

GEN3

All-Electric Tankless Water Heater

Installation & Operation Manual

Model G3-R : Residential Series



Trutankless®

The premier electric tankless brand.



Safety Icons Key

The following safety icons will be found throughout the manual:



Read this manual completely and carefully before installing or operating this water heater.



Caution / warning – this indicates a situation which may result in a minor or moderate injury.



Hazardous danger – this indicates a situation which may result in a serious injury or death.



Disconnect all electrical sources when installing, uninstalling or servicing this water heater.



This water heater operates on high voltage, which can result in serious injury or death. It must be installed by a licensed electrician.



This water heater must be properly grounded by a licensed electrician.

Clé des icônes de sécurité

Les icônes de sécurité suivantes se retrouveront tout au long du manuel :



Veuillez lire attentivement ce manuel avant d'installer ou d'utiliser ce chauffe-eau.



Attention/Avertissement : ceci indique une situation pouvant entraîner des blessures légères ou modérées.



Danger : ceci indique une situation pouvant entraîner des blessures graves, voire mortelles.



Débranchez toutes les sources d'alimentation électrique lors de l'installation, de la désinstallation ou de l'entretien de ce chauffe-eau.



Ce chauffe-eau fonctionne sous haute tension, ce qui peut entraîner des blessures graves, voire mortelles. Son installation doit être effectuée par un électricien agréé.



Ce chauffe-eau doit être correctement mis à la terre par un électricien agréé.

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Important Safety Information



Hazardous Danger / Danger dangereux

When installing, operating or servicing any high voltage electrical device, there are basic safety precautions that should always be followed. UNDER NO CIRCUMSTANCES should you attempt to install, inspect, troubleshoot, service, or uninstall this Trutankless **GEN3** electric water heater without first disconnecting all power to the unit directly at the primary electrical source or circuit breaker box. It is suggested that a Lockout-Tagout (LOTO) safety procedure be used when disconnecting this device. Serious bodily injury or death could occur if you ignore this warning. / Lors de l'installation, de l'utilisation ou de l'entretien d'un appareil électrique haute tension, des précautions de sécurité élémentaires doivent toujours être respectées. Vous ne devez en aucun cas tenter d'installer, d'inspecter, de dépanner, d'entretenir ou de désinstaller ce chauffe-eau électrique Trutankless GEN3 sans avoir préalablement débranché l'alimentation électrique de l'appareil, directement au niveau de la source d'alimentation principale ou du disjoncteur. Il est recommandé d'appliquer une procédure de verrouillage et d'étiquetage (LOTO) lors du débranchement de cet appareil. Le non-respect de cet avertissement peut entraîner des blessures graves, voire mortelles.



Warning / Avertissement

The Trutankless **GEN3** should be installed by a qualified electrician and a qualified plumber in accordance with all local, state, national and provincial Electrical & Plumbing Codes. / Le Trutankless GEN3 doit être installé par un électricien qualifié et un plombier qualifié conformément à tous les codes électriques et de plomberie locaux, étatiques, nationaux et provinciaux.



Note / Note

Please read these instructions thoroughly and completely prior to installation and use of this product. Failure to do so could cause property damage, serious injury, or death. / Veuillez lire attentivement ces instructions avant d'installer et d'utiliser ce produit. Le non-respect de ces instructions pourrait entraîner des dommages matériels, des blessures graves, voire mortelles.



Warning / Avertissement

Proposition 65: This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Proposition 65 : Ce produit contient des produits chimiques reconnus par l'État de Californie comme pouvant provoquer le cancer, des malformations congénitales ou d'autres troubles de la reproduction.



Warning / Avertissement

The Trutankless **GEN3** Tankless Water Heater must be grounded, and the unit must be wired in accordance with the most current version of the National Electrical Code (NEC) or the Canadian Electrical Code (CEC). / Le chauffe-eau sans réservoir Trutankless GEN3 doit être mis à la terre et l'appareil doit être câblé conformément à la version la plus récente du Code national de l'électricité (NEC) ou du Code canadien de l'électricité (CEC).



Warning / Avertissement

If the **GEN3** Water Heater is not within visible sight of the branch-circuit overprotection breakers that are providing the electrical feed, then an additional means of disconnecting all the ungrounded conductors must be provided within visible sight of the water heater, or a circuit breaker lockout must be used. (Reference NEC 422.31) / Si le chauffe-eau GEN3 n'est pas visible des disjoncteurs de protection du circuit de dérivation qui fournissent l'alimentation électrique, un moyen supplémentaire de déconnexion de tous les conducteurs non mis à la terre doit être prévu, visible du chauffe-eau, ou un disjoncteur de verrouillage doit être utilisé. (Référence NEC 422.31)



Caution / Prudence

If the Trutankless **GEN3** Tankless Water Heater is installed in a location where water damage could occur in the event of a leak, it is suggested that a drip tray be installed and connected to an appropriate drain. Alternatively, an active or intelligent water leak detector and shut-off valve can be installed to turn off your water supply in the event of a detected leak. Si le chauffe-eau instantané Trutankless GEN3 est installé dans un endroit où des dégâts d'eau pourraient survenir en cas de fuite, il est conseillé d'installer un bac collecteur et de le raccorder à un drain approprié. Vous pouvez également installer un détecteur de fuite d'eau actif ou intelligent et un robinet d'arrêt pour couper l'alimentation en eau en cas de fuite.



Caution / Prudence

If the water source to the **GEN3** Water Heater has a high mineral content, a water softening system is recommended. Damage to the water heater resulting from scale or hard minerals will not be covered under warranty. / Si l'eau alimentant le chauffe-eau GEN3 présente une teneur élevée en minéraux, un adoucisseur d'eau est recommandé. Les dommages causés au chauffe-eau par du tartre ou des minéraux durs ne seront pas couverts par la garantie.



Caution Caution / Prudence

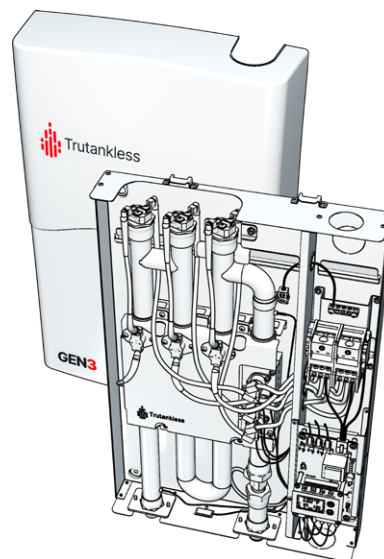
When the water heater is installed in a well-water system or if the plumbing system is prone to introducing air into the heater, it is highly recommended that an air separator be installed in the cold-water supply feed to the water heater to avoid possible failure of the heating elements or the heating manifold. / Lorsque le chauffe-eau est installé dans un système d'eau de puits ou si le système de plomberie est susceptible d'introduire de l'air dans le chauffe-eau, il est fortement recommandé d'installer un séparateur d'air dans l'alimentation en eau froide du chauffe-eau pour éviter une éventuelle défaillance des éléments chauffants ou du collecteur de chauffage.

Introduction

Thank you for choosing the Trutankless® GEN3

GEN3 is an easy-to-operate system that will provide years of trouble-free service, reducing overall energy usage right out of the box by eliminating standby loss common to conventional tank-style water heaters.

When installed and maintained properly, the **GEN3** will provide years of use and efficient hot water generation in an eco-friendly manner. It is extremely important to follow the installation and maintenance section carefully.



