex | From | To |
|---|---|---|
| White 3-pin (two) | Controller, one lead per flue | Draft inducer on that flue |
| White 4-pin (two) | Controller, one lead per flue | Solid fuel damper, or XV-DMPJUMP if no damper |
| Black 6-pin | Controller | Wall control (MUC), through the 6-pin extension |
| Black 4-pin | Back of MUC | On/off contact (see below). **Required for the system to run.** |

6. Plug in the WBC-DUO controller. Do not start the system until you complete the Startup Checklist (Section 10).

**THE BLACK 4-PIN ON THE BACK OF THE MUC IS NOT OPTIONAL.**

Every job: **(1)** plug the 4 ft ignition connector cable into the back of the MUC; **(2)** close blue and orange (switch, remote, automation contact or the factory lever nut). Miss either one and the WBC-DUO never turns on.

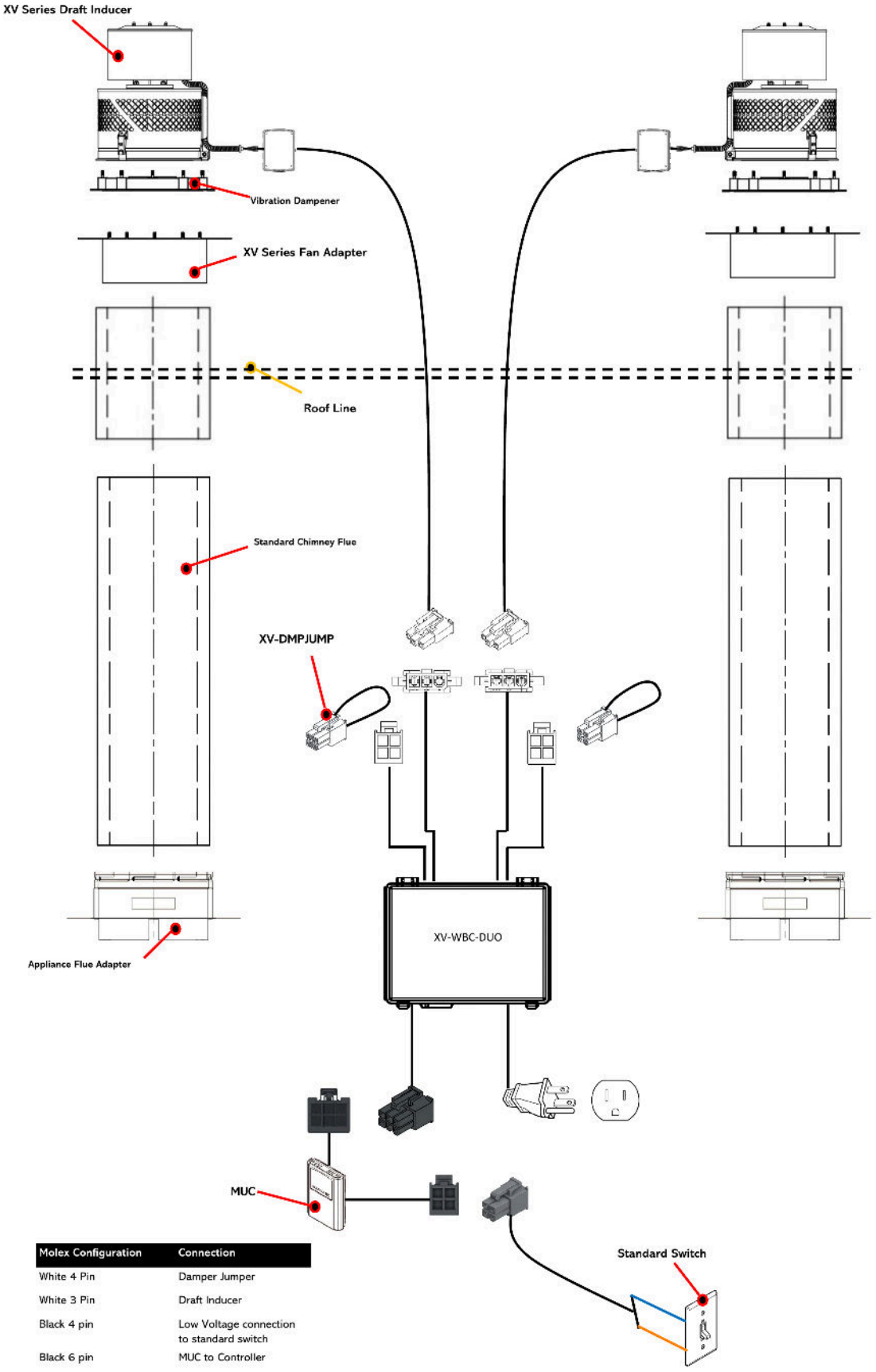
## The on/off contact (choose one; diagrams in Appendix B)

**NEVER PUT VOLTAGE ON BLUE + ORANGE.**

Blue + Orange already carry 24 VDC from the controller. Close them with a dry contact only: a switch, lever nut, remote receiver contact or automation relay. **Never connect line voltage (120 V), 24 VAC or a remote's battery power to them.**

