2018

ISIMET
Utility Controller

Installation Manual

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903-781-6994

ISIMET UtC Utility Controller
Installation Manual

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Patent 6,757,589 B1, 6,990,393 B2, 8,543,225, Other Patents Pending

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Important Warnings

Indoor Storage and Installation:

Installers shall be responsible for protecting the control panel, solenoids, and electrical enclosures from rain, liquids, construction and drywall debris and materials, dust, and extreme heat or cold (above 90°F and below 32 F°). Such exposure may result in equipment malfunction/failure.

Preventing Transient Voltage:

Control wiring MUST be housed in separate conduit from power wire (120VAC, 24VAC, or 12VDC).

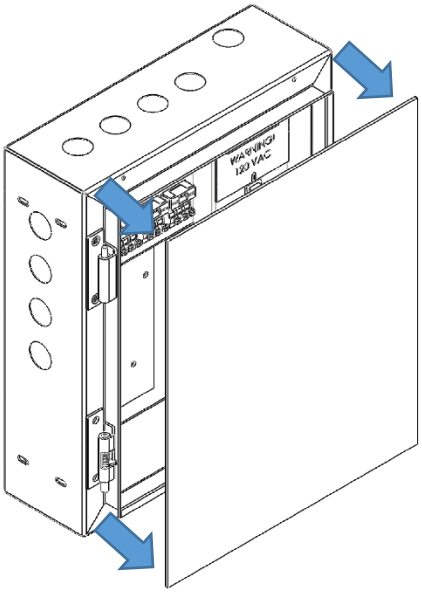
Codes and Experience:

Only qualified, licensed plumbers and electricians within the governing jurisdiction should perform this installation and/or service this equipment.

All ADA, local plumbing, and national electrical codes must be followed.

Mounting the Utility Controller (UtC)

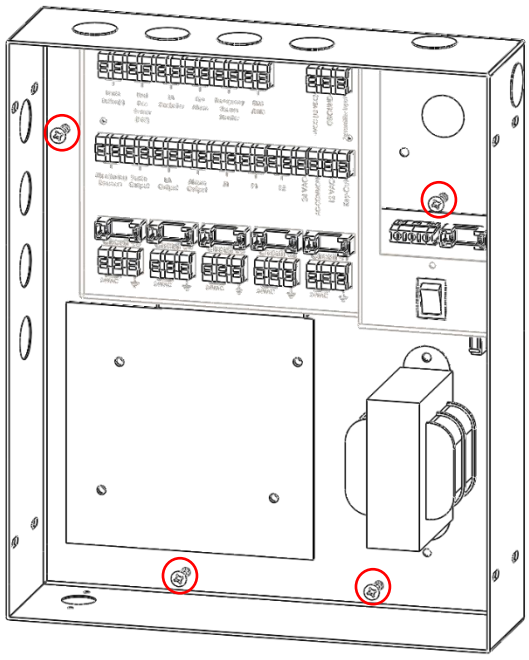
There are two options for mounting the Utility Controller: Flush Mount and Surface Mount. Skip to the required section for installation instructions.



NOTE: Be sure to save and reinstall the cardboard protective covering after installing the UtC to protect the electronics from damage during drywall/wall finishing!

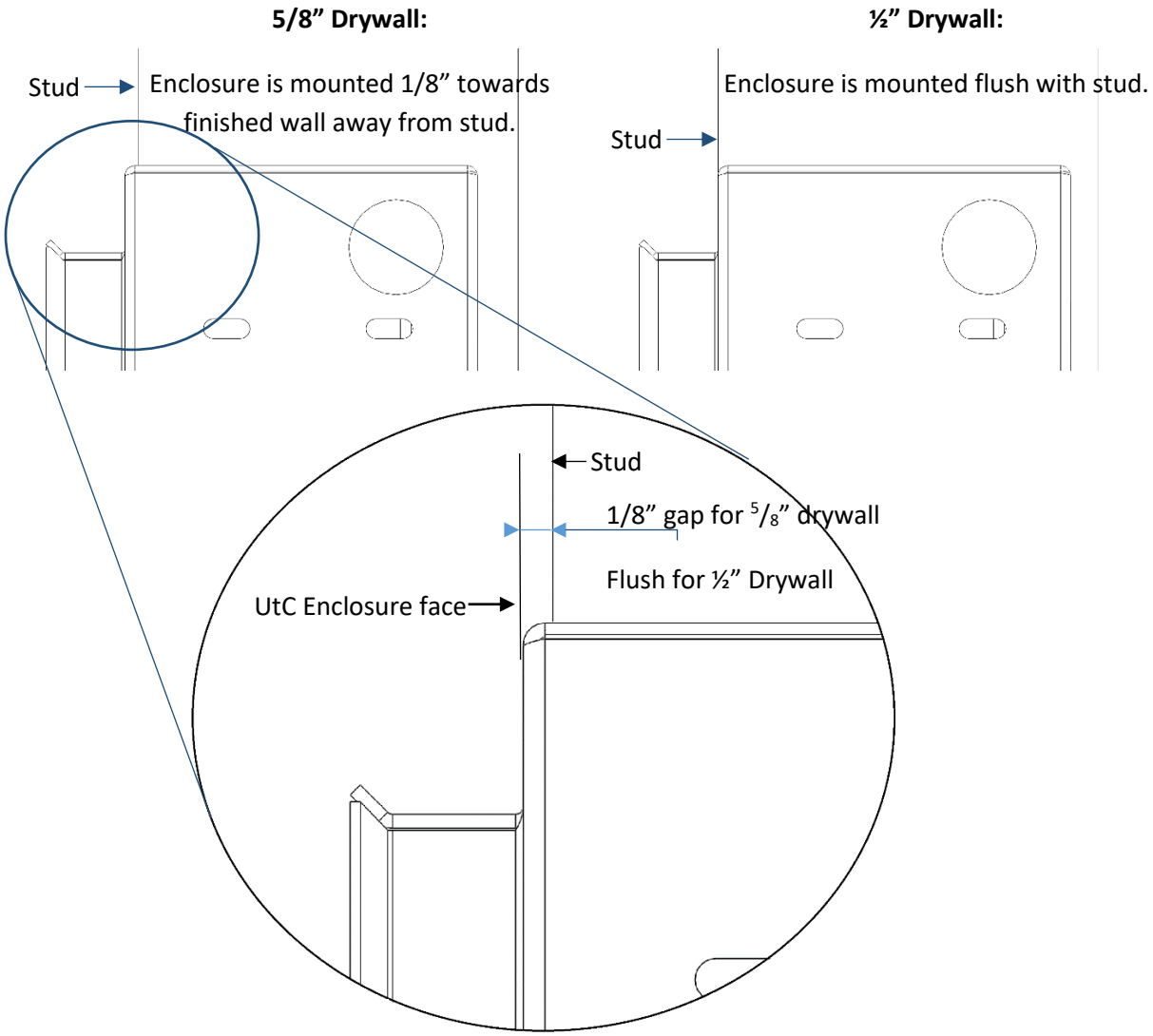
Surface Mount Installation (Skip ahead for Flush Mount Installation)

1. Remove the cardboard protective cover from the UtC and save for later reinstallation.
2. Level and secure the UtC to the surface using appropriate screws in the following locations.



Flush Mount Installation (Recommended)

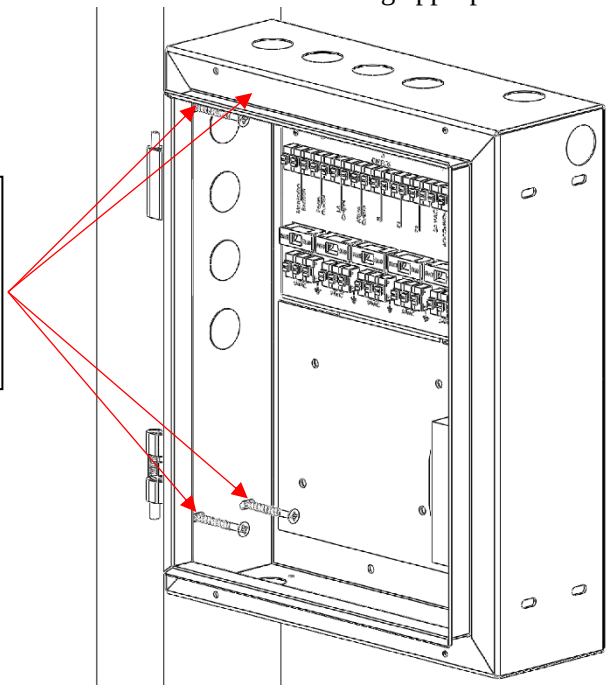
1. Remove the cardboard protective cover from the UtC and save for later reinstallation.



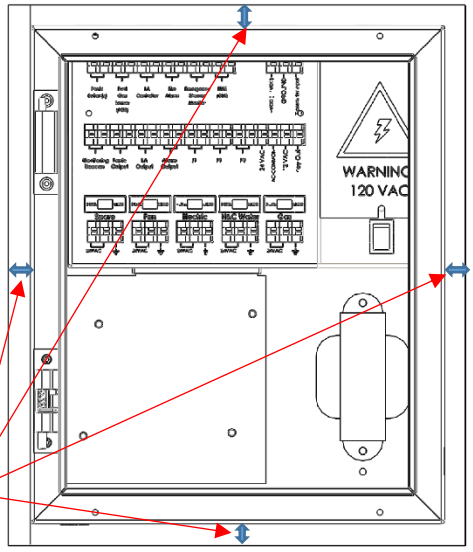
2. Place the UtC Enclosure next to the stud allowing for finished wall clearance. (This can be slightly adjusted after installation by loosening the mounting screws shown in the next step, adjusting, and then re-tightening.)

3. Level and secure the UtC Enclosure to the stud using appropriate mounting screws.

Ensure that the mounting screws are centered to allow for minor adjustments, if needed, after the trim plate is installed.

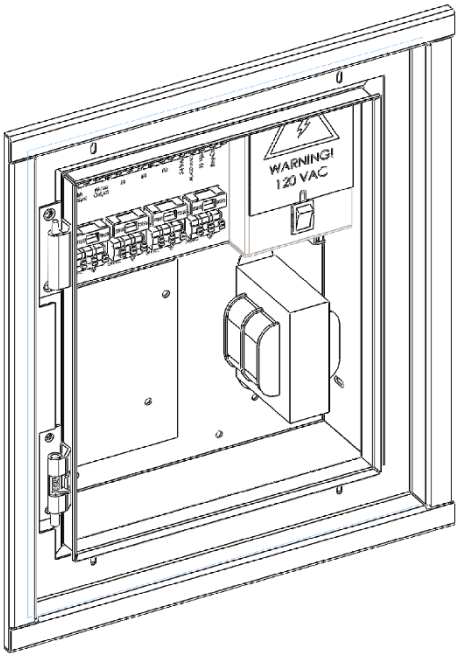


4. The UtC must have a ½" gap around the enclosure when installing the finished wall to accommodate the metal Trim Plate.