Before You Begin



This manual must be read carefully before attempting to install the water heater. If the safety rules or instructions outlined in this manual are not followed, the unit may not operate properly and it could cause property damage, serious bodily injury and/or death! / Ce manuel doit être lu attentivement avant toute installation du chauffe-eau. Le non-respect des consignes de sécurité décrites dans ce manuel pourrait entraîner un dysfonctionnement de l'appareil et entraîner des dommages matériels, des blessures graves, voire mortelles.

Trutankless will not be liable for any damages because of failure to comply with the installation and operating instructions outlined in this manual or because of improper use. Improper use includes the use of this appliance to heat any other liquid other than water. Failure to comply with the installation and operating instructions or improper use voids the warranty.

If there are questions regarding the installation or operation of this water heater, or if additional installation manuals are needed, please contact our support team at:

support@trutankless.com



Note: The Installation & Maintenance sections in this manual are intended for contractors, plumbers and electricians only. All other sections are intended for homeowners, contractors, plumbers and electricians.

About **GEN3** Electric Tankless Water Heaters

Getting to know the Trutankless **GEN3** Water Heater.

You have joined the family of satisfied Trutankless users that have enjoyed the technological advances applied to electrical tankless water heaters, and the **GEN3** is no exception! It is borrowing from the robustness of its big brother, the 36kW GEN1 unit introduced more than a decade ago, yet simplifying the design and user interface to offer a unit more tailored to the marketplace. You have spoken, and Trutankless has listened!

Please read this Manual thoroughly to familiarize yourself with the Water Heater, including how it fundamentally works and how it is installed - from both the plumbing and electrical perspectives. It is very important that this water heater be installed according to NEC (USA) or CEC (Canada) electrical codes, as well as local, state, national or provincial electrical or plumbing codes. In all cases, your **GEN3** water heater should be installed by a licensed electrical contractor and licensed plumber.

How it works...

As the name implies, tankless water heaters do not store and heat a large volume of water like a conventional water heater does. They apply electrical power to special heating elements that are located in a relatively small diameter tube, and as the heating element's temperature increases, it heats the water flowing past it.

This Trutankless **GEN3** water heater is constructed of the highest quality materials, including a Stainless-Steel manifold that the Incoloy™ heating elements are threaded in to. The robustness of these heating elements cannot be understated; their longer length and fold-back construction give a much higher surface area than other competitors offer. This does several things. First, it increases the life of the heating element, and it is not uncommon at all to have Trutankless element lasting longer than 10 years with everyday usage. Second, the increased surface area allows the water to heat very quickly – but without 'boiling' the water closest to the sheathing. This translates to hot water for the end user without creating many of the precipitates that occur from a rapid heating process, especially where hard water is predominant.

So how do we do it?

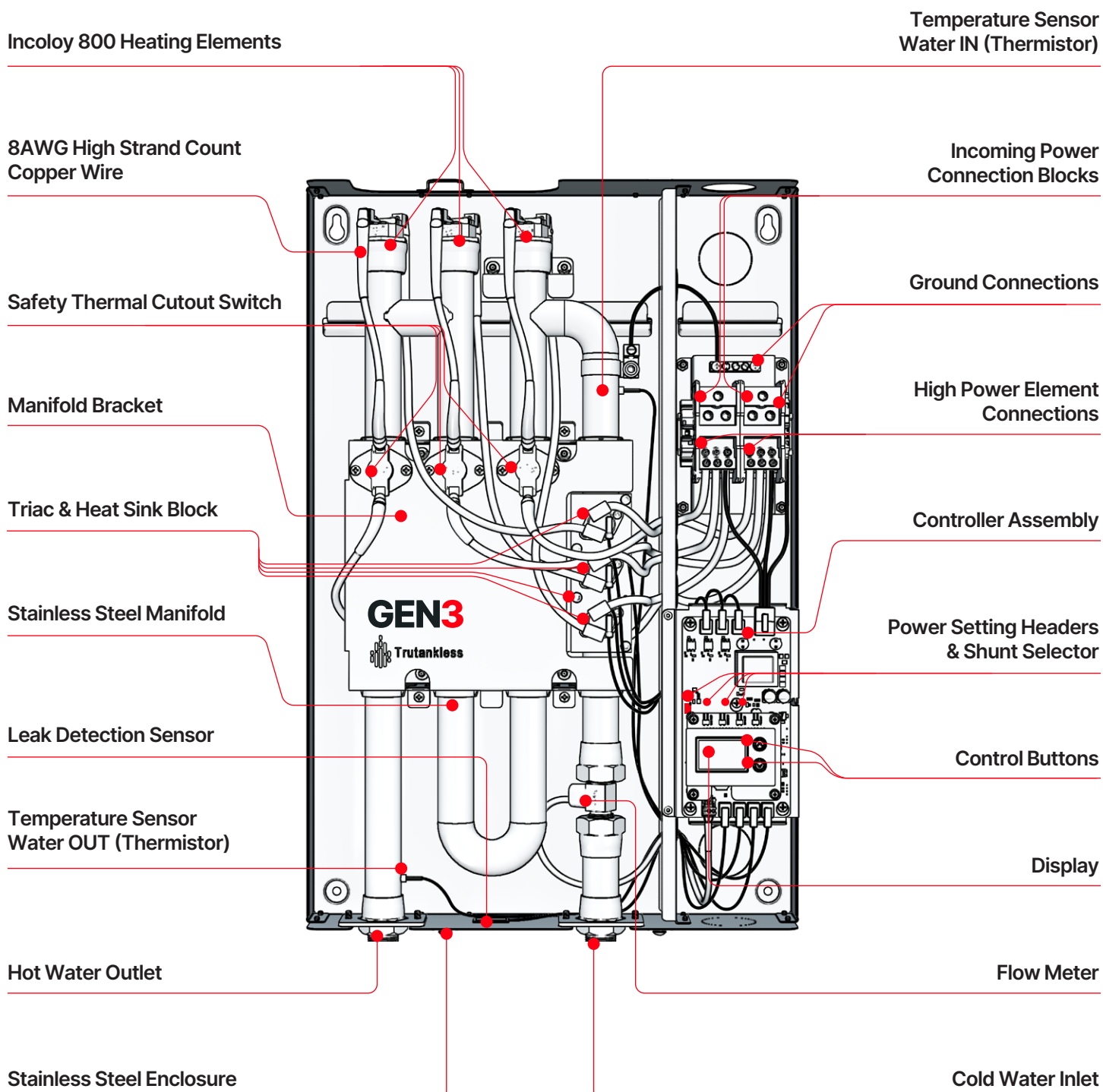
The Trutankless **GEN3** controller circuit board (PCBA) takes two temperatures from thermistor sensors; that of the incoming water supplied to the **GEN3**, and that of the outgoing water from the **GEN3**. A precision flow meter sends the exact water flow to the PCBA and a power calculation is performed. This power is then controlled and distributed to each of the heating elements until the desired set point, or outgoing water temperature, is achieved.

Flow rate is very critical to a tankless water heater. If there is a very high flow rate of water, the elements may not be able to adequately heat the water as it goes by. Likewise, a very low "incoming" water temperature to the tankless heater will take more energy to heat up to the desired 'set point'. For these reasons, all tankless water heaters will have a maximum flow rate.

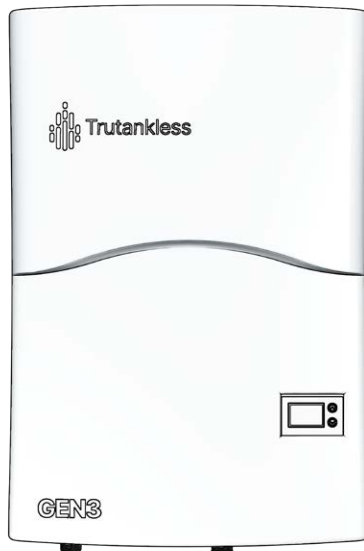
The Trutankless **GEN3** "R-Series" is designed to operate on 240VAC or 220VAC single-phase power, which is most common in residential applications. The Trutankless **GEN3** can be configured to four (4) different power settings based upon the available electrical supply.