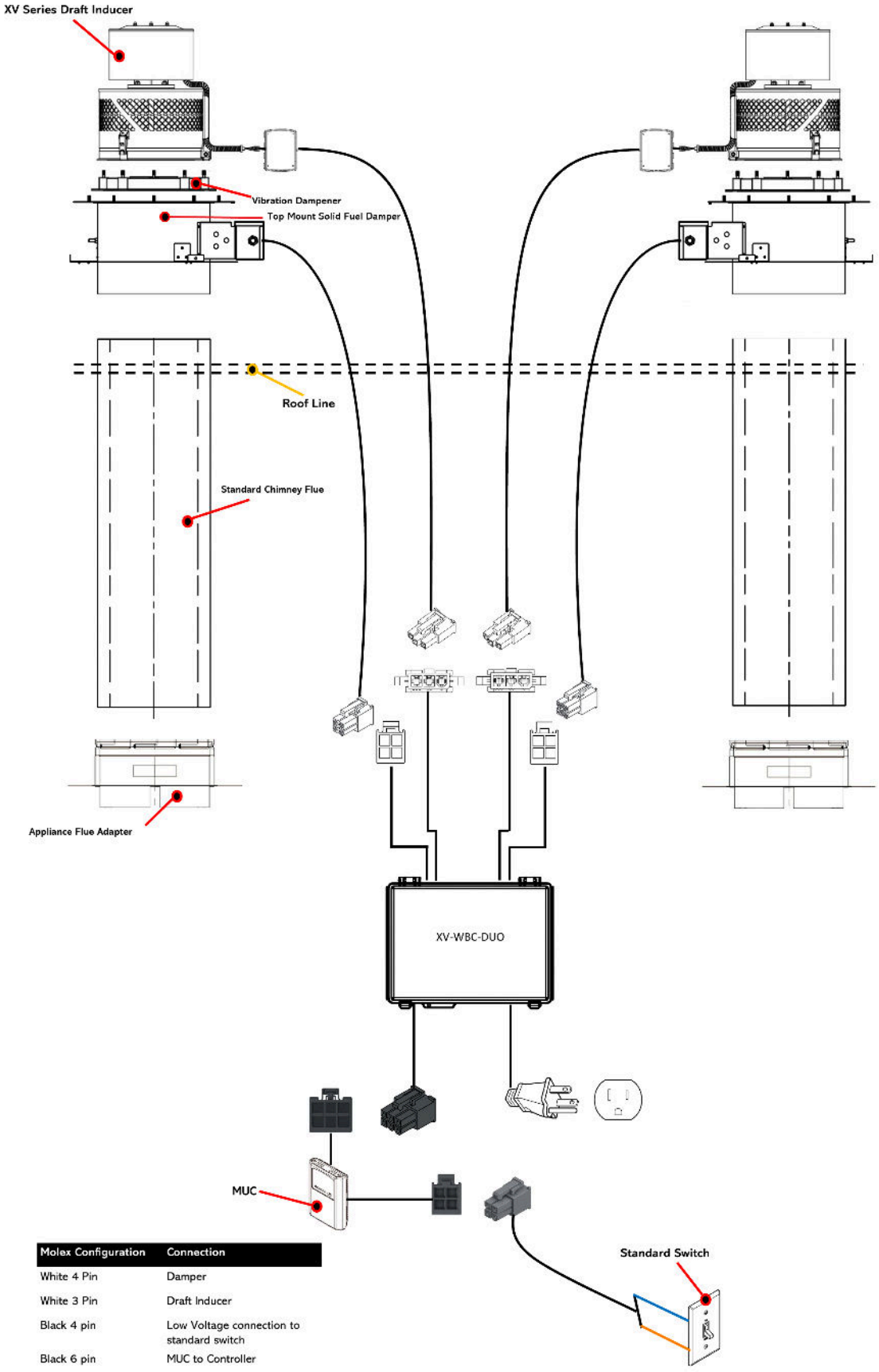
| Option | How |
|---|---|
| **Standard switch** | Any standard wall switch (4-pin extension if needed). Remove the lever nut. |
| **Remote or home automation** | Any dry contact: a hearth remote receiver or automation relay (field installs include Lutron and Crestron). Remove the lever nut. |
| **No switch** | Leave the factory lever nut on **blue and orange**; runs whenever the slider is above OFF. |

# XV-WBC-DUO with No Dampers




| Molex Configuration | Connection |
|---|---|
| White 4 Pin | Damper Jumper |
| White 3 Pin | Draft Inducer |
| Black 4 pin | Low Voltage connection to standard switch |
| Black 6 pin | MUC to Controller |

# XV-WBC-DUO with Solid Fuel Dampers (SFD)




| Molex Configuration | Connection |
|---|---|
| White 4 Pin | Damper |
| White 3 Pin | Draft Inducer |
| Black 4 pin | Low Voltage connection to standard switch |
| Black 6 pin | MUC to Controller |

# 5 Mount the Wall Control

One wall control (MUC) runs both flues. It mounts on a standard single-gang electrical box or directly to the wall. **Low voltage only:** no 120 V reaches the wall control or any of its cables. Line voltage exists only inside the controller.

1. Remove the cover: it hooks on at the top, so release the bottom edge first (pry each bottom corner gently with a small screwdriver; loosen the security screw if one is installed).
2. Press the base near the bottom latch and lift the control out. Handle it by the edges and use normal anti-static care.
3. Screw the base to the box or wall using the holes in Figure 1.
4. Pull the cables through the center opening, snap the control back into the base securely, and replace the cover.

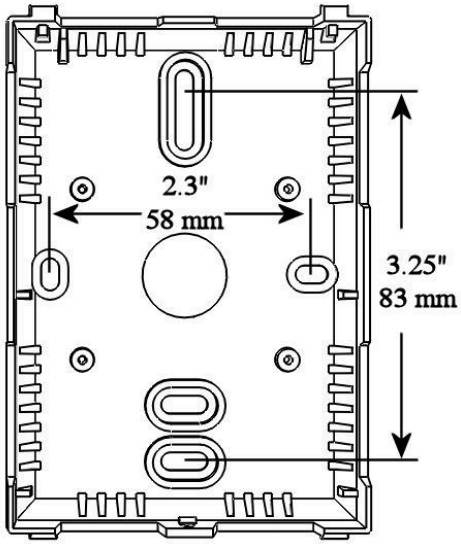


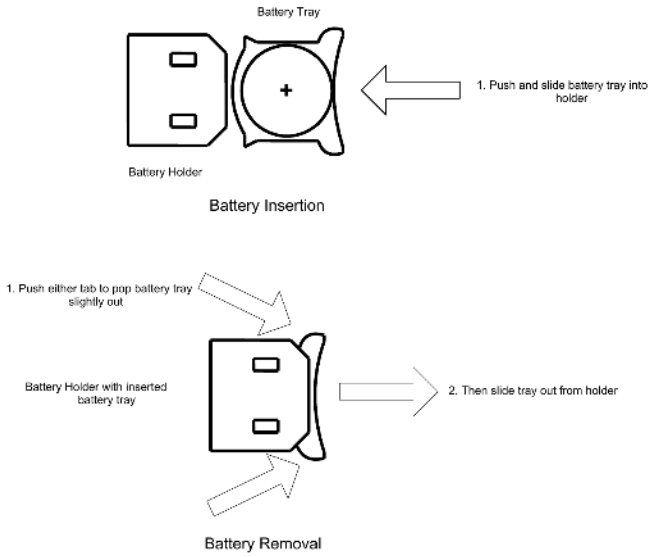

Figure 1. Mounting holes

## Install the back-up batteries

After all wiring is connected, slide the battery tray into its holder with the positive (+) side facing up. To remove, push either tab to pop the tray out, then slide it free.

The batteries keep the alarm working if power is lost. Replace both when the green light flashes.