½" Gap

Between UtC Enclosure and Finished Wall

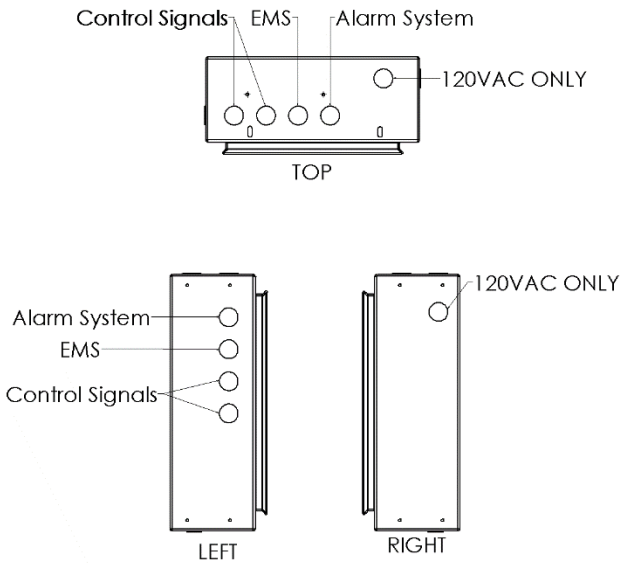


UtC with Trim Plate Installed (After finished wall)

Electrical Conduit Installation

A licensed electrical contractor should perform this step following all electrical codes and procedures.

1. Remove the required knockouts to the UtC. (Either TOP or LEFT and RIGHT Configuration)



It is <u>recommended</u> to install all control wiring in separate conduit as follows:

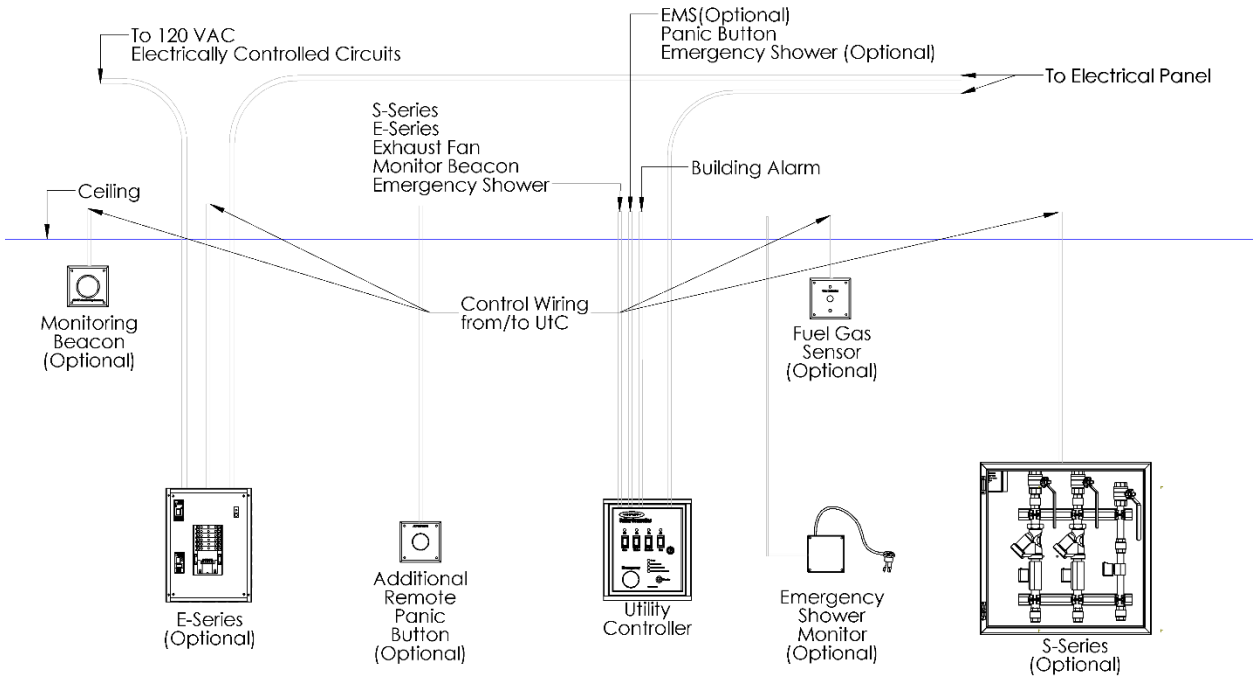
Wires That Can go in Same Conduit	
Outputs (24 VAC)	**Gas Solenoid Control Wiring** **Water Solenoids Control Wiring** **Electrical Outlets Control Wiring** **Exhaust Fan Control Wiring** **Beacon Control Wiring**
Inputs (24 VAC)	**EMS** **Panic Button(s)** **Emergency Shower**
Must be In Separate Conduit	**Alarm**

If, however, conduit is not used, separate these control signals from each other as much as possible (minimum 2") to prevent transient/induced voltages.

Electrical Metallic Tubing (EMT) should be used to separate these control signals from the 120VAC.

ISIMET UtC
Example Installation

Notes:
Control Wiring must be a minimum of 18/4 Shielded Wiring(18AWG with 4 conductors).



Gas and/or Water Piping Installation

A licensed plumber and/or pipe fitter should perform this step following all national and local codes and procedures.

1. The UtC outputs 24VAC to be utilized by the solenoids with a max rating of 90VA. Relays must be used if any other voltages are to be used by the solenoid(s).
2. Ensure the solenoid enclosure is installed in a location that is readily accessible.
3. It is recommended to flush the pipes to prevent leakage or blockages.
4. Install the piping for the hot and cold water with the correct orientation following the flow indicated on the solenoids.
5. Install the piping for the gas line using the appropriate pipe diameter and following all national and local codes.

Wiring the Utility Controller

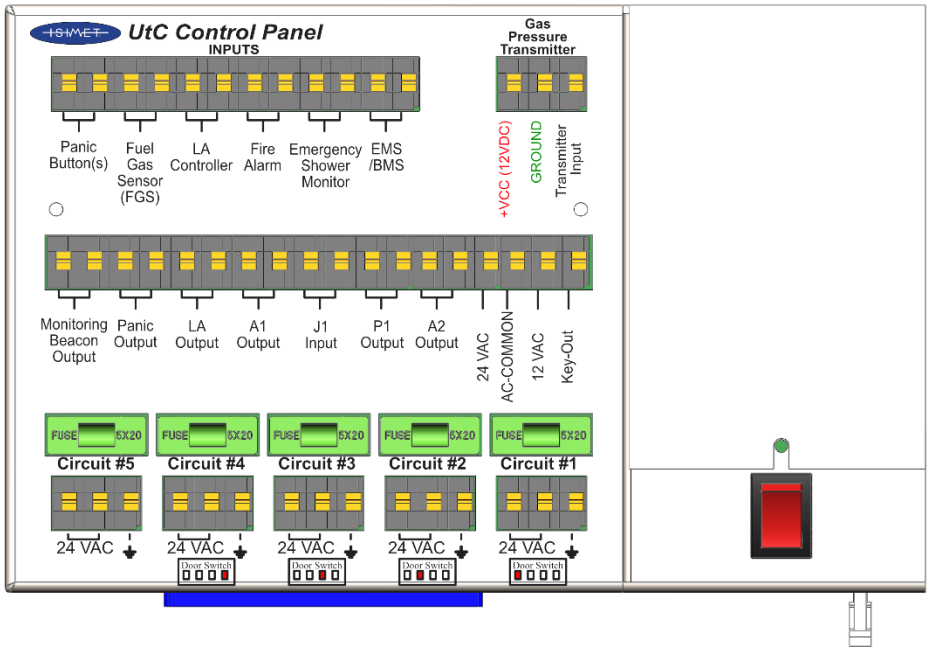
The UtC utilizes 24VAC as a standard. All Circuit Outputs are 24VAC.

CAUTION: DO NOT CONNECT TO ANYTHING THAT DOES NOT UTILIZE 24VAC UNLESS USING A RELAY!

24VAC Normally Closed (NC) Solenoids are recommended to prevent operation during power loss

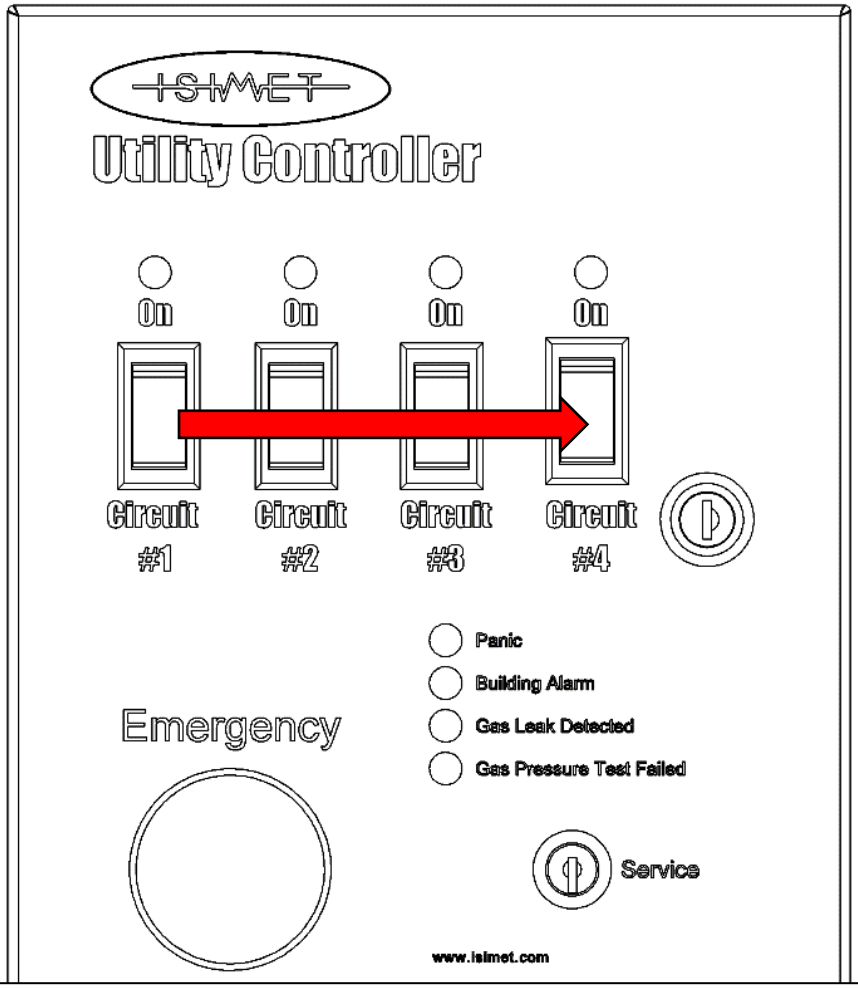
- **Use ONLY with ISIMET approved products.**
- **Turn OFF the service switch PRIOR to any wire connections.**
- **#18 AWG shielded wire should be used for all control wiring**
- **All shielding should be grounded to ⏚ of the UtC Control Panel**
- **Remove and store all protective coverings for reinstallation after wiring**