Reference Diagram: Components List & Location

Take a moment to familiarize yourself with key components and their location within your new **GEN3** electric tankless water heater.



GEN3 Unit Construction



The Trutankless **GEN3** Electric Tankless Water Heater is constructed of only the highest quality materials. This ensures a reliable, long-lasting and trouble-free unit for the end user.

Stainless Steel Heating Tube Manifold and Plumbing Connection Fittings

- Extremely strong and durable
- More resistant to corrosion than copper tubing
- Less heat transfer (heat loss) through stainless steel versus copper, brass or bronze

Incoloy™ Heating Elements

- A superalloy designed to combat liquid corrosion in low or high pH environments
- Large surface area to reduce shock to water molecules in the heating cycle
- Historical data of Trutankless' elements show that a 10-year operational life is common

Stainless Steel Sheet Metal

- Rugged, corrosion resistant Back Enclosure & Mounting Brackets

Aluminum Alloy

- Heat sink for control triacs
- Internal bracketry

Plastic Front Cover

- UL94-V0 Listed material
- Lightweight and simple to remove

Internal Copper Wire

- Very high strand count for maximum conductivity and flexibility

Printed Circuit Board Assemblies

- Lower Controller board with Input & Output Connections
- Upper Display board with:
 - **GEN3** Power Configuration Headers
 - Two-Button User Interface
 - Monochrome Display with graphical information of the system

GEN3 Unit Installation

Before removing the old tank-style water heater and beginning this installation, unbox the unit. Remove all parts from the box and ensure all parts are included.



CAUTION: It is required that a licensed plumber and electrician install the unit and that all pertinent regional building codes be followed. Please read each of the following notices and caution messages below before continuing with the installation of this unit, as they pertain to safety considerations. / **ATTENTION:** L'installation de l'appareil doit être effectuée par un plombier et un électricien agréés et se faire conformément aux codes du bâtiment régionaux en vigueur. Veuillez lire attentivement les avis et mises en garde ci-dessous avant de procéder à l'installation de cet appareil, car ils concernent la sécurité.

Precautions For Selecting A Location

In general, the Trutankless **GEN3** unit can be installed in the same location where the old tank-style water heater was located. However, to ensure safe, trouble-free performance and keep the Warranty in effect, the following precautions must be observed.

1. The Trutankless **GEN3** unit must be installed where minimum clearances can be met, and indoors or under cover where it is protected from the elements and extreme weather. Do not install the unit where it will be exposed to direct sunlight, rain, snow, hail, salt spray, blowing sand, or freezing temperatures, etc.
2. The unit **MUST** be installed in a vertical or “portrait” mode upright position with the water fittings positioned below and pointing downward. The unit should also be as close to the intended hot water point-of-use as convenient. If this is not possible, please reference the section in this manual on optional or available “Recirculation Systems”.

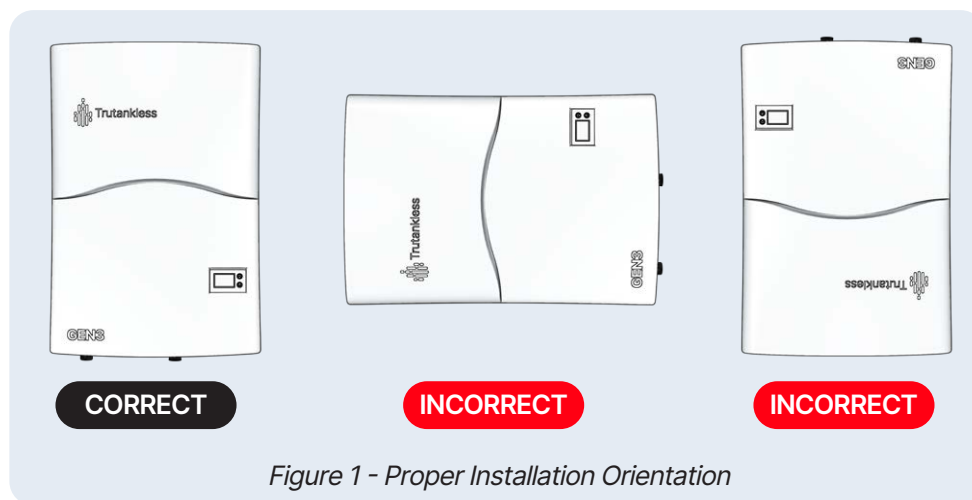


Figure 1 - Proper Installation Orientation



WARNING: Do not install the unit where it would routinely be splashed with water. Avoid the potential for exposure of the unit to dripping water or collection of condensation. **ELECTRIC SHOCK MAY RESULT.**
AVERTISSEMENT : N'installez pas l'appareil dans un endroit où il serait régulièrement exposé aux éclaboussures d'eau. Évitez tout risque d'exposition de l'appareil aux gouttes d'eau ou à la condensation. **UN RISQUE DE DÉCHARGE ÉLECTRIQUE PEUT EN RÉSULTER.**

3. Hot water outlet pipes leaving the unit can be hot to the touch. Insulation must be used for hot water pipes located 36 inches (92cm) or less from ground level due to burn risk to children.
4. Trutankless strongly suggests installing an appropriate Temperature, Pressure and Relief (TP&R) safety valve per local code. Consult your plumber or professional service provider.
5. This unit should not be installed in a location where it may be exposed to freezing temperatures (less than 32°F (0°C).)

GEN3 Unit Installation



CAUTION: This unit comes equipped with freeze protection. However, in the event that electrical power is lost or disconnected from the unit, there is no freeze protection. Freeze protection of the water heater is only possible when electricity and normal water heater functions are enabled. If you expect freezing conditions while electrical supply is interrupted, water must be completely drained from the water heater. / **ATTENTION:** Cet appareil est équipé d'une protection antigel. Cependant, en cas de coupure de courant ou de déconnexion de l'appareil, la protection antigel n'est pas assurée. La protection antigel du chauffe-eau n'est possible que lorsque l'alimentation électrique et les fonctions normales du chauffe-eau sont activées. Si des conditions de gel sont prévues pendant une coupure de courant, l'eau du chauffe-eau doit être entièrement vidangée.

The installation of automatic drain-down solenoid valves is optional. However, Trutankless strongly recommends that these valves be installed so that water may be drained from the unit to prevent damage from freezing in case the normal freeze protection should become disabled. If the valves are not installed, then any product damage due to freezing will not be covered by the warranty.

Failure to comply with this instruction voids all warranties.

6. If the Trutankless **GEN3** water heater is installed in a location where water damage could occur in the event of a leak, it is recommended that a drip pan be installed and connected to a suitable drain. Additionally, Trutankless strongly recommends that an active water leak detector and shut off valve(s) be installed to turn off the water supply in the event a leak is detected.

7. Electrical service to the **GEN3** water heater must be in accordance with all applicable national electric safety codes, plus state/provincial and local electric & building codes.



NOTE: Trutankless recommends that the unit is placed near the electrical service panel. A licensed contractor can help choose the unit location and which chassis electrical access point is best suited for the installation.

REMARQUE: Trutankless recommande de placer l'unité à proximité du tableau électrique. Un entrepreneur agréé peut vous aider à choisir l'emplacement de l'unité et le point d'accès électrique du châssis le mieux adapté à l'installation.