**Figure 3**




Battery tray insertion and removal

# 6 Start Up and Set Fan Speed

Fan speed is the one setting on this system, and it is what makes the install quiet. One slider sets both draft inducers. Set it once, at the lowest speed that holds steady draft in **both** flues. The homeowner only turns the system on and off.

## Wall control front panel

| | |
|---|---|
| **RUN (green)** | System running, draft proven in both flues |
| **ALARM (red)** | Draft or damper not proven in either flue |
| **OFF to MAX slider** | Fan speed for both draft inducers. The system will not start below about 20% of travel. |
| **MUTE** | Silences the buzzer for 5 minutes; it sounds again until the fault clears. The red light stays on until the fault clears. |

## Set the speed

Always start at full speed and work down. Setting draft is the technician's call: on solid fuel the smoke shows you; on gas, work the system until it draws cleanly. For fully automatic draft control with no speed to set, use the Meridian controller (gas).

1. Complete Startup Checklist parts A and B (Section 10).
2. Slide the wall control to **full (MAX)** and start the appliance (gas: by the remote or appliance control; solid fuel: switch on and light the fire). Confirm **both** draft inducers start. The green RUN light should come on within 15 seconds.
3. Let the appliance reach **normal operating temperature** before you set the speed. Commission with the system hot, not at cold start.
4. Lower the slider slowly. Stop at the lowest setting that holds steady draft with no spillage and no alarm. On see-through and multi-sided units, check every face; the flue that needs more draft sets the speed. Solid fuel: smoke should draw cleanly into the firebox. Gas: watch the flame and check the opening for spillage.
5. The system will not run below its minimum setting, so you cannot set it too low. If it stops or alarms, raise the slider until it holds.
6. Worst-case check: with the appliance running, turn on the range hood, dryer and bath fans and close interior doors. If smoke or flue gas spills, raise the slider slightly and recheck. Persistent spillage under exhaust points to a makeup air shortage, not a speed problem: call.
7. Cycle the system off and on at least three times and confirm it starts, proves and shuts down normally each time.
8. Record the final slider position on the Commissioning Record and show the homeowner how to turn the system on and off. Tell them not to move the slider.

# 7 How It Works

## Sequence of operation

| Stage | What happens |
|---|---|
| **Off** | Waiting for a call: the gas appliance (GBC-DUO) or the on/off contact (WBC-DUO), with the slider above about 20%. |
| **Start** | Both draft inducers start together. GBC-DUO opens both dampers and proves them open. |
| **Prove** | Controller confirms draft in both flues within 15 seconds (GBC-DUO by stack pressure, WBC-DUO by motor current). GBC-DUO then releases the gas interlock so the appliance can light. |
| **Run** | Both draft inducers hold the speed set at startup. Draft is monitored continuously in both flues. |
| **Call ends** | GBC-DUO releases the gas interlock right away. Both draft inducers run a 60-second post-purge, then stop. Sliding the wall control to OFF stops the system. |
| **Alarm** | If draft (or a GBC-DUO damper) does not prove in **either** flue for 15 seconds: red light and buzzer. GBC-DUO shuts off and holds the gas appliance off. WBC-DUO stays in alarm until the fault is resolved. Dampers stay open. When the fault clears for 2 seconds, the system returns to normal on its own. |
| **Power loss** | Wall control switches to its back-up batteries: both lights on and the buzzer sounds. |

## Wall control lights

| Green | Red | Meaning |
|---|---|---|
| Off | Off | Not running |
| On | Off | Running normally |
| Flashing | Off | Running, batteries low: replace both |
| Off | On | Alarm (either flue) |
| Off | Flashing | Alarm, buzzer muted |
| On | On | Power lost, running on batteries |

**Mute:** press MUTE to silence the buzzer for 5 minutes. If the fault has not cleared, the buzzer sounds again; it repeats until the fault is cleared. The red light stays on the whole time.

**One alarm, two flues:** the wall control does not show which flue faulted. Check both. The "Flue 1 / Flue 2" cable labels make this quick.

# 8 Troubleshooting

Every check below is done without opening the controller. Check **both** flues; the alarm does not say which one faulted. Still stuck? Unplug the controller for 10 seconds and plug it back in. If the alarm returns, call **800.642.2920**.

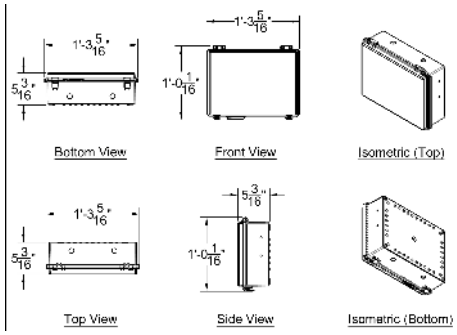
| Symptom | Check |
|---|---|
| **Nothing happens, no lights** | • **First check:** 4 ft ignition connector cable is plugged into the back of the wall control, **and** blue and orange are closed (WBC-DUO: switch turned on, or lever nut installed; GBC-DUO: appliance is calling)<br>• Receptacle has power; controller is plugged in<br>• 6-pin wall control cable is fully seated at both ends<br>• Slider is above about 20%<br>• Proflame 2 appliances: AUX is turned ON at the Proflame remote |
| **Green light on, one or both draft inducers not running** | • Disconnect box on the stopped fan mounted vertical, fan cable at the top, no water inside (a flat or sideways box takes on water and shorts out)<br>• Disconnect switch at that fan is on (open the front cover of the disconnect box; do not open the sealed back compartment)<br>• That flue's 3-pin connection and any extension connections are seated<br>• Fan cable is undamaged; impeller turns freely |
| **Red ALARM** GAS | • **Dampers:** both white 4-pin damper cables seated; both dampers seated and free of obstruction<br>• **Draft:** each probe's tubing on the **lower** port on its side of the controller; tubing not kinked, pinched or blocked; probes seated in the test port plug adapters and clear<br>• Blockage in either flue; either fan disconnect off<br>• Speed set too low for the flue that needs more draft: raise the slider slightly |
| **Red ALARM** SOLID FUEL | • Either fan disconnect wet or shorted: confirm both are mounted vertical<br>• Either fan disconnect off; a 3-pin or extension connection loose<br>• Both white 4-pin damper leads: solid fuel damper connected and free to open, or XV-DMPJUMP in place where there is no damper<br>• Fan cable damage; a draft inducer not turning |
| **Green light flashing** | Replace both CR2032 batteries. |
| **Smoke or odor at the opening (or one face), no alarm** | • Raise the slider slightly and recheck every face<br>• Check for house depressurization: range hood, dryer, bath fans, closed doors. If spillage tracks with exhaust, the home needs makeup air: call.<br>• Spillage at one face only: check that flue for blockage and that its draft inducer runs. Flues that differ greatly in size or height: call. |

## Conditions outside the controller that can cause an alarm

Room depressurization, wind and weather, low supply voltage, natural draft at cold start, and a fire larger than the flues were sized for. An occasional alarm here is the system doing its job; repeated alarms mean the speed, a flue or the home's makeup air needs a look.