UtC Control Panel

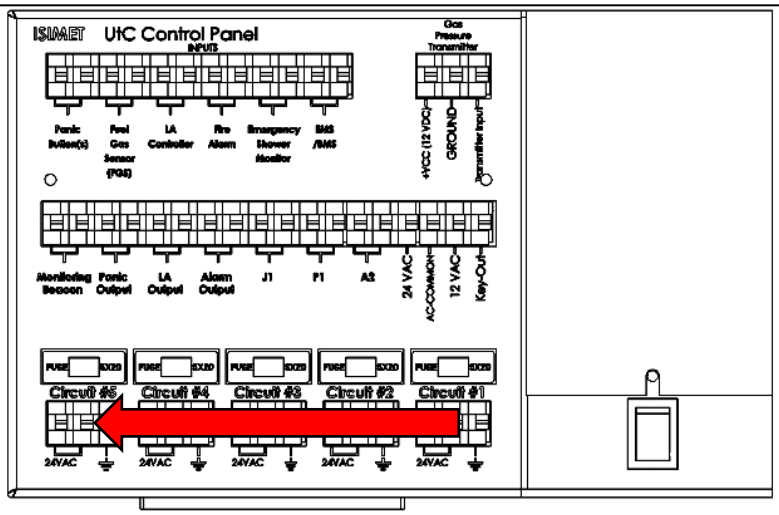


See Control Panel Terminal Definitions in the appendix.

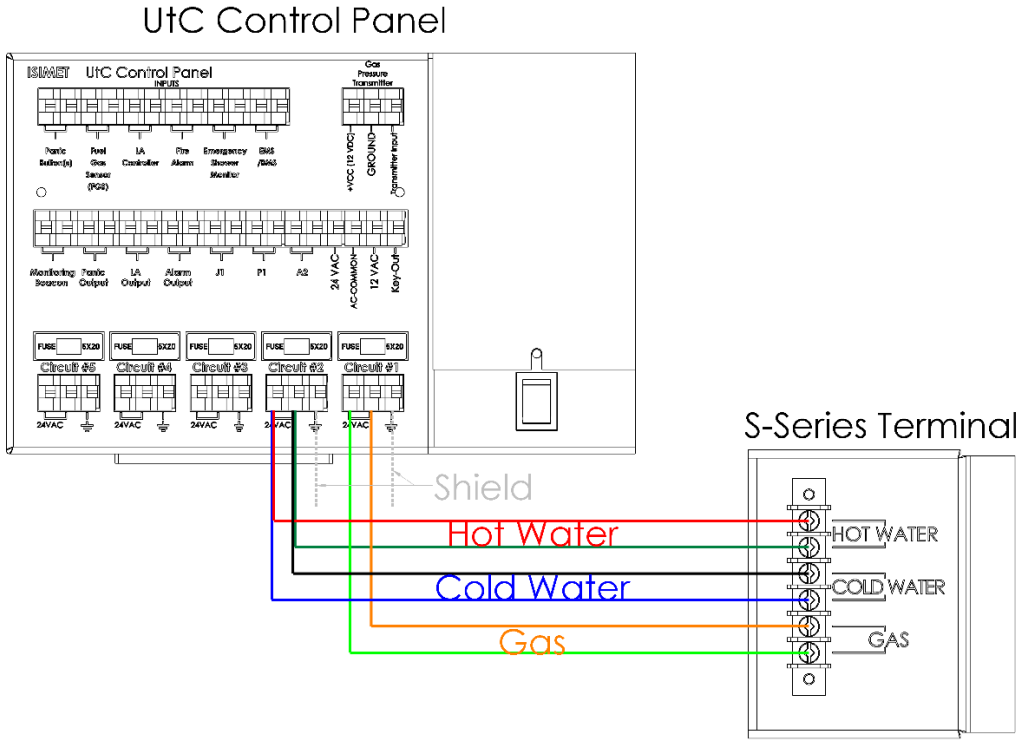
Note: Polarity does NOT matter for control wiring unless explicitly called out in this instruction set.



Note: The door panel has the circuits labeled from left to right while the inner control panel has the circuits labeled from right to left.

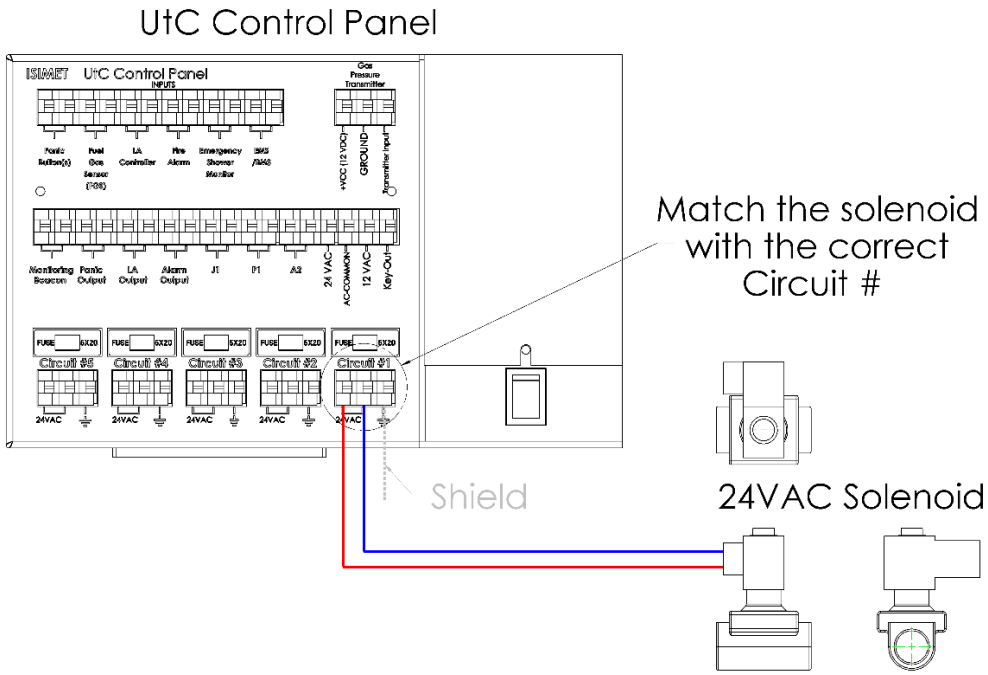


S-Series [Gas and/or Water Standalone Solenoid(s)]



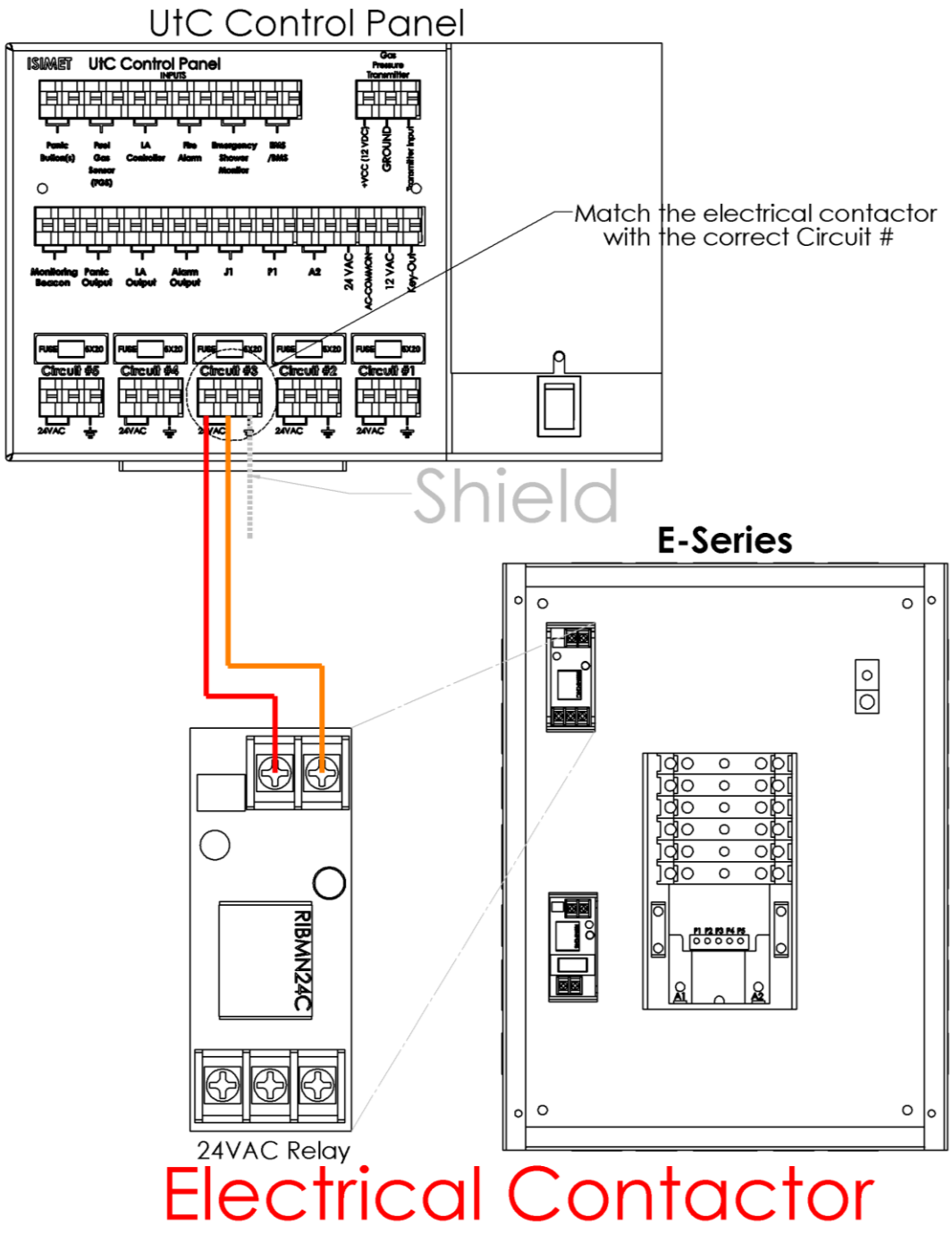
S-Series Wiring

Use 2x 18/4 AWG shielded control wiring to connect to the S-Series Terminal as shown above. It is recommended to use wire labels to label each wire as they are being run.