CAUTION: When the heater is not within sight of the electrical circuit breakers, an additional local means of disconnection of all ungrounded conductors must be provided that is within sight of the appliance or a circuit breaker lockout must be used. (Ref. NEC 422.31) / **ATTENTION:** Lorsque le radiateur n'est pas à portée de vue des disjoncteurs électriques, un moyen local supplémentaire de déconnexion de tous les conducteurs non mis à la terre doit être prévu et à portée de vue de l'appareil, ou un verrouillage du disjoncteur doit être utilisé. (Réf. NEC 422.31)

8. Place the unit where it will not be struck by objects, and away from other sources of heat.

9. Install the unit where it can be mounted at eye level, to allow easy access to the display and two-button user interface for reading and adjusting the controls.

10. The **GEN3** unit must be mounted on a non-combustible surface. It must be mounted to wall studs or other structural member(s). If no convenient structural members are available, the unit must be mounted with wall anchors appropriate for the type of wall surface, sufficient to securely hold 35 pounds (16kg).



WARNING: Failure to comply with this requirement may result in the unit falling from the wall, creating the possibility of personal injury or death. / **AVERTISSEMENT:** Le non-respect de cette exigence peut entraîner la chute de l'appareil du mur, créant ainsi un risque de blessure corporelle ou de décès.

11. The **GEN3** must NOT be installed on the exterior of a dwelling or in any outdoor scenario. The unit is not rated for outdoor installation and the manufacturer's warranty will be entirely void in such instances.

12. Trutankless **GEN3** electric water heaters are designed for a very long service life, but actual life expectancy will be directly affected by water quality and use. If the quality of the water is not known, Trutankless advises that it be tested (your water department may be able to assist). Especially in areas where the water hardness exceeds 180 PPM or 10.5 grains/gallon, installing a non-salt-based softener or polyphosphate in-line filter may prolong the life of the unit.

GEN3 Unit Installation

Pre-Installation Instructions



WARNING: Read and follow these instructions carefully and completely before installing your Trutankless unit. Failure to do so could cause property damage, serious personal injury, or death. / **AVERTISSEMENT :** Veuillez lire attentivement et suivre ces instructions avant d'installer votre unité

Trutankless. Le non-respect de ces instructions pourrait entraîner des dommages matériels, des blessures graves, voire mortelles.

A. Packaged system inspection (what is in the box):

- Trutankless **GEN3** system
- Mounting Bracket and attachment hardware
- Mounting Template (paper)
- Installation & Operation Manual
- **GEN3** Warranty Card
- **GEN3** Registration Card

B. Recommended installation tools:

- Electric or battery-powered drill with miscellaneous drill & driver bits
- Handheld Screwdrivers (Phillips & Flat Head) & Nut Driver Set
- Flexible Tape Measure
- Pencil or marker
- Torpedo or Box Level
- Adjustable wrench

C. Recommended additional components (not included with **GEN3** system):

- Pressure reducing regulator
- $\frac{3}{4}$ " Dielectric Unions (FIP or FPT)
- $\frac{3}{4}$ " Shutoff Valves
- $\frac{3}{4}$ " Check Valve
- Air Eliminator

GEN3 Unit Installation

Physically Mounting The GEN3

By installing the Trutankless **GEN3** unit, you acknowledge the Terms of the Manufacturer's Warranty. Once the heater is installed, do not return the unit to the original place of purchase. If you have any questions regarding the Warranty or Product Return policies, please contact the Trutankless Support Team at: support@trutankless.com

Install the water heater in a vertical or "portrait" mode position. Included with each Trutankless **GEN3** system is a Paper Template that can be used to "rough-in" the location of the water heater. This Template will allow the installer to ensure that the suggested **GEN3** clearance distances around each side of the water heater are sufficient, and it will also enable the installer to position the Bracket properly. The **GEN3** system uses a French-Cleat style bracket to hang and support the Tankless Water Heater. This style of bracket reduces the distance between the back of the **GEN3** unit and the vertical surface it is being mounted on.

Step 1

Use the Paper Template to pre-position the outline of the **GEN3** and plan where the Support Bracket will be located, and to mark the four (4) corner centerline locations for the affixing hardware used in Step 4. Mount the Bracket to wall studs or with wall anchors appropriate for the type of wall surface if there is no convenient wood stud behind the surface. Using the torpedo or box level, ensure that bracket is perfectly level before affixing it to the vertical surface. The Support Bracket must be able to support at minimum 35 pounds (16kg).



NOTE: There is a 0.14 inch (3.5mm) allowable gap for the head height of the bracket attachment hardware. (see figure 2) / **REMARQUE:** Il existe un espace autorisé de 0,14 pouce (3,5 mm) pour la hauteur de la tête du matériel de fixation du support. (voir figure 2)

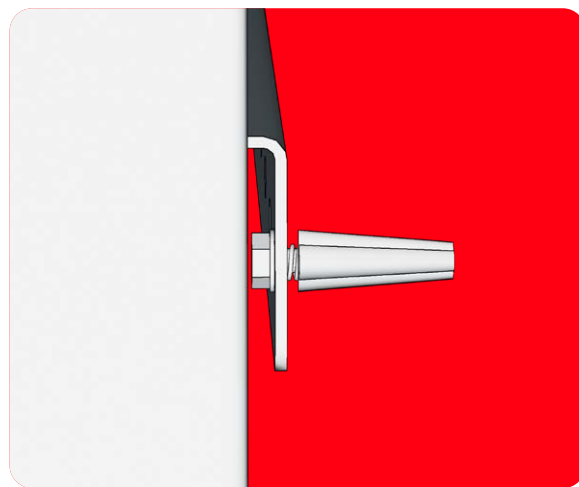


Figure 2 - Side View of Mounting Bracket and Hardware

Step 2

Remove the Front Cover from the **GEN3** by loosening the two (2) Truss-head Phillips-head screws on the bottom of the unit near the Inlet and Outlet fittings, and then slightly rotate the bottom of the Front Cover outward while lifting upwards – this will disengage the two (2) upper tab features on the top of the unit. Carefully set the Front Cover aside temporarily.



Figure 3 - Bottom of **GEN3** Unit showing two (2) Cover Truss-head Phillips-head Screws and cover removal

GEN3 Unit Installation

Step 3

Lift the **GEN3** unit and center it over the Bracket that was affixed in Step 1. Align the three (3) back slots of the **GEN3** sheet metal enclosure with the three (3) flanges of the Bracket, and lower the unit until the flanges are solidly resting in the slots. (See Figure 4).