# 9 Specifications

| | |
|---|---|
| **Models** | XV-GBC-DUO (gas), XV-WBC-DUO (solid fuel) |
| **Flues** | Two, on one appliance. One controller, one wall control, one speed for both draft inducers. |
| **Electrical rating** | 120 VAC, 50/60 Hz, 12.0 A |
| **Power connection** | 6 ft cord, 3-prong grounded plug, to a standard 120 V receptacle. 15 A circuit; 20 A circuit when both draft inducers are XV350. |
| **Control power** | 24 VDC, 30 W, Class 2 (limited power source). The wall control and its 6-pin and 4-pin cables are on this circuit. |
| **On/off input (blue/orange)** | 24 VDC from the controller (sinking input). Close with a dry contact only; never apply outside voltage. |
| **Proven draft relay (black/red)** | Dry relay contact, rated 5 A at 250 VAC and 5 A at 30 VDC |
| **Connections** | Factory-wired, plug-in Molex: two white 3-pin draft inducer, two white 4-pin damper, black 6-pin wall control, black 4-pin call/interlock |
| **Draft proving** | GBC-DUO: a stack pressure probe in each flue. WBC-DUO: each draft inducer's motor current. |
| **Alarm** | Audible and visual, at the wall control, for either flue; mute silences the buzzer for 5 minutes |
| **Post-purge** | 60 seconds |
| **Enclosure** | NEMA 1 (indoor). Impact-resistant, UV-stabilized polycarbonate, UL94 V-0. Sealed at the factory. |
| **Conduit (suggested)** | 3/4 in. per flue (fan + damper), or one 1 in. for all four cables |
| **Dimensions** | 15-5/16 x 12-1/16 x 5-3/16 in. (389 x 306 x 132 mm), W x H x D |
| **Operating environment** | 5 to 104°F (-15 to 40°C), 5 to 90% RH non-condensing |
| **Listings** | ETL Listed, Intertek 4007025. Conforms to UL 508 (Industrial Control) and UL/ULC 378 (Draft Equipment). |
| **Wall control back-up** | 2 x CR2032 3 V lithium coin cells |
| **Designed for** | GBC-DUO: NFPA 54 installations. WBC-DUO: NFPA 211 installations. |




DUO controller enclosure: overall dimensions

# 10 Startup Checklist and Commissioning Record

**Do not skip steps.** Skipping steps can create a hazardous condition or damage equipment. Items marked **F1 / F2** are checked for each flue.

## A. Before power

| | | |
|---|---|---|
| 1 | Power is off at the receptacle and at both fan disconnects. | YES / NO |
| 2 | All components installed and secure. | F1 / F2 |
| 3 | All Molex connections fully seated; any extension connections accessible, not in conduit or a closed wall. | F1 / F2 |
| 4 | **Fan disconnect box mounted vertical**, fan cable entering at the top. | F1 / F2 |
| 5 | **4 ft ignition connector cable plugged into the back of the wall control, and blue and orange closed** (GBC-DUO: to the ignition control; WBC-DUO: switch, contact or lever nut). | YES / NO |
| 6 | Draft inducer and termination clear of debris, tools and people. | F1 / F2 |
| 7 | Receptacle voltage verified (120 V). Two XV350 draft inducers: 20 A circuit. | YES / NO |
| 8 | GAS Stack probe in the test port plug adapter; tubing on the lower port on its side of the controller. | F1 / F2 |
| 9 | GAS Damper installed and accessible, white 4-pin connected. | F1 / F2 |
| 10 | GAS All gas connections complete and leak-checked per appliance manual. | YES / NO |
| 11 | SOLID FUEL Vertical termination; UL 103 / 103HT vent. | F1 / F2 |
| 12 | SOLID FUEL Solid fuel damper or XV-DMPJUMP on the white 4-pin. | F1 / F2 |
| 13 | SOLID FUEL On/off contact connected, or lever nut on blue and orange. Working smoke alarm present in the home. | YES / NO |

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

## B. Power up

| | | |
|---|---|---|
| 1 | Turn on both fan disconnects and plug in the controller (and gas valve control box). | YES / NO |
| 2 | Batteries installed in the wall control. | YES / NO |
| 3 | GAS Remote synced to the ignition module per the appliance manual. Proflame 2 only: AUX turned ON at the remote. | YES / NO |
| 4 | Both draft inducers start, and the green RUN light comes on within 15 seconds. | YES / NO |

## C. Commissioning

| | | |
|---|---|---|
| 1 | Speed set hot, working down from full: steady draft in both flues, no spillage at any face (Section 6). | YES / NO |
| 2 | No spillage with exhaust equipment running. | YES / NO |
| 3 | Cycled on and off three times with normal start, prove and shutdown. | YES / NO |
| 4 | Homeowner shown on/off operation and told not to move the slider. | YES / NO |

| | | | |
|---|---|---|---|
| **Controller model / serial** | | **Final slider position** | |
| **Draft inducer, Flue 1** | | **Draft inducer, Flue 2** | |
| **Installer** | | **Date** | |

# A Appendix A: Ignition Module Connections (GBC-DUO)

The GBC-DUO uses the same 4 ft ignition connector cable as the single GBC and connects to the ignition control the same way. The diagrams show a single GBC; wire a GBC-DUO identically. The GBC-DUO only closes the proven draft relay after **both** flues prove draft.