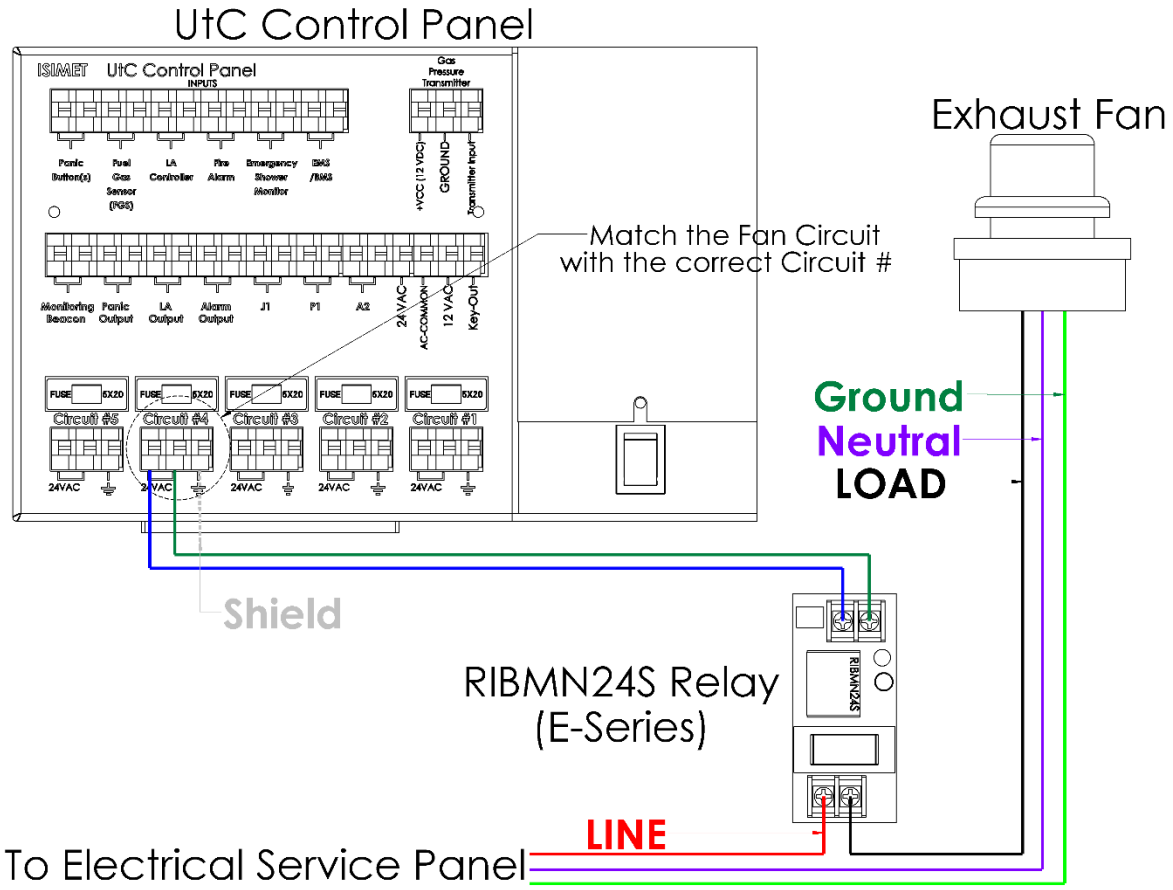


Standalone Solenoid Wiring

E-Series (Electrical 24VAC Contactor)

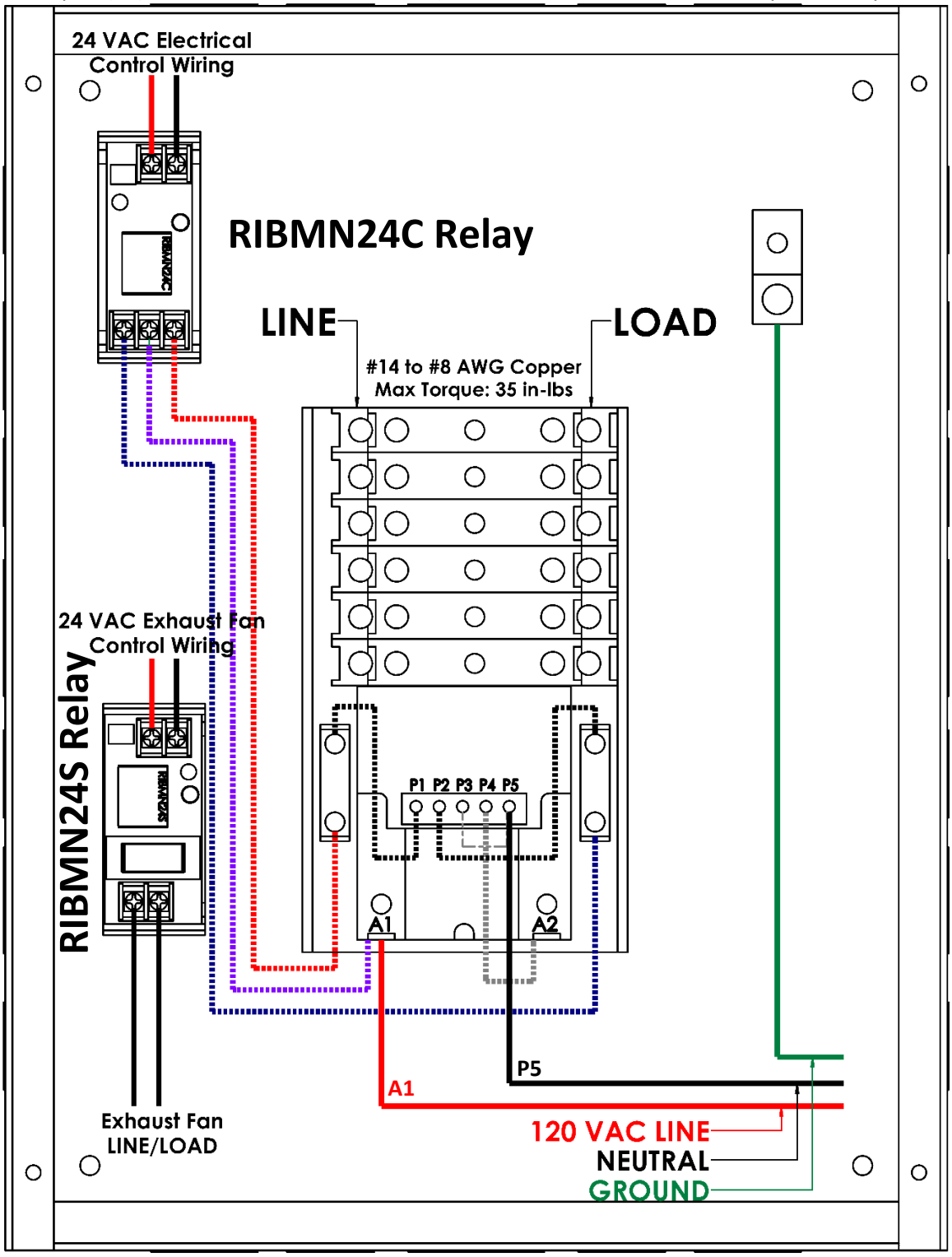


E-Series (Exhaust Fan Control)



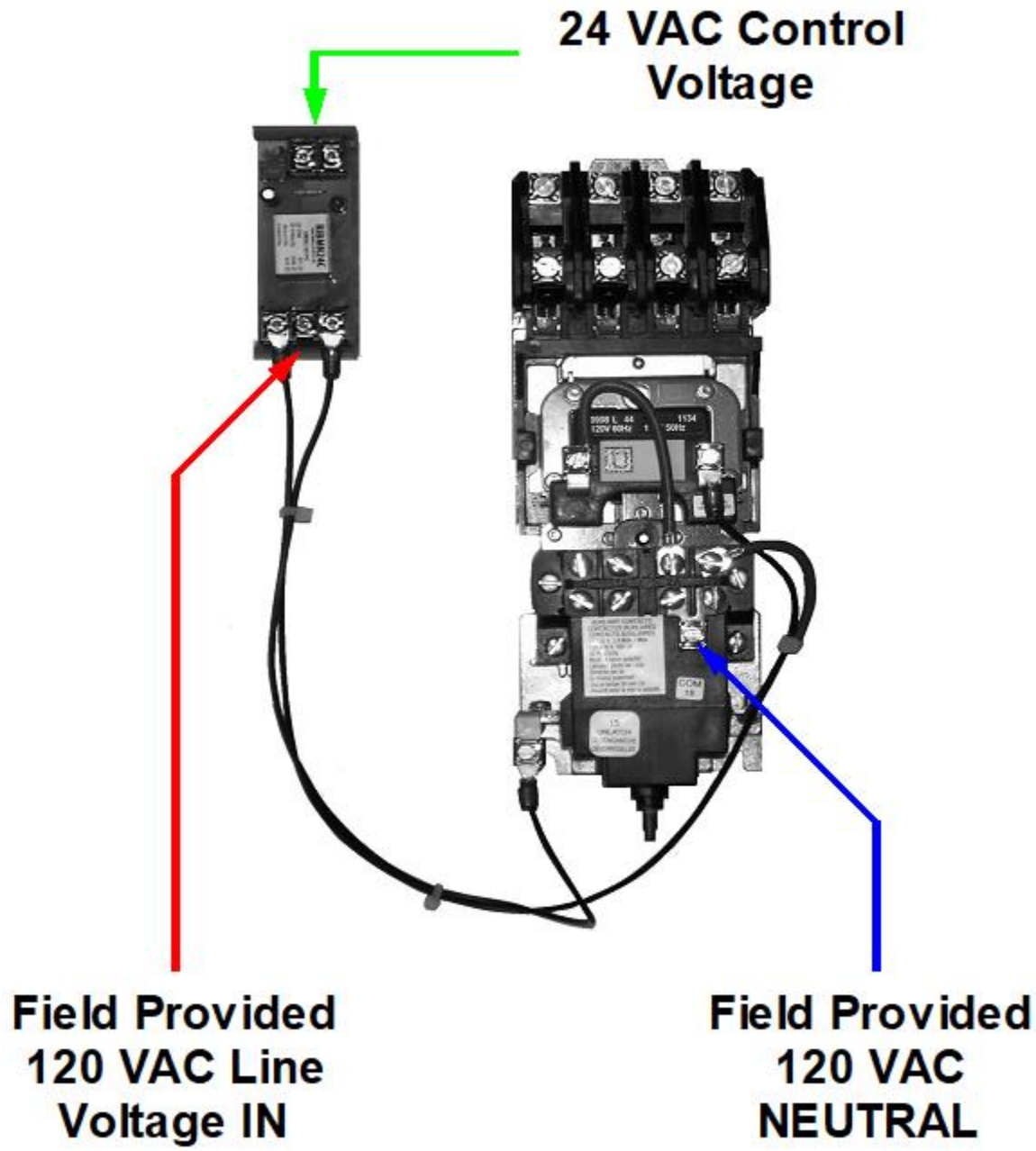
E-Series Additional Wiring (Optional Eaton Contactor)

Connect up to (12)-120V Circuits to the E-Series (These circuits will be controlled by the Utility Controller).