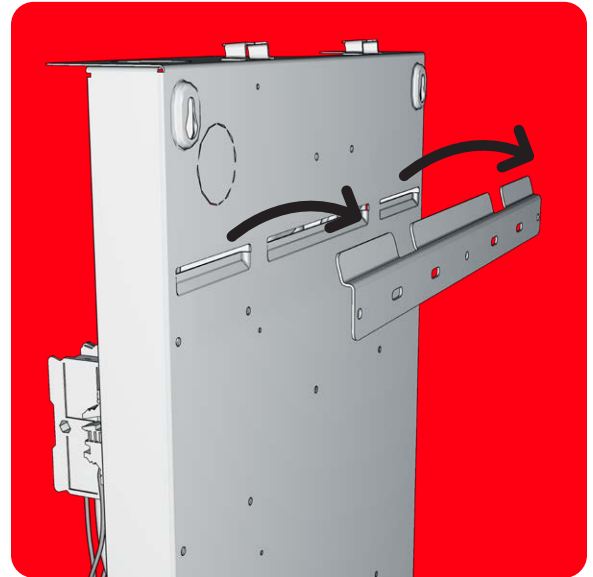


Figure 4 - **GEN3** Unit (left) with Wall Mount Bracket (right)

Step 4

In each inside corner of the stainless-steel enclosure there is an offset feature that will accept up to a 1/4 inch diameter fastener. See figure and reference the Paper Template that conveniently marks the centerlines of these four (4) locations. The upper two (2) locations have a shape that allows the unit to be temporarily supported while the lower two locations are fastened. (See Figure 5)

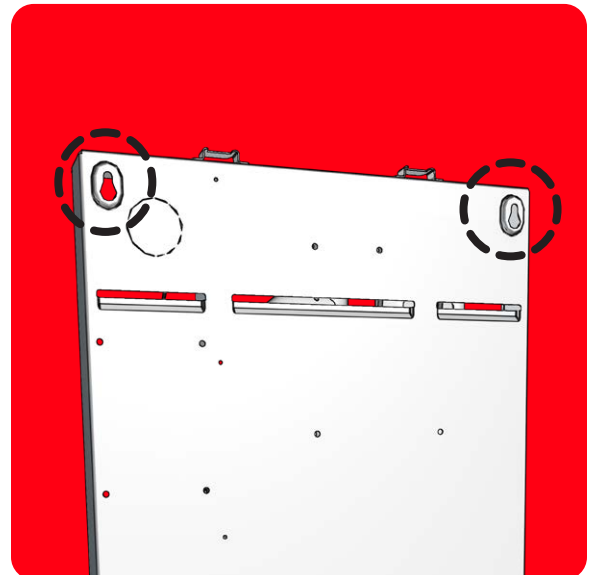


Figure 5 - Top Enclosure Feature for Affixing to Wall

GEN3 Unit Installation

After the **GEN3** is hanging on the Bracket, appropriate fasteners can be placed in the four (4) corner positions (see figure 6). Once in place, these fasteners will ensure that the **GEN3** is solidly locked in both the horizontal and vertical positions and will keep the unit from being lifted off of the French-Cleat Bracket.

Step 5

The Trutankless **GEN3** is now securely affixed to the wall, and connections can be made by licensed and certified electrical and plumbing contractors.

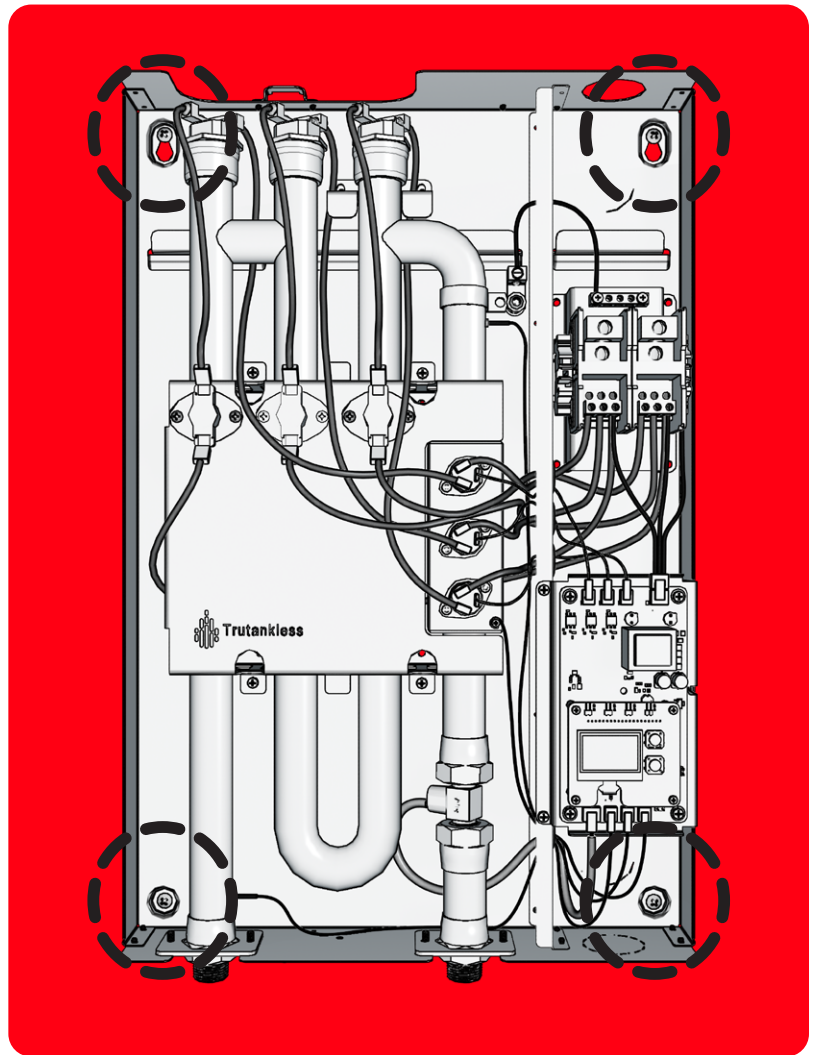


Figure 6 - Front View of **GEN3** Showing Corner Hardware Locations (1/4" TEK Screws Pictured)

GEN3 Unit Installation

Plumbing Considerations & Connections

Connecting The Water Supply

Note: Trutankless recommends covering the unit with plastic or other impermeable sheeting until all water connections have been installed and tested, to protect the internal parts from potential leaks. Leave the tubing manifold connections uncovered for access.

The **GEN3** unit must be connected to the local potable water supply, and the unit has two (2) plumbing connections (see Figure 7).

1. 3/4" MNPT male (Blue) cold water supply inlet
(Blue Decal is placed on bottom of cover at correct inlet)
2. 3/4" MNPT male hot water outlet at left
(Red Decal is placed on bottom of cover at correct inlet)

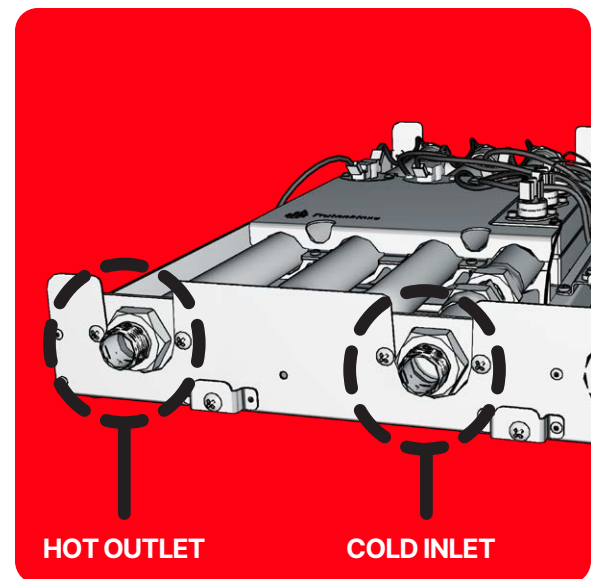


Figure 7 – Water Supply Plumbing Connections (at bottom of unit)

Plumbing Connection Notes

- Reference the Diagram below for the most common **GEN3** installation
- Additional diagrams and installation loop representations can be found in the Appendix of this Manual
- The **GEN3** is equipped with 3/4" NPT Stainless Steel fittings
- The **GEN3** is equipped with a Stainless Steel Filter Screen on the incoming Cold Water fitting
- NEVER use pipe dope for plumbing connections to the **GEN3**
- NEVER solder pipe or tubing connections directly to the **GEN3**; this can damage the heater and will void the Warranty
- Use Teflon Tape for **GEN3** plumbing connections; do not allow Tape to get into the **GEN3** Manifold.
- Connect the incoming Cold Water line on the right side
- Connect the outgoing Hot Water line on the left side
- DO NOT reverse the connections

GEN3 Unit Installation

Step 1

Cold Water Inlet Connection

First, connect the inflowing Cold-Water Supply to the INLET connection, indicated by the Blue "INLET WATER" label. This is accomplished by connecting the recommended 3/4" x 12" stainless steel braided flex hose from the potable cold-water supply to the **GEN3's** 3/4" NPT Inlet stainless steel fitting. Using a wrench, attach the stainless flex lines to the inlet connection. A Hex Feature has been provided on the outlet fitting for a second wrench location for properly tightening the flex hose to the fitting. NOTE: DO NOT OVER-TORQUE these connections (either cold or hot). Doing so induces stress on the heating manifold assembly. Manifolds damaged by over-tightening these connections are NOT covered by warranty.