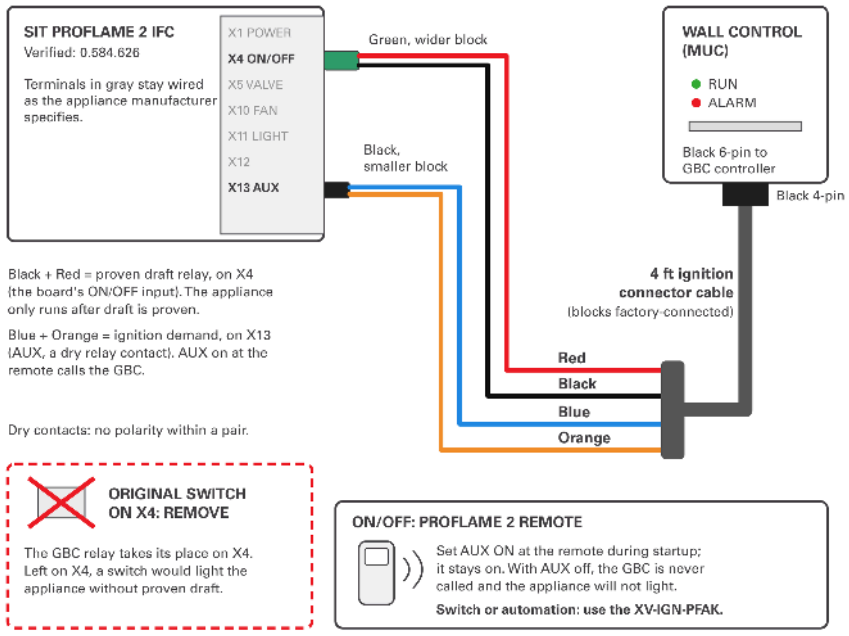
**Black + Red** are the proven draft relay: the appliance can only light after the GBC-DUO proves draft. **Blue + Orange** are the ignition demand: the call that starts the system. **Black + Red** is a dry relay contact, rated 5 A at 250 VAC or 30 VDC. **Blue + Orange** carries 24 VDC from the controller: close it with a dry contact only. Neither pair has polarity. On Dexen, Robertshaw and Resideo / Honeywell modules, Blue + Orange take any of the four on/off options in Appendix B: lever nut, wall switch, remote receiver or home automation. Each module diagram shows them.

**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

On Proflame 2, Blue + Orange land on the module at X13. X13 is a dry relay contact (rated to switch up to 120 VAC, 5 A): it closes when AUX is on and puts no voltage on Blue + Orange. X4 is the board's low-voltage (3.3 V) ON/OFF input. 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. The remote's AUX output is what calls the GBC-DUO; with AUX off, the GBC-DUO never starts and the appliance will not light. To add a wall switch, remote switch or home automation on a Proflame 2 appliance, 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 |

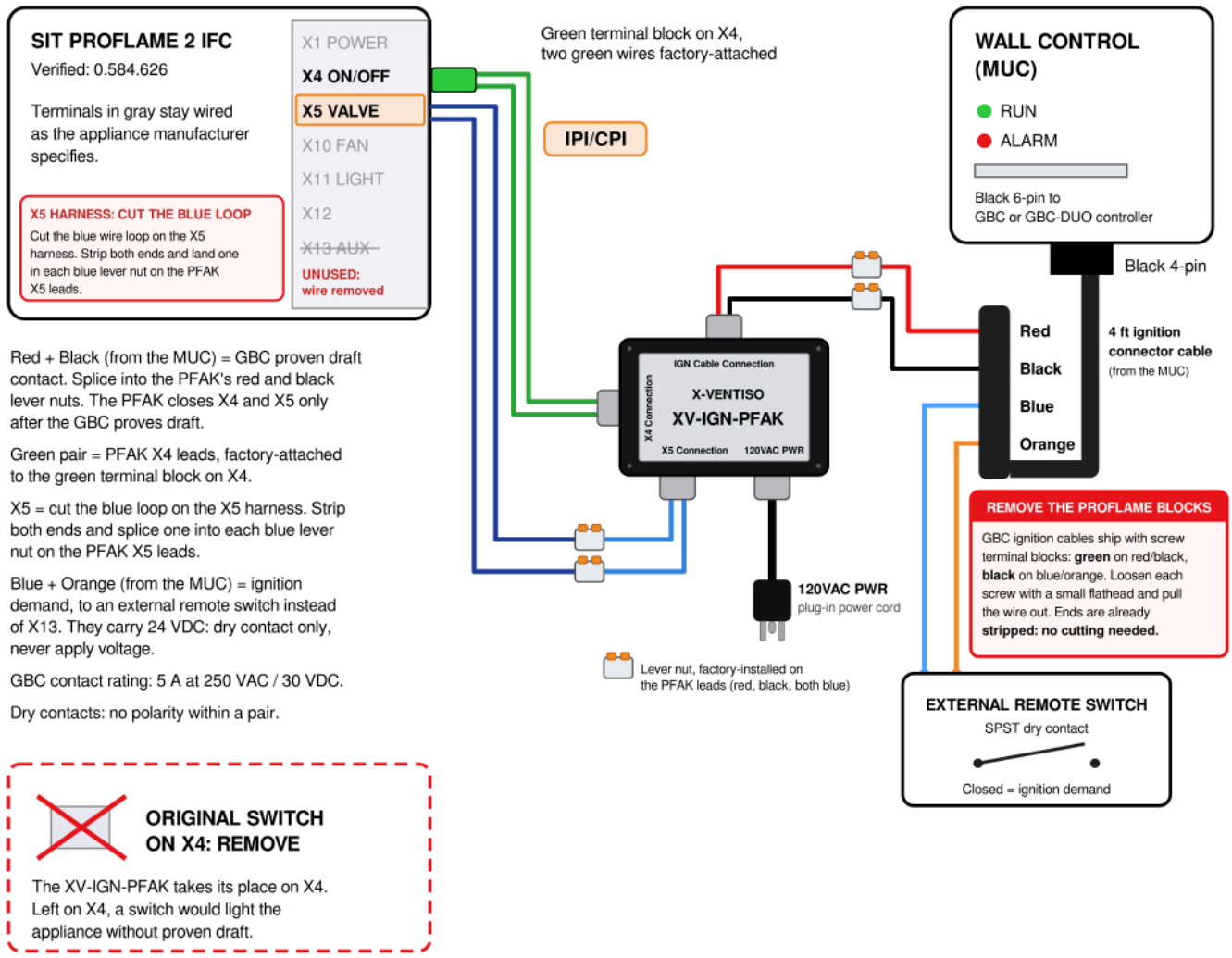



The GBC relay replaces the original ON/OFF switch on X4. AUX on X13 calls the GBC.