Note: Dashed lines indicate connections pre-made.

E-Series Additional Wiring (Optional Square D Contactor)



ISIMET Relay Specifications

Note: RIBMN24**S** has 2 output terminals while RIBMN24**C** has 3.

RIBMN24C

UtC Control Panel	E-Series Relay
Electric (Circuit #3)	*RIBMN24C (Pin 1) Input*
Electric (Circuit #3)	*RIBMN24C (Pin 2) Input*

E-Series *RIBMN24C* Relay Output	E-Series Electric Contactor
Pin 1	*Preconnected*
Pin 2	*Preconnected*
Pin 3	*Preconnected*

RIBMN24S

UtC Control Panel	E-Series Relay
Spare Circuit (Circuit #5)	*RIBMN24S (Pin 1) Input*
Spare Circuit (Circuit #5)	*RIBMN24S (Pin 2) Input*

E-Series *RIBMN24S* Relay Output	E-Series Electric Contactor
Pin 1	*Exhaust Fan LINE*
Pin 2	*Exhaust Fan LOAD*

Contact Ratings:

15A General Use @ 125 VAC

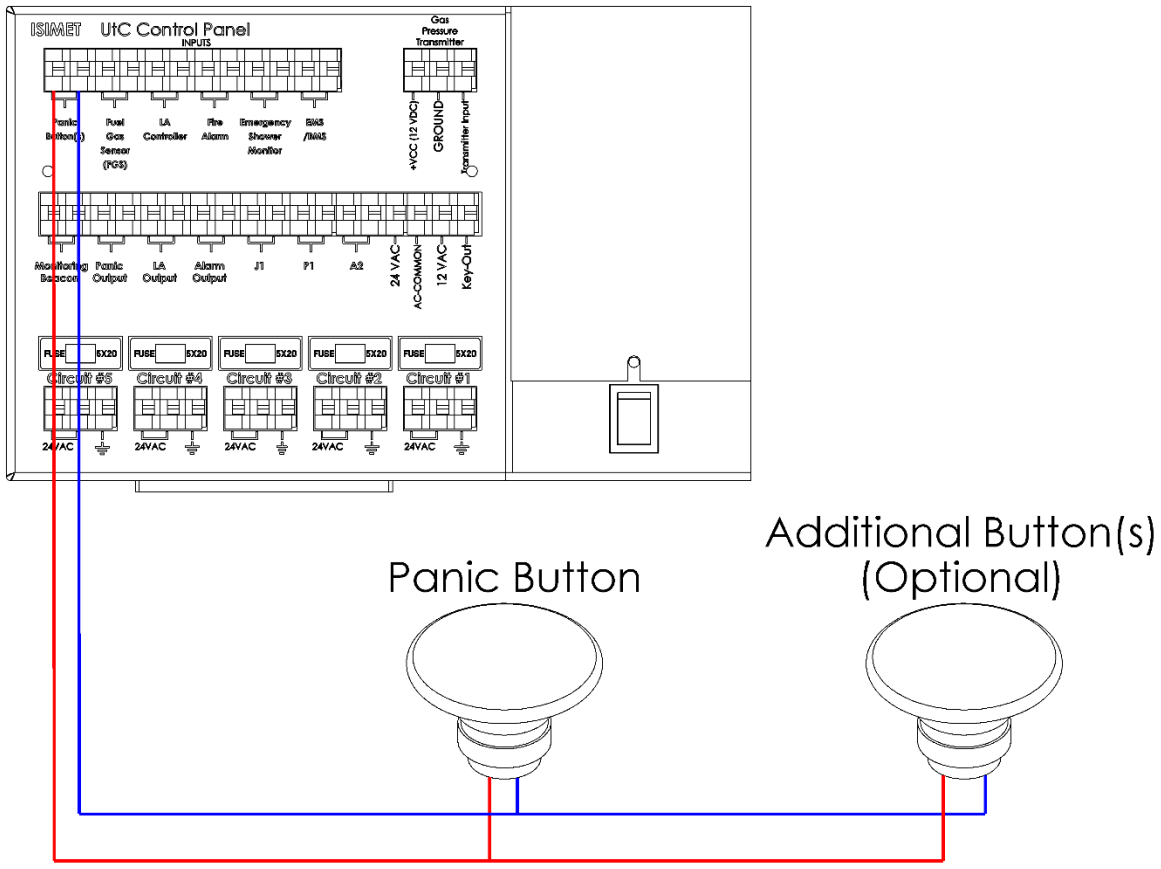
10A General Use @ 277 VAC

½ HP @ 125 VAC

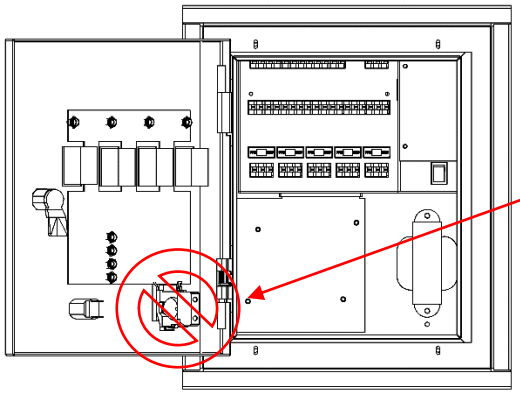
1 HP @ 250 VAC

¼ HP @ 277 VAC

Remote Panic Button(s)



Multiple panic buttons can be attached to the UtC in parallel as long as they are Normally Opened (NO) emergency panic buttons.

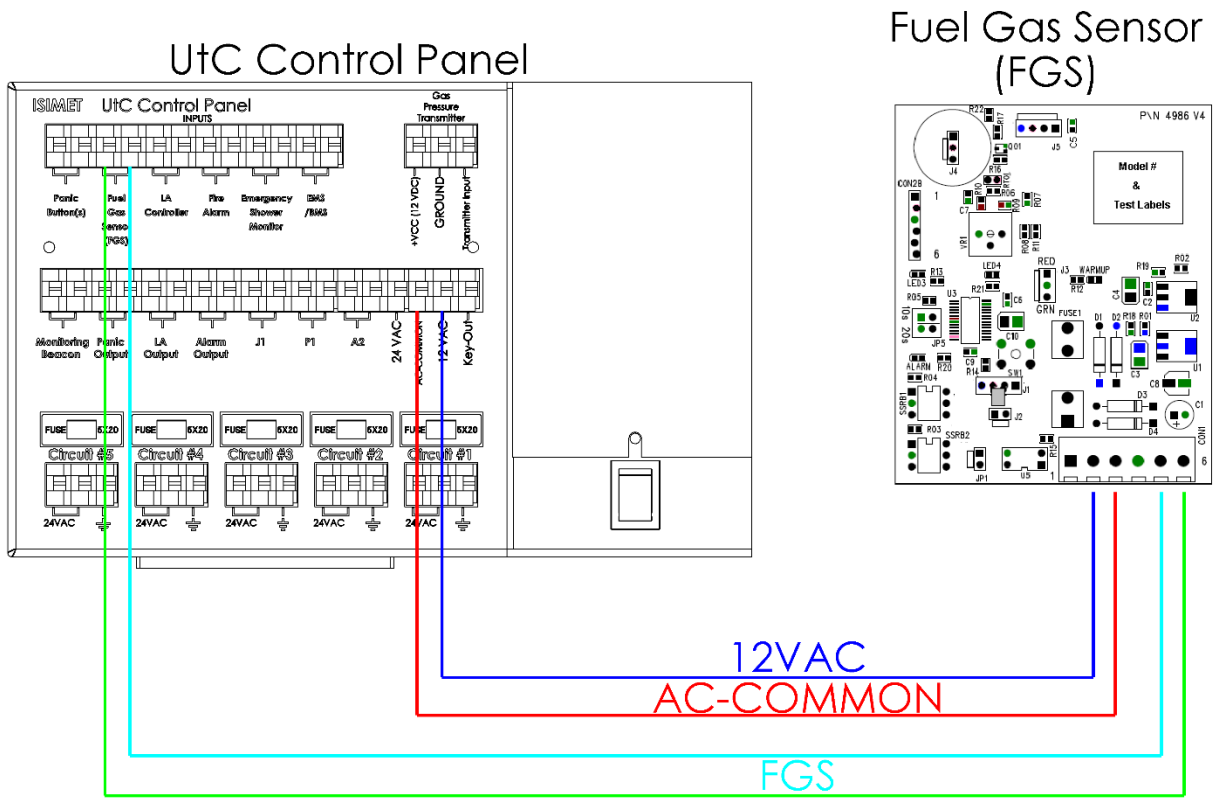


Warning!

The door mounted panic button is pre-wired and should not be connected to anything other than the factory wiring!