Step 2

Hot Water Outlet Connection

Next, connect the outflowing Hot Water Supply main to the Outlet stainless steel fitting, indicated by the Red "OUTLET WATER" label. This is accomplished in a manner identical to connecting the inlet supply.

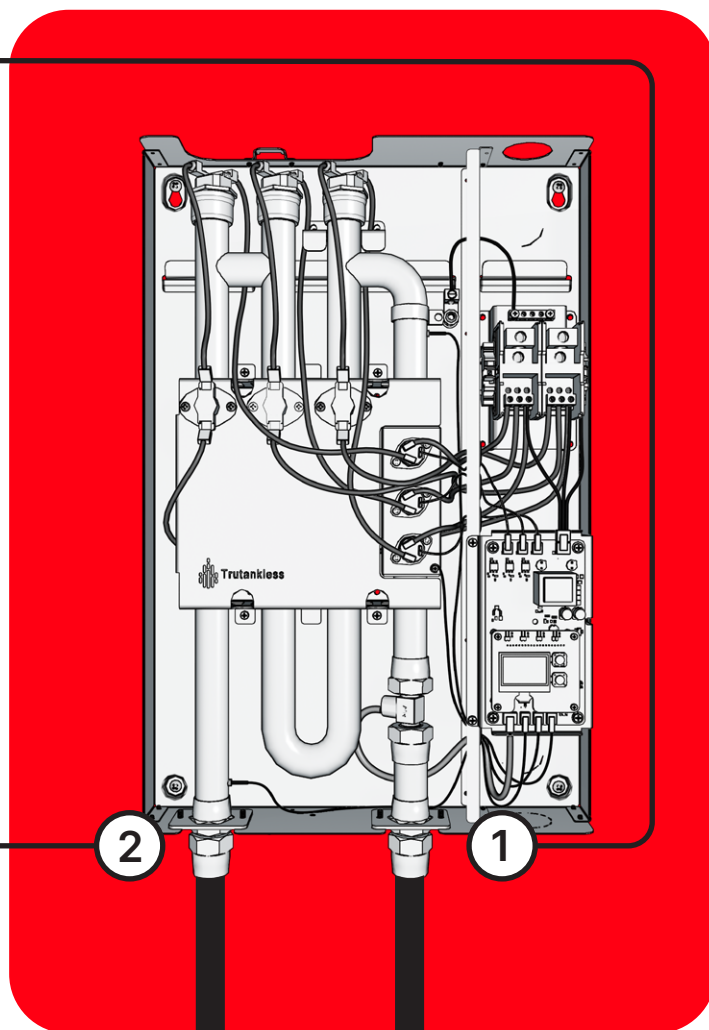


Figure 8 – Plumbed **GEN3** Inlet / Outlet Diagram

Installation Equipment Add-ons*

● Recommended ● Optional

- | | | |
|--|-------------------------|-------------------------|
| ● Ball Valve (cold inlet) | ● Pressure Relief Valve | ● Pressure Gauge |
| ● Ball Valve (hot outlet) | ● Flush Kit | ● Water Hammer Arrestor |
| ● Water Softener and/or Water Filtration | ● Air Separator | ● Strainer |

*Any equipment listed (or not listed) here that is required per local code in your area should be installed. Always follow local and national electrical and plumbing code.

GEN3 Unit Installation



Electrical Options & Connections

Determining The Power Available For Your GEN3

Home Service Panel Size (Total Amperage Provided)	Approved GEN3 Power Settings
125A	R60
150A	R60 // R80
200A	R60 // R80 // R100 // R120



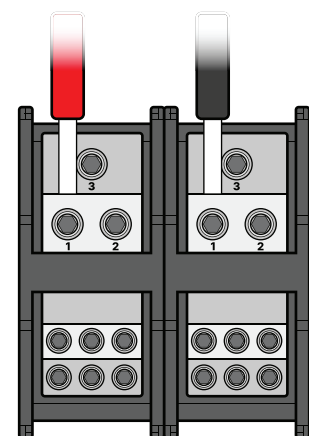
CAUTION: The service panel size in total amperage must be confirmed prior to installation as it dictates the maximum power setting of the four (4) available that the GEN3 unit can be installed at. Installing the unit at a higher power setting than listed is a hazard, a violation of local/national electric code and will void any warranty.

ATTENTION: La taille du panneau de service en ampérage total doit être vérifiée avant l'installation, car elle détermine la puissance maximale des quatre (4) unités disponibles pour l'unité GEN3. L'installation de l'unité à une puissance supérieure à celle indiquée constitue un danger, une violation des normes électriques locales et nationales et annule toute garantie.

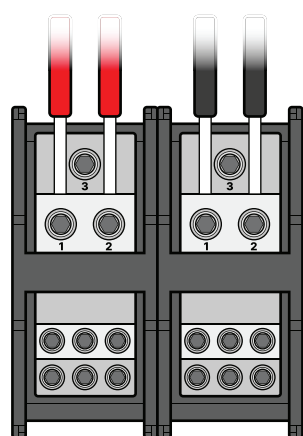
GEN3 Breaker(s) / Wire AWG Requirements Table

MAX Power Setting	R60	R80	R100	R120
240VAC Power in kW	14.7	19.6	24.5	29.4
240 VAC Power in AMPS	61.3	81.7	102.1	122.5
220VAC Power in kW	12.4	16.5	20.6	24.7
220 VAC Power in AMPS	51.5	68.6	85.8	102.9
DPDT / Circuit Breaker	1×60A / 6AWG	1×80A / 4AWG	1×100A / 2AWG	1×125A / 2AWG
Copper Wire Only	2×30A / 8AWG	2×40A / 8AWG	2×50A / 8AWG	2×60A / 6AWG
Fused Disconnect Required	3×20A / 8AWG	3×30A / 8AWG	3×35A / 8AWG	3×40A / 8AWG

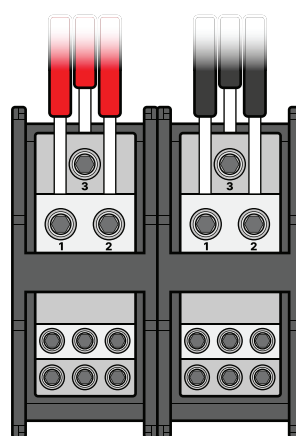
GEN3 Power Supply Input Connections



QTY: One (1) DPDT
Circuit Breaker Application



QTY: Two (2) DPDT
Circuit Breaker Application



QTY: Three (3) DPDT
Circuit Breaker Application



All wire connections must be copper / Toutes les connexions de fils doivent être en cuivre.

**Torque to 275 inch pounds
Couple de serrage:
275 pouces-livres.**

Feed wire sized with minimum 75°C THHN or equivalent. / Fil d'alimentation avec une température minimale de 75 °C THHN ou équivalent.