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

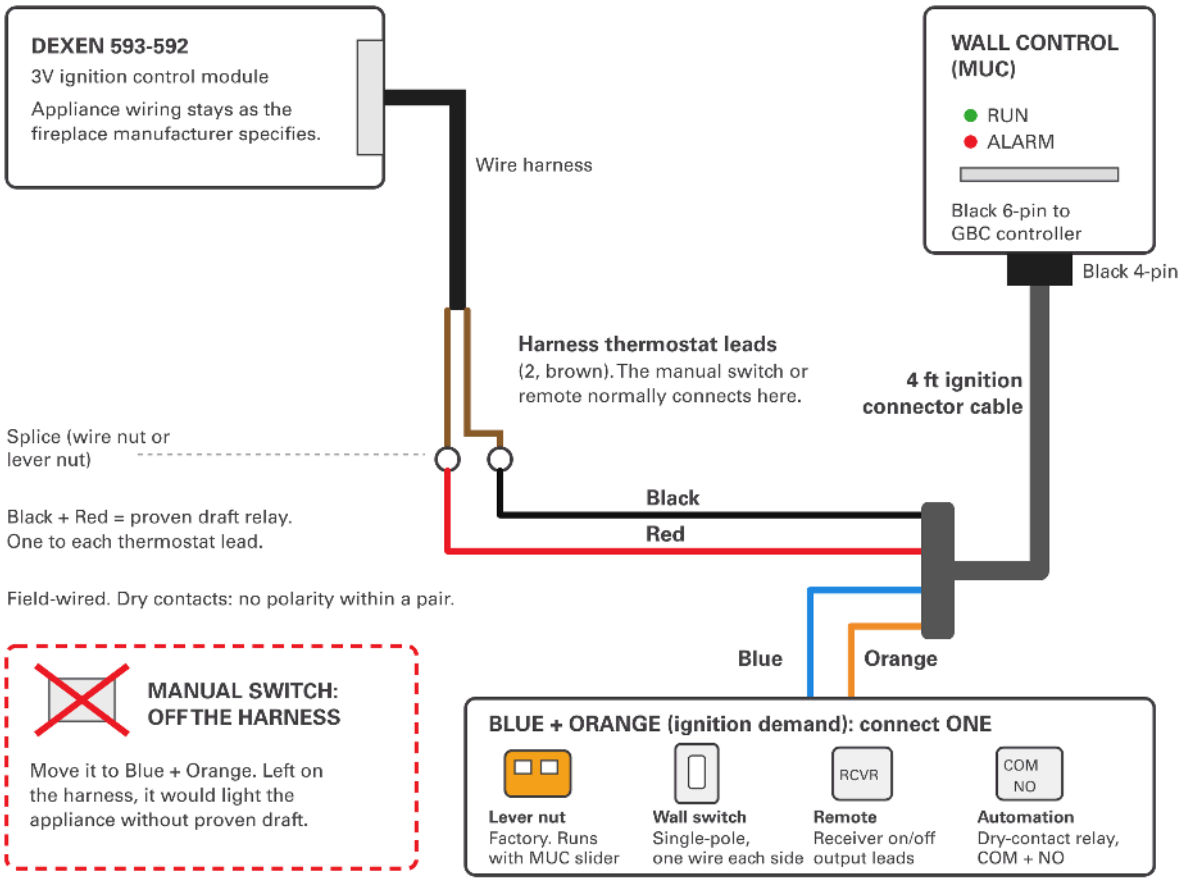
On its own, a Proflame 2 appliance runs only from its Proflame remote. To run it from a wall switch, remote receiver or automation contact instead, add the **XV-IGN-PFAK** kit. The PFAK takes over X4 and X5 and closes them only after the GBC-DUO proves draft. That frees Blue + Orange for any on/off option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

1. **Remove the Proflame blocks** from the ignition connector cable: green on red/black, black on blue/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 connector cable'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 the GBC-DUO: the PFAK closes X4 and X5 only after draft is proven.

## Dexen 593-592

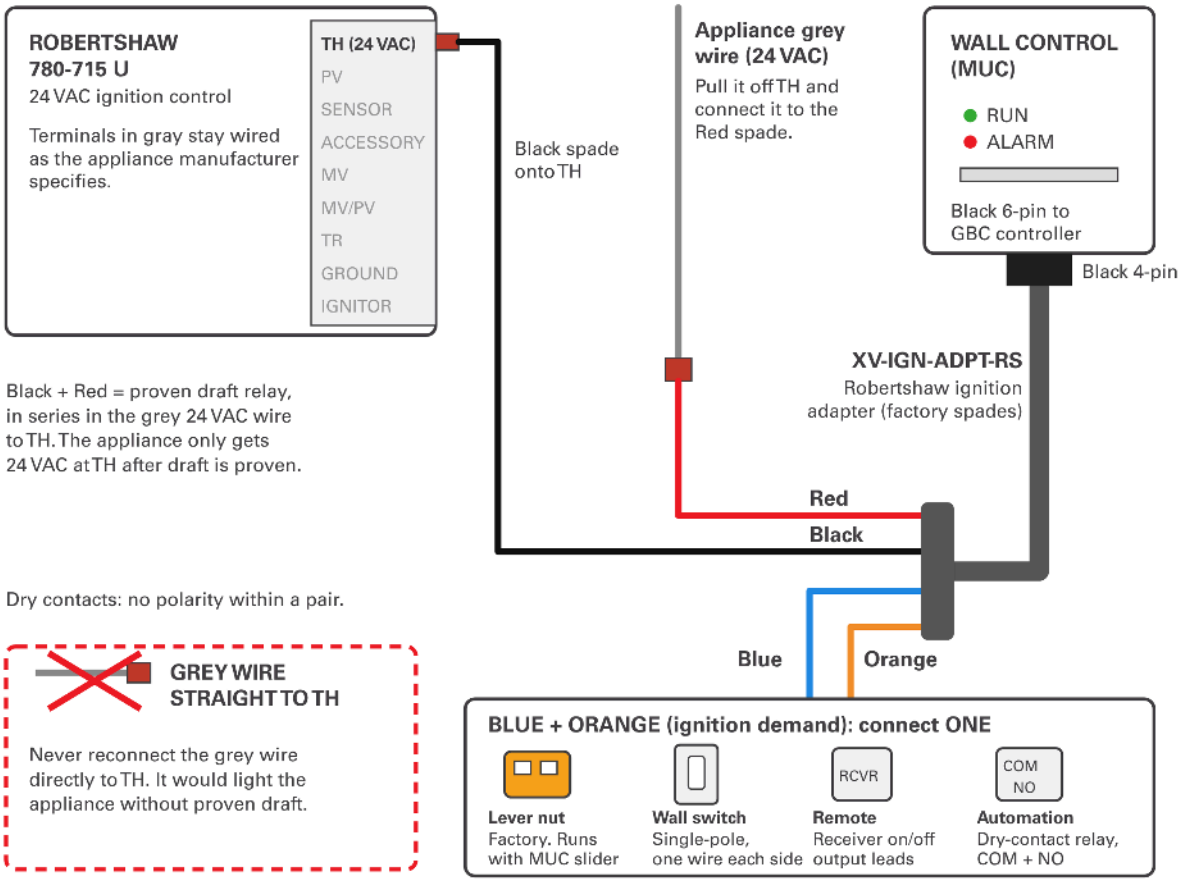



The GBC sits between the call source and the module. Remove the manual switch from the harness.