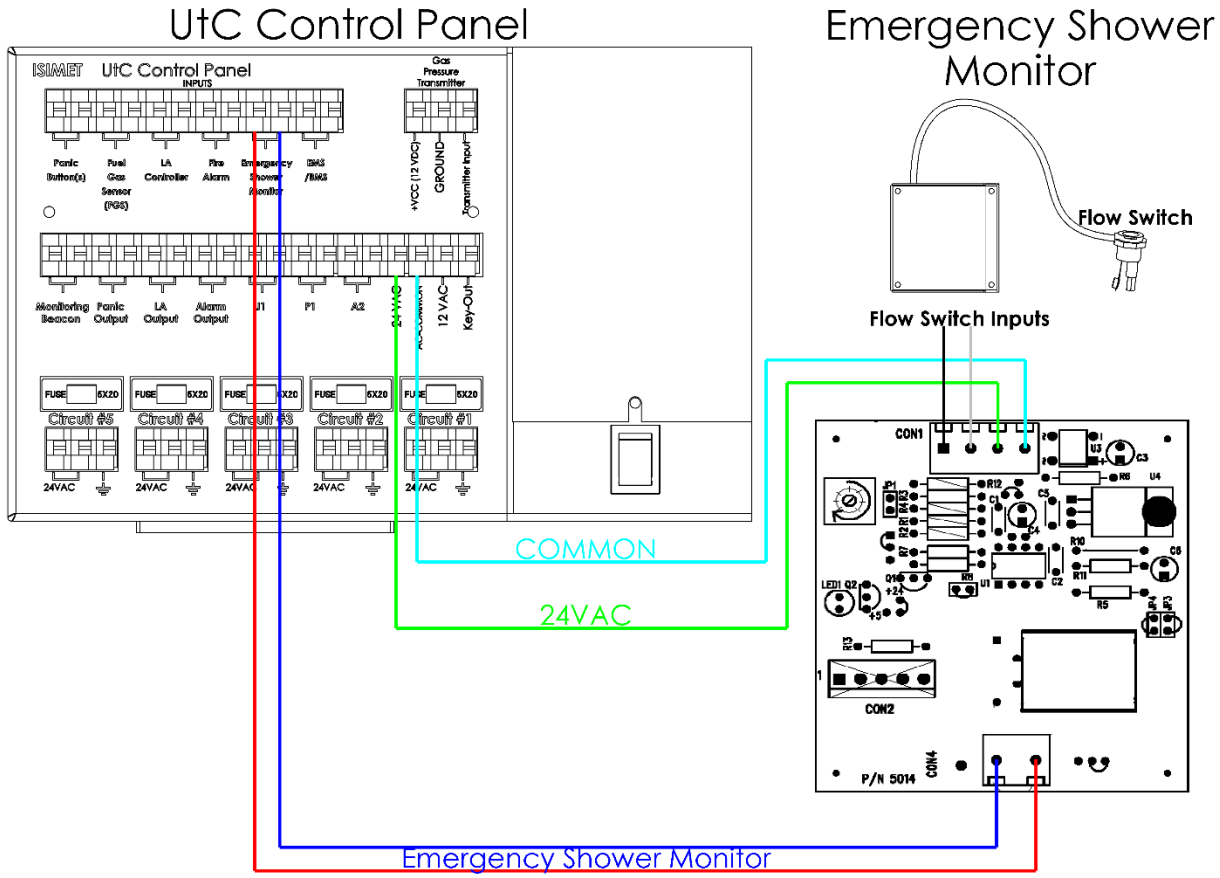
Note: Additional Panic Buttons must be run in parallel. Test each button periodically to ensure proper functionality.

Fuel Gas Sensor (Optional)



UtC Control Panel	Fuel Gas Sensor
Fuel Gas Sensor (FGS)	*CON1 (Pin 6)*
Fuel Gas Sensor (FGS)	*CON1 (Pin 5)*
AC-COMMON	*CON1 (Pin 4)*
12VAC	*CON1 (Pins 3 & 2)*

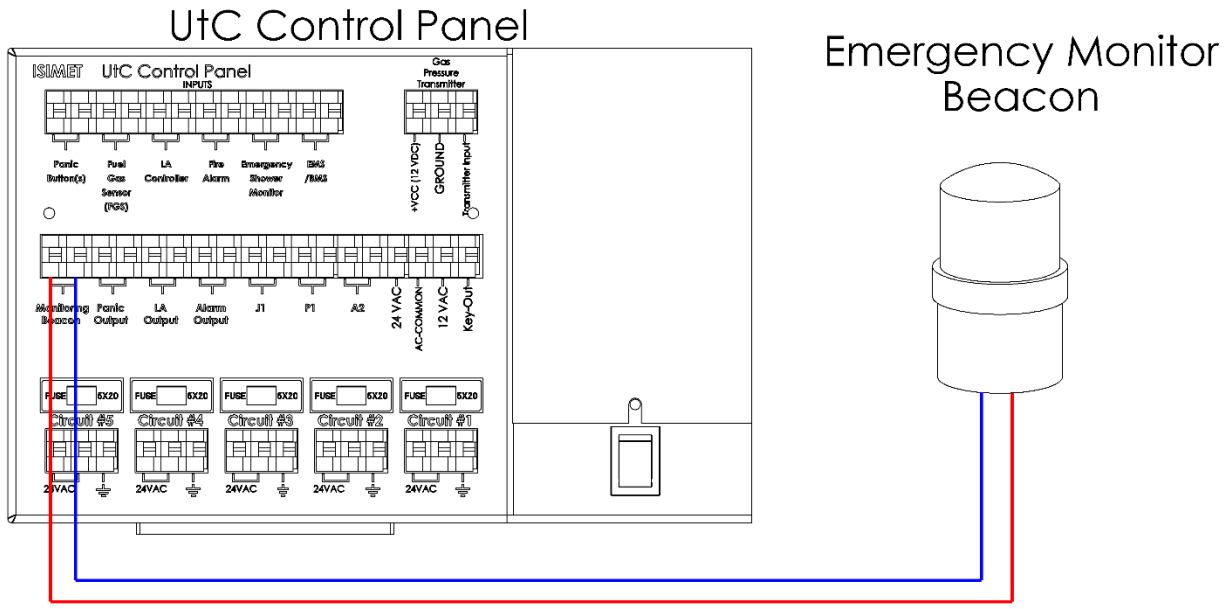
Emergency Shower Monitor (Optional)



Note: After the flow switch is installed directly upstream of the emergency shower, the flow switch wiring should be inserted into the rubber grommet of the junction box and connected as shown.

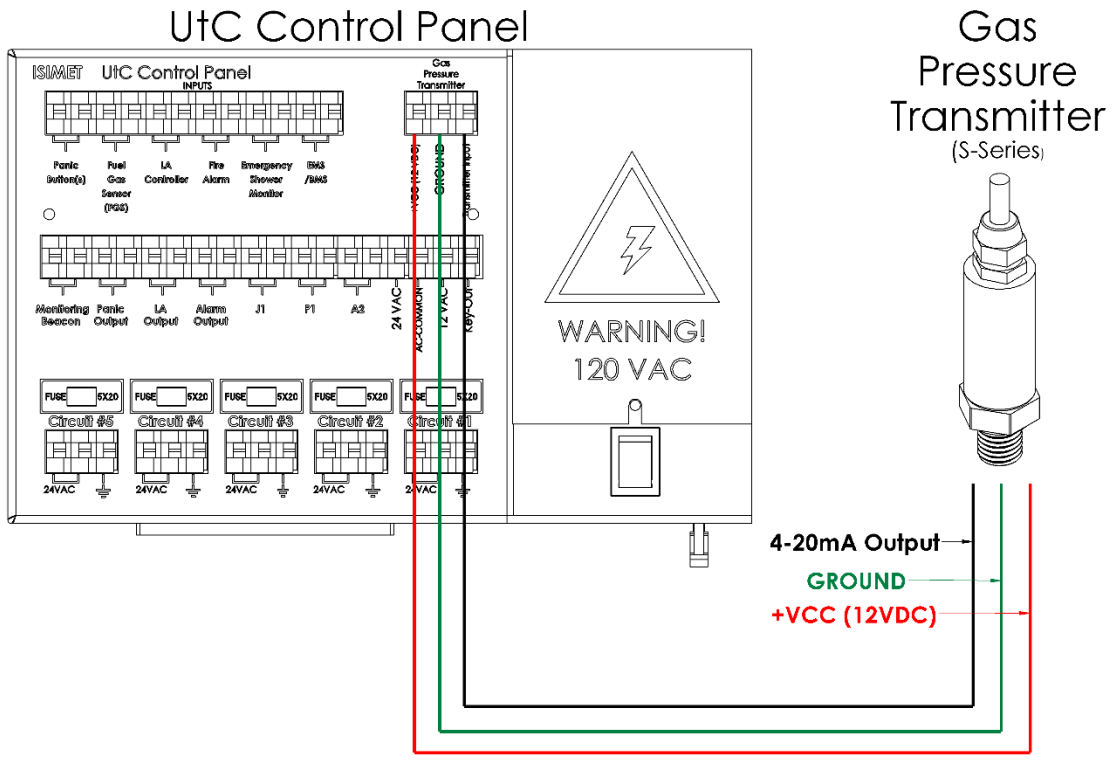
UtC Control Panel	Emergency Shower Monitor
Emergency Shower Monitor	*CON4 (Pin 1)*
Emergency Shower Monitor	*CON4 (Pin 2)*
Flow Switch Input (Black)	*CON1 (Pin 1)*
Flow Switch Input (White)	*CON1 (Pin 2)*
24VAC Out	*CON1 (Pin 3)*
COMMON	*CON1 (Pin 4)*

Monitoring Beacon (Optional)



UtC Control Panel	Emergency Monitor Beacon
Monitoring Beacon	*Black*
Monitoring Beacon	*White*

Gas Pressure Transmitter (Optional)

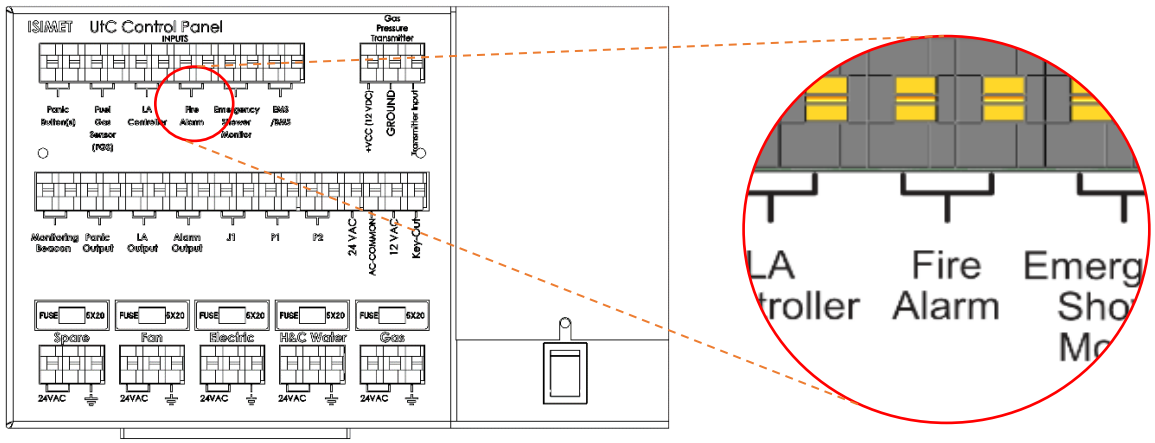


WARNING: Gas Pressure Transmitter cannot handle pressures exceeding 45 psi.