Figure 9 - Incoming Wire Connections (G3-R Series)

GEN3 Unit Installation

Identifying & Changing The Power Setting On The



Important: Ideal & Optimum Performance Of The Trutankless GEN3 System Depends On Compliance With This Section.

Important : les performances idéales et optimales du système Trutankless GEN3 dépendent du respect de cette section.

The position of the Shunt (jumper shown in Figure 10) on the Display Circuit Board Assembly determines the performance parameters of the GEN3 Unit Model. To ensure proper installation and system operation, the unit must be configured using the Shunt in the proper position as noted in the Figure below. Following these instructions and properly setting the Shunt position at time of installation is extremely critical to the proper functioning of the system and will ensure ideal temperature rise and flow rate maximums.

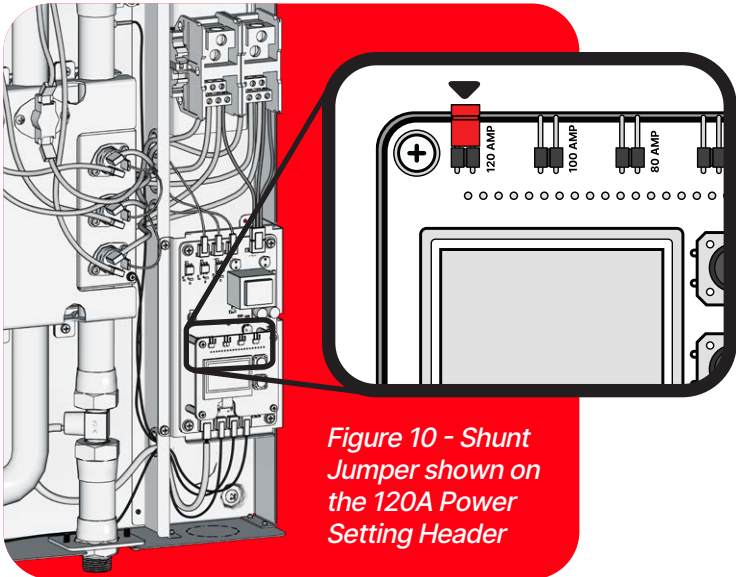


Figure 10 - Shunt Jumper shown on the 120A Power Setting Header



Warning: The power selection of the GEN3 unit is directly related to the available power supplied to the system, which includes properly sized wiring and circuit breaker protection. Do not attempt to operate the trutankless GEN3 unit at a higher power setting than it was installed as. / *Avertissement : Le choix de la puissance de l'unité GEN3 est directement lié à la puissance disponible pour le système, ce qui inclut un câblage correctement dimensionné et une protection par disjoncteur. Ne tentez pas de faire fonctionner l'unité GEN3 sans réservoir à une puissance supérieure à celle à laquelle elle a été installée.*

This unit can also operate on 220VAC single-phase power, but the energy output will be derated by virtue of the lower nominal voltage supplied (220VAC rather than the 240VAC). The difference can be seen in the Table below.

MAX Power Setting	R60	R80	R100	R120
240VAC Power in kW	14.7	19.6	24.5	29.4
240 VAC Power in AMPS	61.3	81.7	102.1	122.5
220VAC Power in kW	12.4	16.5	20.6	24.7
220 VAC Power in AMPS	51.5	68.6	85.8	102.9
DPDT / Circuit Breaker	1×60A / 6AWG	1×80A / 4AWG	1×100A / 2AWG	1×125A / 2AWG
Copper Wire Only	2×30A / 8AWG	2×40A / 8AWG	2×50A / 8AWG	2×60A / 6AWG
Fused Disconnect Required	3×20A / 8AWG	3×30A / 8AWG	3×35A / 8AWG	3×40A / 8AWG

Figure 11 - GEN3 Residential 220/240VAC Units

GEN3 Unit Operation

User Interface

The **GEN3** unit has a simplified User Interface – A monochrome display and Up and Down arrows to the right of the display.

Setpoint

User defined temperature target

T

Temperatures (F°): Incoming / Outgoing

F

Current Flow Rate (GPM)

Applied Power

% of available power used by current use

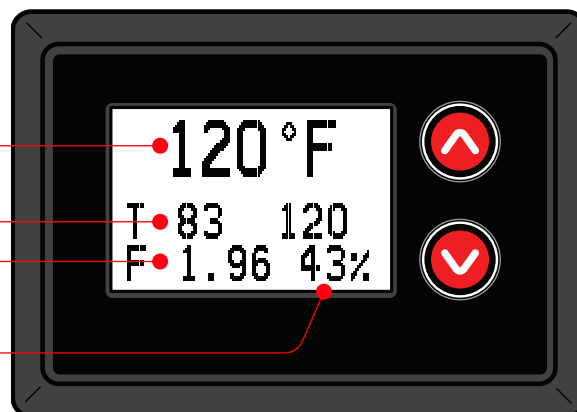


Figure 12 - Main

Setting / Adjusting The Water Temperature

The Trutankless unit comes pre-set for an initial temperature setting of 120°F (49°C). This set point can be changed via the Up and Down arrows located to the right of the Display, in single digit increments, from 90°F to 140°F (32° to 60°C). Properly used, the Trutankless **GEN3** water heater will deliver the desired temperature, even when the water flow varies or when more than one hot water tap is open.



NOTE: Should the demand for hot water (flow) exceed the unit's capability, there will be a corresponding decrease in the temperature of the water delivered. / **REMARQUE:** Si la demande d'eau chaude (débit) dépasse la capacité de l'unité, il y aura une diminution correspondante de la température de l'eau fournie.

In multiple (parallel) installed unit configurations, the water heater can only deliver one water temperature at a time, and the desired set point should be reached by mixing the outputs of the parallel installed units.



CAUTION: The water heaters should NOT be installed in a serial configuration, where the heated water from the first unit is directly introduced into the second water heater. This manner of installation will not balance the electrical load to achieve the desired set point. / **ATTENTION:** Les chauffe-eau ne doivent pas être installés en série, où l'eau chaude du premier chauffe-eau est directement injectée dans le second. Ce mode d'installation ne permet pas d'équilibrer la charge électrique pour atteindre la température de consigne souhaitée.

*Suggested Temperature Settings:

Kitchen: 110°-130°F (43°-54°C)

Shower: 98°-114°F (37°-46°C)

Bath: 102°-110°F (39°-43°C)

*These temperatures are only suggestions. You may use higher or lower temperatures to suit your needs. Remember that maintaining lower hot water temperatures will save additional energy. The efficiency of the heater is not affected by mixing in cold water at the point of use because the Trutankless **GEN3** will simply detect a lower flow through the heater and adjust the power accordingly. Most user find a happy balance by setting their unit at 120°F (49°C).

Using the appropriate arrow, each button press of the Up Arrow will increase the water temperature by one degree; each button press of the Down Arrow will decrease the water temperature by one degree.

Adjustable temperature range for the GEN3 Residential Unit: 90°-140°F / 32°- 60°C

GEN3 Unit Operation

Startup - Lockout

The **GEN3** is in "Lockout" when out of the box brand new, and anytime there is a power outage. The unit will not heat water when in Lockout mode. To exit Lockout and resume normal operation, simply turn on a hot water fixture with a flow rate \geq than 1.5 gpm. The unit will exit Lockout and resume normal operation after detecting a flow rate of 1.5 gpm or higher for a duration of 60 seconds. You do not need to perform any other steps – the unit will begin heating at the 61 second mark and remain in normal operating mode from that point forward, or until the next time power is disrupted, whether intentionally or from power outage.