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

Order **XV-IGN-ADPT-RS**, the Robertshaw ignition adapter. It plugs into the black 4-pin on the back of the MUC in place of the standard ignition connector cable, and comes with factory spade terminals on Black and Red and a lever nut on Blue and Orange. 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's black 4-pin into the back of the MUC.
5. Leave the lever nut on **Blue and Orange**, unless you are adding an on/off remote, wall switch or automation contact. Then remove it and connect those wires to the remote or switch.

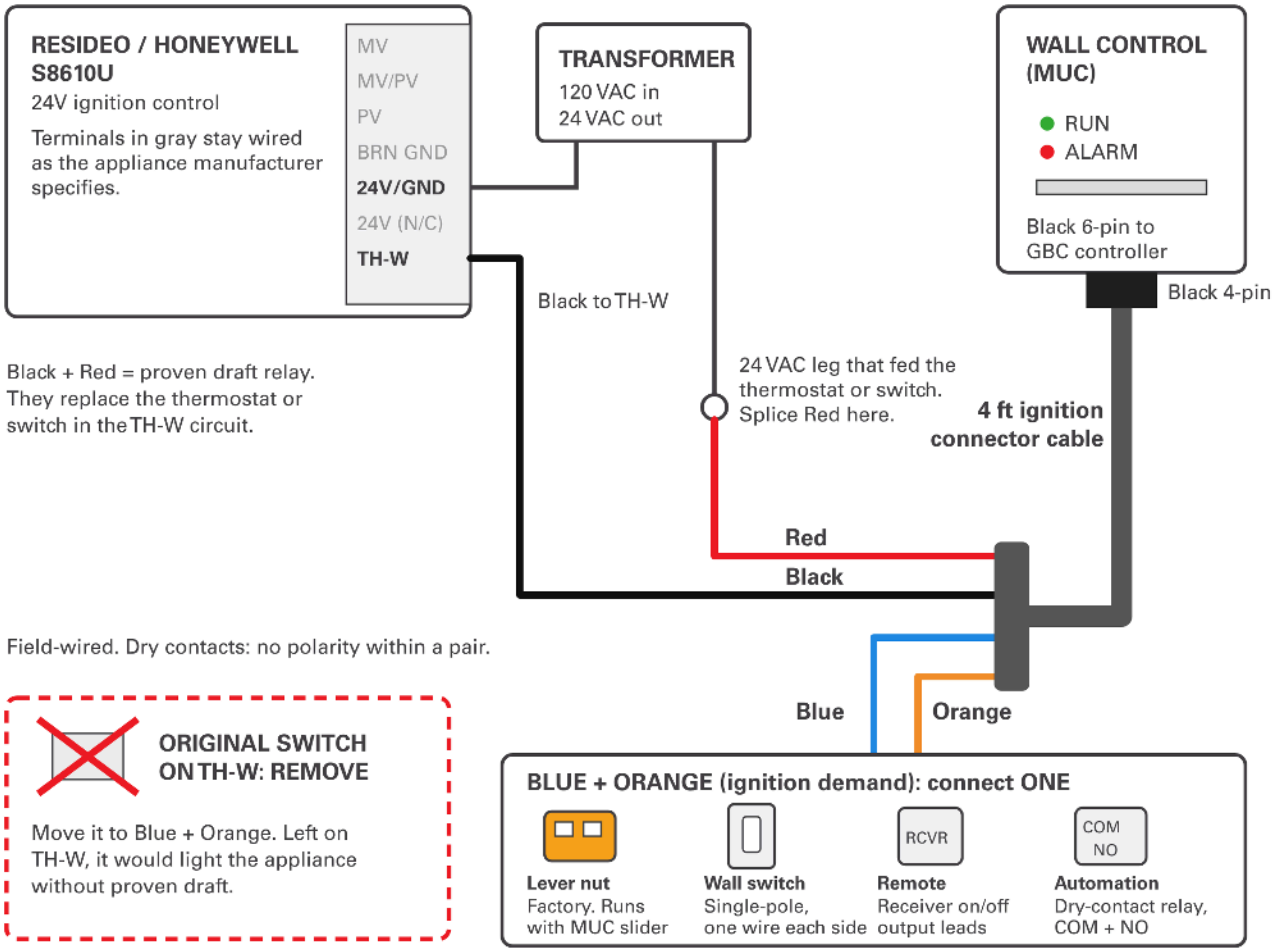



The proven draft relay sits in series in the grey 24 VAC wire to TH.

### Resideo / Honeywell S8610U (24V)

The same control is sold under both the Resideo and Honeywell 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. The GBC-DUO'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 (GBC-DUO and WBC-DUO)

These four options apply to every WBC-DUO, and to the GBC-DUO on Dexen, Robertshaw and Resideo / Honeywell modules (Proflame 2: with the XV-IGN-PFAK kit, see Appendix A). Blue + Orange on the ignition connector cable (or XV-IGN-ADPT-RS) is the call that starts the system. Close the contact and the system runs; open it and the system shuts down with a post-purge. Pick **one** of the four options below. The MUC slider still has to be above OFF.

### A NO SWITCH: LEVER NUT

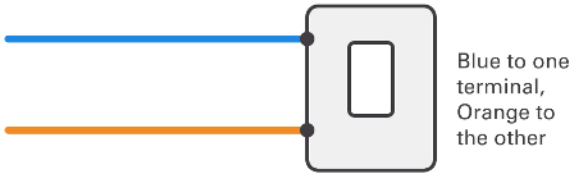
From the ignition cable




The system runs whenever the MUC slider is above OFF. Ships this way from the factory. Remove the lever nut only to use B, C or D.