UtC Control Panel	Pressure Sensor
+VCC (12VDC)	*+VCC (12VDC)*
Ground (GROUND)	*Ground*
Pressure Transmitter (Input) (PS Input)	*4-20mA Output*

Building Fire Alarm (Optional)

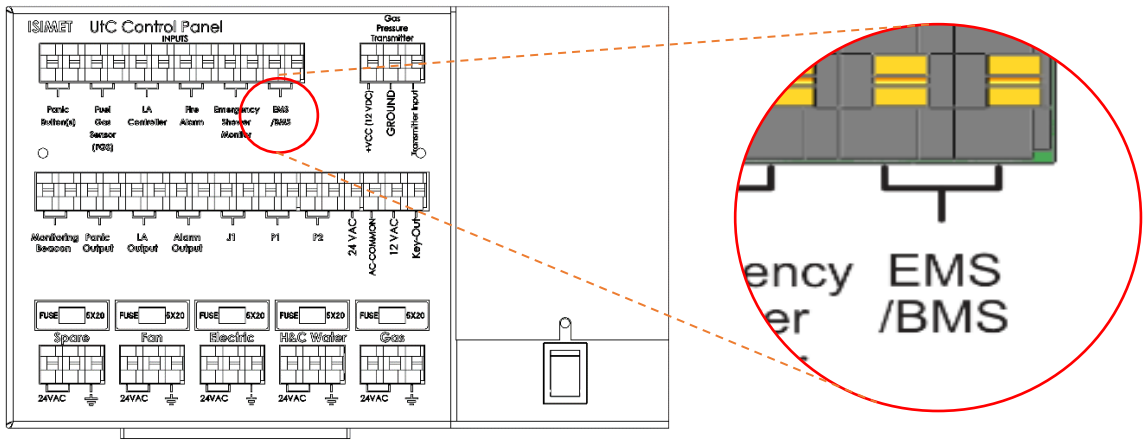
Voltage Free (Dry-Contact) Input. The default configuration settings disable all utilities as long as an Alarm signal is present. The utilities can be reactivated once the Alarm signal is deactivated and re-keying the UtC.



See Hardware Configuration Settings (Jumpers)

Building Energy Management System-EMS/BMS (Optional)

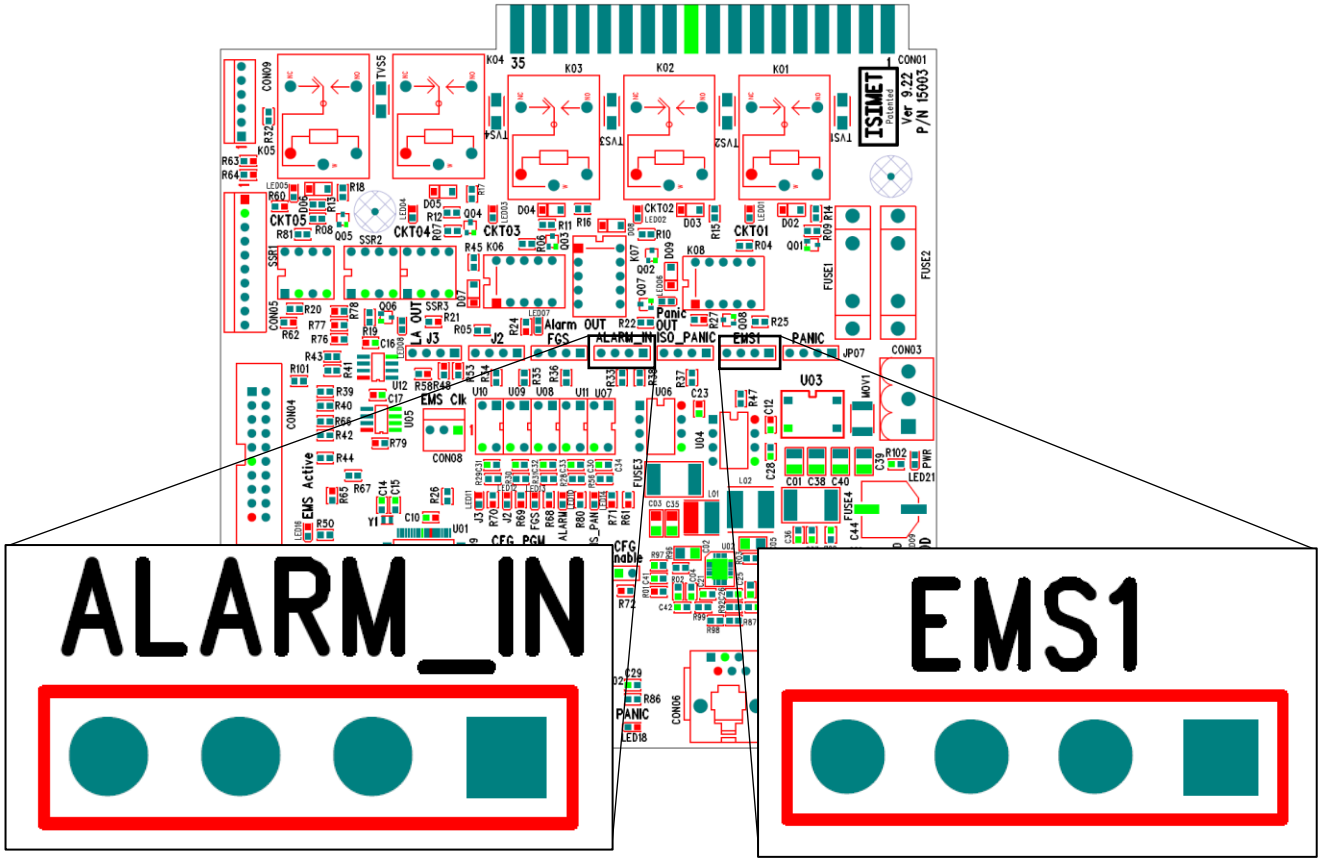
Voltage Free (Dry-Contact) Input. The same EMS system, found in many public facilities, that activates the heating and cooling system, will provide a higher degree of authority to activate the Utility Controller. The Utility Controller will only work when the EMS is active (or inactive with a programming change) and the controller has been "keyed" on.



See Hardware Configuration Settings (Jumpers)

Hardware Configuration Settings (Jumpers)

The UtC must be configured properly if using a 24VAC Input. The default is voltage free contacts (Dry-Contact) for all inputs. This section can be skipped unless using 24VAC inputs.



ALARM_IN

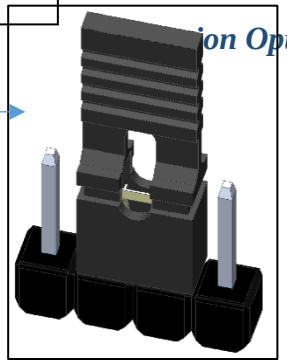
Adjusts the Building Fire Alarm Input

EMS1

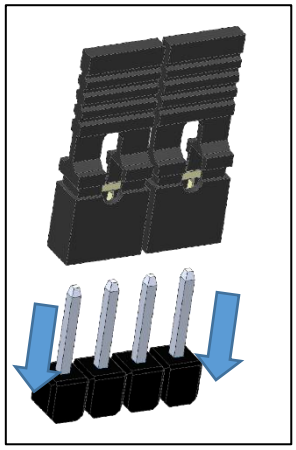
Adjusts the EMS/BMS Input

ion Options and Method

- **24VAC or 24VDC Input Signal:**
  - **Single Jumper**

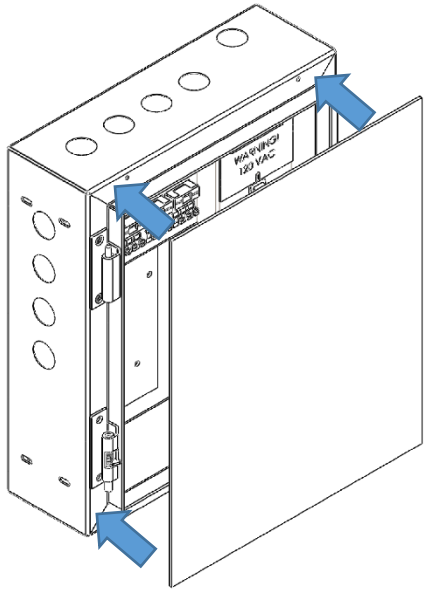


- **No Electrical Input Signal (Dry-Contact) Signal:**
  - **Default: 2 Jumpers**



Connecting Power to the UtC

1. Turn off the breaker supplying 120VAC to the UtC
2. Turn off the power switch on the UtC Control Panel
3. Remove the 120V cover from the UtC Control Panel
4. Connect the following wires:
    - Green: Ground
    - White: Neutral
    - Black: 120VAC
5. Replace the UtC cover
6. DO NOT TURN ON POWER UNTIL COMPLETING THE START-UP PROCEDURE



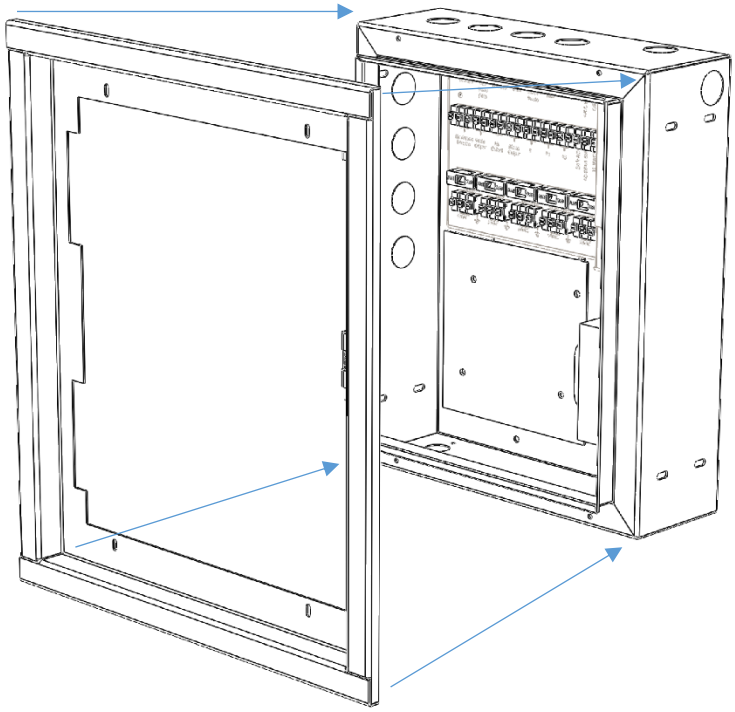
Reinstall the cardboard protective covering to protect the UtC while the walls are finished.