### B WALL SWITCH

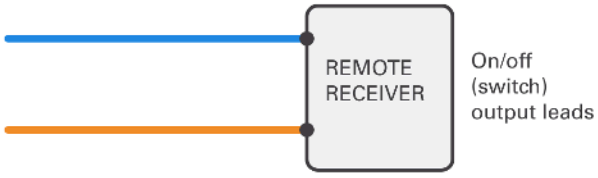
From the ignition cable




Any single-pole switch. It only switches the low-voltage dry contact: no line voltage on these wires. ON = system runs.

### C HEARTH REMOTE RECEIVER

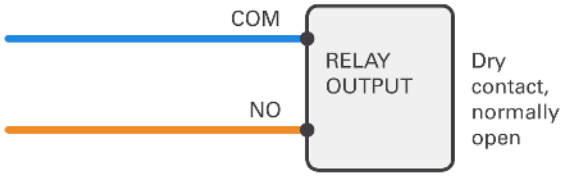
From the ignition cable




Use the receiver's on/off switch output, the leads that would otherwise go to the appliance. Never connect them to the ignition module too.

### D HOME AUTOMATION

From the ignition cable




Use a dry-contact relay output, COM and NO (field installs include Lutron and Crestron). Program it to stay closed while on.

**NEVER PUT VOLTAGE ON BLUE + ORANGE.**

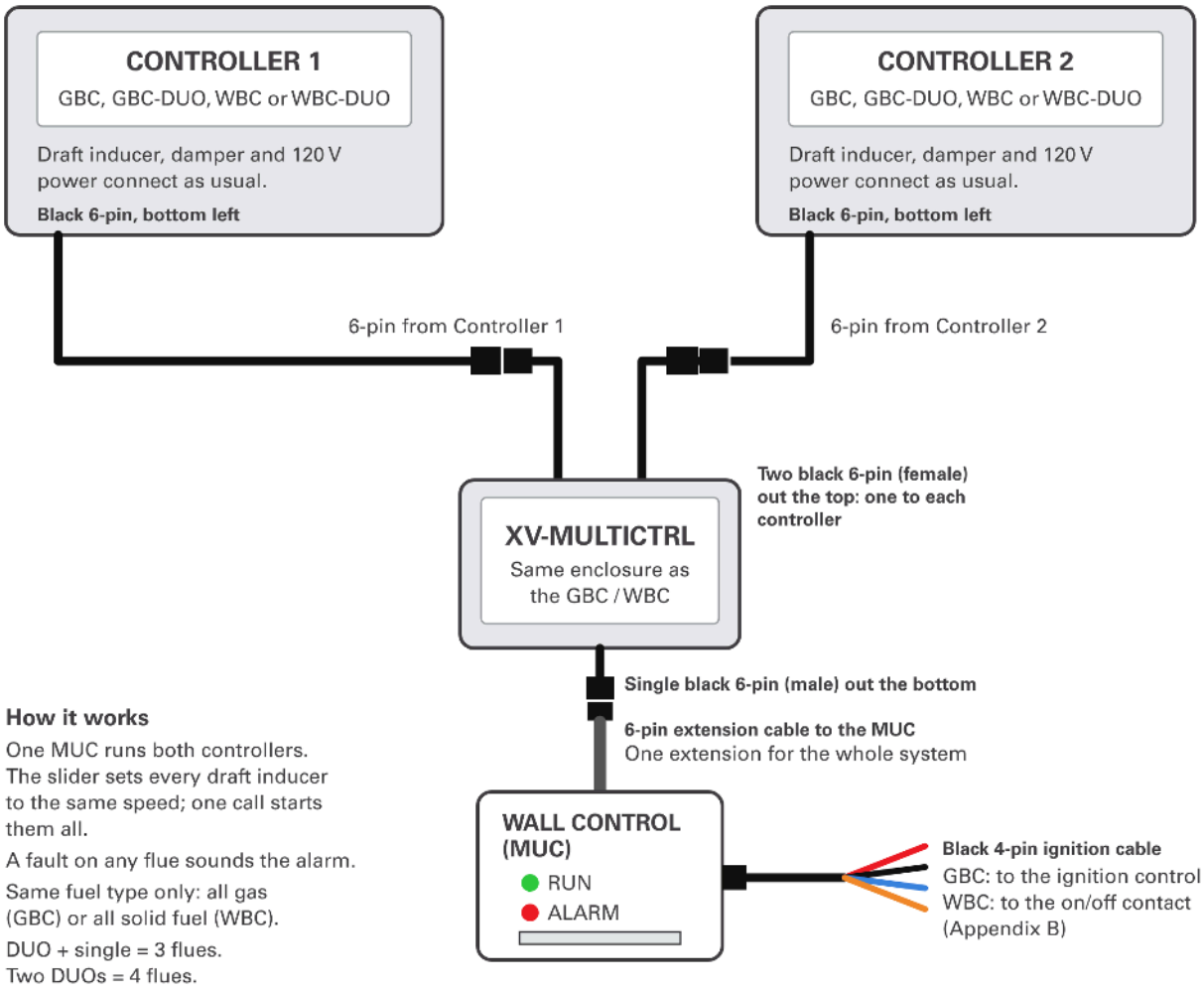
Blue + Orange already carry 24 VDC from the controller. Close them with a dry contact only: a switch, lever nut, remote receiver contact or automation relay. **Never connect line voltage (120 V), 24 VAC or a remote's battery power to them.**

**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 (XV-MULTICTRL)

XV-MULTICTRL runs two controllers from one wall control (MUC), for one appliance with three or four flues: a DUO plus a single for three flues, or two DUOs for four. It uses the same enclosure as the GBC and WBC. Same fuel type only: all gas or all solid fuel.

1. Install each controller with its draft inducers and dampers as usual. Each keeps its own draft inducer, damper and 120 V power connections.
2. Plug each controller's black 6-pin (bottom left of the controller) into one of the two black 6-pin leads on top of the MULTICTRL.
3. Run **one** 6-pin extension cable from the MULTICTRL's bottom 6-pin to the MUC. One MUC and one extension serve the whole system.
4. Connect the MUC's black 4-pin ignition cable as usual: to the appliance ignition control (gas), or to the on/off contact (solid fuel, Appendix B).




**How it runs:** one slider sets every draft inducer to the same speed, and one call starts them all. A fault on any flue sounds the alarm; on gas, the appliance stays off. Works best on flues of similar size and height; if they differ, call first. Follow the instructions that ship with the XV-MULTICTRL, and call 800.642.2920 before you install.

X-VENTISO by earthcore®

## Leave this manual with the homeowner.

Keep it with the appliance's own instructions. It has the commissioning record, the speed setting and everything a service technician needs.

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