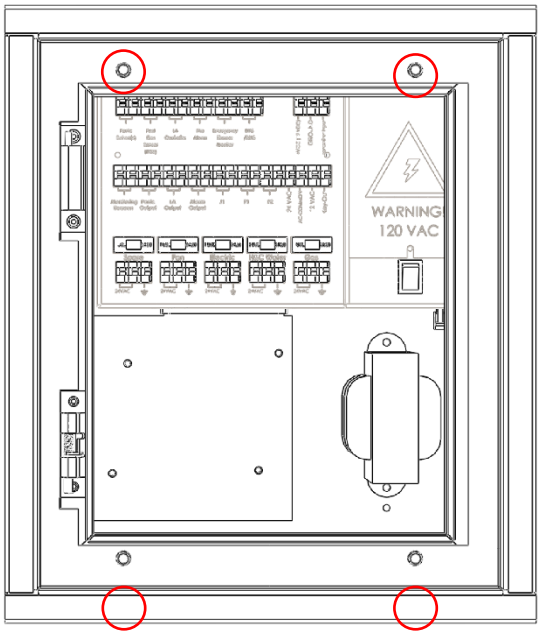
STOP:

Wait until the walls are finished before continuing

Installing the UtC Trim Plate (Flush Mount Only)

1. Slide the trim plate over the enclosure.





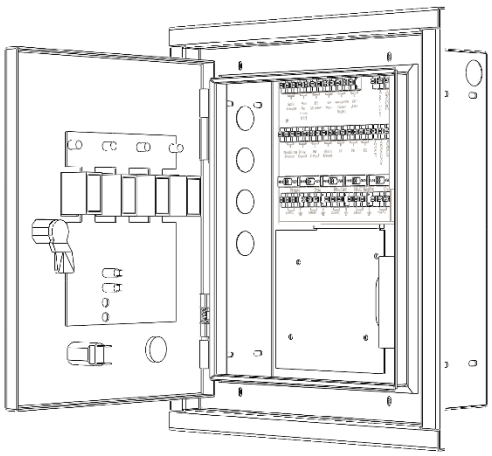
2. Align holes on enclosure with upper and lower holes in door trim.
3. Insert four (4) #6-32 screws through trim and tighten into the enclosure.

Installing Covers

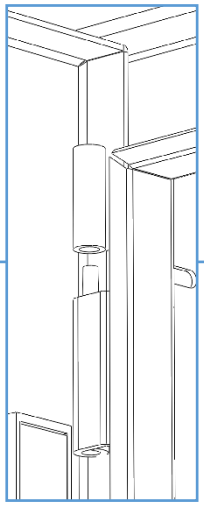
1. Install the included Stainless-Steel Covers for the Fuel Gas Sensor, Panic Button(s), Emergency Shower Monitor, and Emergency Monitoring Beacon.
2. Install the E-Series Cover (Electrical Contactor Enclosure)
3. Install the S-Series (Solenoid Enclosure) Door and ensure it is locked.

Installing the UtC Door Panel

Step 1

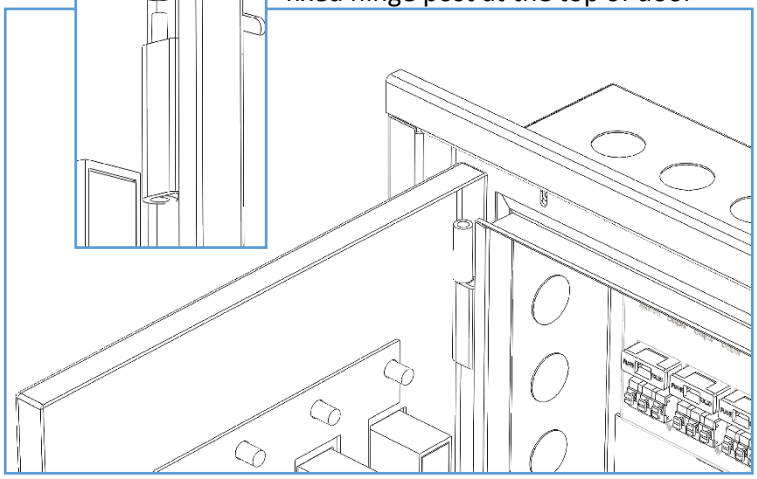


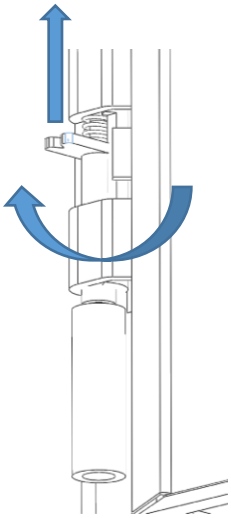
Position the door at 90° – 100° of enclosure.

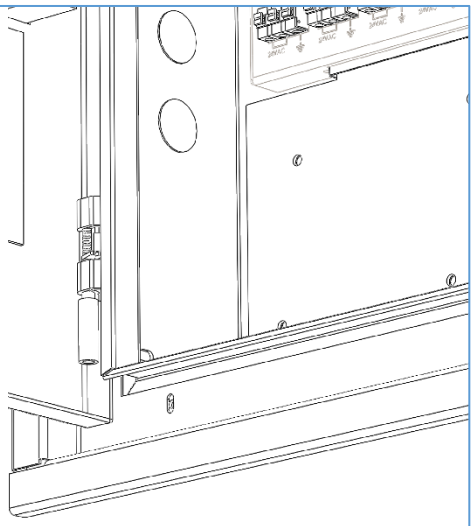


Step 2

Slide the top hinge pin onto the fixed hinge post at the top of door



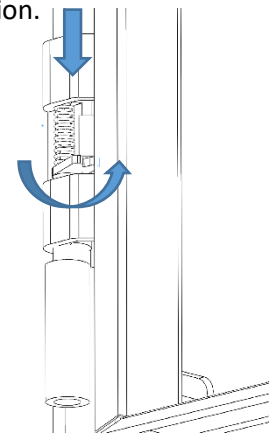




Step 3 Rotate the spring hinge and press up to insert the door.

Step 4

With the lower hinge lined up, turn the hinge pin lever to lock the hinge into position.



UtC Fuse Specifications

Used On		Label	Size	Description
4A - 6A Transformer		Fuse 1	5 x 20 mm	5A-6A Slow-Blow
Center Tap (12VAC) Only		Fuse 2	5 x 20 mm	5A Slow-Blow
UtC Control Panel		ALL	5 x 20 mm	2A Fast-Acting

NOTE: Fuse 2 is only used with 12VAC. The Control Panel fuses are all 2A fast-acting fuses. These protect the primary side of the transformer as well as all of the circuit outputs. If one of these has blown, check for what caused the issue and fix before replacing these fuses.

Control Panel Terminal Definitions

: Earth Ground

Not to be confused with GROUND. This should ONLY be used to connect all wire shielding from the 18AWG/4 control wiring.

Gas (Circuit #1):

24VAC Output for the first circuit. Controlled by Switch 1 (typically Gas) on the UtC Door Panel. Circuit 1 should be connected to these terminals and the shield should be connected to Earth Ground.

H&C Water (Circuit #2):

24VAC Output for the second circuit. Controlled by Switch 2 (typically Water) on the UtC Door Panel. Circuit 2 should be connected to these terminals and the shield should be connected to Earth Ground.

Electric (Circuit #3):

24VAC Output for the third circuit. Controlled by Switch 3 (typically Electric) on the UtC Door Panel. Circuit 3 should be connected to these terminals and the shield should be connected to Earth Ground.

Exhaust Fan (Circuit #4):

24VAC Output for the fourth circuit. Controlled by Switch 4 (typically Exhaust Fan), if used on the UtC Door Panel. Circuit 4 should be connected to these terminals and the shield should be connected to Earth Ground.

Spare Circuit (Circuit #5):

24VAC Output for the fifth circuit. Controlled remotely. Circuit 5 should be connected to these terminals and the shield should be connected to Earth Ground.

Panic Button(s):

Connect to normally open (NO) panic buttons. Will cause the Utility Controller to enter Panic Mode and disable the utilities.

Fuel Gas Sensor (FGS):

Connect to ISIMET's Fuel Gas Sensor (FGS).

LA Controller:

Connect to ISIMET's LA (Limited Application) Companion/Controller.

Fire Alarm:

Connect to Building Fire Alarm. Will disable the Utility Controller. Configurable dry-contact or 24VAC input. Default is dry-contact.

Emergency Shower Monitor:

Connect to ISIMET's Emergency Shower Monitor. Can also be used as a secondary panic input.

EMS/BMS:

Energy Management System (EMS) or Building Energy Management System (BMS) input.

Gas Pressure Transmitter

+VCC (12VDC):

12VDC Output for the Gas Pressure Transmitter.

GROUND:

Not to be confused with . This should ONLY be used to connect the Gas Pressure Transmitter ground wire. This is an isolated ground and should NOT be connected in any way to Earth Ground.

Transmitter Input:

Gas Pressure Transmitter Input.

Miscellaneous

Monitoring Beacon Output:

Connect this output to ISIMET's 24VAC Monitoring Beacon.

Panic Output:

Dry-Contact Output when the Utility Controller is in Panic.

LA Output:

Dry-Contact Output for the LA Controller.

A1 Output:

24VAC Configurable output typically used for Alarm. Can be configured and connected to electrical utilities to remain ON until Alarm or Panic (Electric until Panic Off). Do NOT connect unless specifically told by ISIMET.

J1 Input:

LA Controller Input configurable between dry-contact and 24VAC. Do NOT connect unless specifically told by ISIMET.

P1 Output:

24VAC Panic Output. Do NOT connect unless specifically told by ISIMET.

A2/P2 Output:

24VAC Configurable Output from the UtC Field Configuration. Default use is for an Electric Contactor to be connected for circuits that remain ON at all times except by Panic or Alarm.

24VAC:

24VAC Output between this connection and AC-Common. Do NOT connect unless specifically told by ISIMET.

AC-COMMON:

Do NOT connect unless specifically told by ISIMET.

12VAC:

12VAC Output between this connection and AC-Common. Do NOT connect unless specifically told by ISIMET.

Key-Out:

24VAC Output between this connection and 24VAC when the service key is turned. Do NOT connect unless specifically told by ISIMET.