Normal Operation

The normal operating mode shows the Main Screen on the LCD panel. All operations are accomplished with the two buttons: either Up, Down, Both-pressed, or Both-pressed and held for a time. The first press of either button (up or down) will turn on the LCD backlight for 30 minutes. In normal operation, pressing either Up or Down will adjust the water temperature setpoint.



NOTE: Adjust the output water temperature to the lowest setting that ensures comfort at point of use. The U.S. Department of Energy (DOE) recommends a maximum temperature of 110°F (43°C) for daily residential use.

The temperature range of this device is 90°-140°F (32.2°-60°C). / **REMARQUE :** Réglez la température de l'eau de sortie sur la température la plus basse pour garantir un confort optimal au point d'utilisation. Le Département de l'Énergie des États-Unis (DOE) recommande une température maximale de 43 °C (110 °F) pour une utilisation résidentielle quotidienne. La plage de température de cet appareil est comprise entre 32,2 °C et 60 °C (90 °F et 140 °F).

Pressing both buttons will enter View Settings Mode. Note that no changes to the settings can be made in this mode. Pressing both buttons for 4 seconds will enter Adjust Settings Mode.

View Settings

The View Settings mode will display each setting and other information, one item at a time. The first item is Temperature Units (°F or °C). The other items are: Full-Cycle mode, Maximum Time On, Display Contrast, Power Mode, SKU, Serial Number, Software Version, History of Events, and Line Voltage.

View Settings Navigation:

- Pressing either Up or Down will scroll through the list of settings.
- Pressing both buttons will return to the Main Screen.
- Pressing both buttons for 1.2 seconds will enter the Diagnostic Screen.

Adjust Settings

In Adjust Settings mode, the five adjustable parameters are displayed, one at a time. The first item shown is the Main Screen view. The other items are: Temperature Units, Full-Cycle mode, Maximum Time On, and Display Contrast. The Main Screen view has two options: one, as shown in Figure 12, displays the setpoint, incoming and outgoing temperatures, flow rate, and applied power. The other displays just the setpoint. Full-Cycle mode has two options: Yes and No. Maximum Time On is the maximum number of minutes the **GEN3** will heat water. If water flow continues past this time, the heating elements are shut off until water flow stops. The time can range from 30 minutes to 120 minutes. If set to 120 minutes, the time limit is disabled.

In Adjust Settings, pressing either Up or Down will scroll through the list of settings. Pressing both buttons will toggle between viewing and adjusting the selected setting. When the setting can be adjusted, its value is shown in reverse-video. Pressing Up or Down will change the value. Pressing both buttons again will return to viewing the settings.

Pressing both buttons for 1.2 seconds will return to the Main Screen. This is true for both View or Adjust sub-modes.

GEN3 Unit Operation / Safety Features

Diagnostic Screen

The diagnostic screen shows five values on four lines which are helpful for monitoring system operation. It is similar to the Main Screen, but it includes the TRIAC Block temperature and omits the setpoint temperature. Pressing the Up or the Down buttons is ignored. Pressing both buttons will return to the Main Screen. The diagnostic screen will time-out and return to the Main Screen after 2 hours.

T
Temperatures (F°): Incoming / Outgoing

TRI
Triac Block Temperature

PWR
% of available power used by current activity

GPM
Current Flow Rate

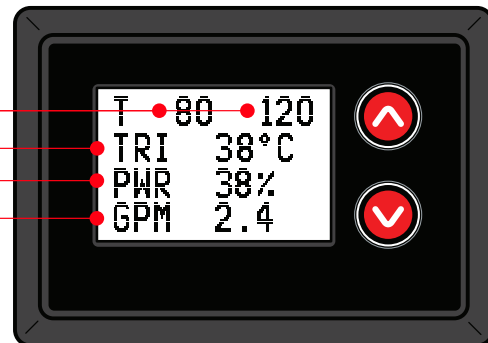


Figure 13 - Diagnostic Screen

GEN3 Safety Features

Freeze Guard Protection Mode

The Trutankless **GEN3** water heater is designed such that, should the water temperature at either Inlet or Outlet cool to 41°F (5°C), the heater automatically warms the water by applying 1% power to the heating elements. This cycle will continue for as long as the unit experiences temperatures near the freezing point.



NOTE: If the main power to the heater is off, the freeze guard protection feature will not operate.

REMARQUE: Si l'alimentation principale du radiateur est coupée, la fonction de protection contre le gel ne fonctionnera pas.

The freeze protection circuit protects the heater only and is not sufficient protection for water connections to and from the heater, including the Flow Sensor and other optional devices. Any damage to the heater caused by freezing is not covered by Warranty as it is the responsibility of the user to ensure the heater is installed in an environment protected from freezing.

Leak Sensor Detection

Leak detection is built into the protection circuitry of the **GEN3** Controller and a Leak Detection Sensor is located inside and at the bottom of the sheet metal enclosure. This Leak Sensor activates if it senses moisture. When this happens, the Controller will indicate a message on the Display.



NOTE: The leak sensor will only notify the user of a possible leak by examining the display. It will not shut off either the power or water to the water heater. / **REMARQUE:** Le détecteur de fuite avertit l'utilisateur d'une éventuelle fuite uniquement en examinant l'écran. Il ne coupe ni l'alimentation électrique ni l'arrivée d'eau du chauffe-eau.



OPTION: The **GEN3** Controller board has provided an auxiliary output connector linked to an on-Controller Circuit Board relay, which can be utilized for various tasks like shutting off the Main Electrical Power to the unit, or to a motorized valve to shut off the supply water to the unit. Please check with a Licensed Electrician or Licensed Plumber to verify if this Option will work with your specific installation. / **OPTION:** La carte contrôleur GEN3 est équipée d'un

connecteur de sortie auxiliaire relié à un relais intégré à la carte contrôleur. Ce connecteur peut être utilisé pour diverses tâches, comme la coupure de l'alimentation électrique principale de l'appareil ou l'activation d'une vanne motorisée pour couper l'alimentation en eau de l'appareil. Veuillez consulter un électricien ou un plombier agréé pour vérifier si cette option est compatible avec votre installation.

The option of shutting off the supply water to the **GEN3** heater is particularly useful in condominium or high-rise applications where damage and repair costs from flooding can be significant.

GEN3 Troubleshooting

Troubleshooting Your GEN3 Unit

The following is a list of the most frequent fault conditions and the possible corrective action. If you are not able to resolve a problem, please contact the service professionals who installed your unit. Trutankless support is also available for technical support and provide troubleshooting tips, documentation and other resources on our website.

Problem	Possible Cause	Solution
No hot water	Unit is in error code state	Locate circuit breaker(s) at main panel, cycle off and back on, wait for unit to reboot.
	Circuit breaker(s) are OFF	Turn circuit breaker(s) ON
	Unit in Startup/Lockout Mode	Run hot water fixture ≥ 1.5 gpm for 60 seconds
	Flow rate too low to activate unit	Increase flow rate > 0.2 GPM and unit should begin to heat water
	Water supply is turned OFF	Turn water supply ON

Trutankless Support Team:
support@trutankless.com



GEN3 Error Codes

Understanding The Error Codes

Error Number	Screen Display	Is the Error Self-Clearing?	Prevents Hot Water?	Description
E1	Triac Failure	Yes	No	One or more Triacs are not operational
E2	Edge Detection	Yes	Yes	No sine wave zero-crossings of the incoming power
E3	Line Frequency	Yes	Yes	Incoming power is not 60 Hz or 50 Hz
E4	Water Leak Detected	Yes	Yes	Water detected within the unit
E5	Inlet Sensor	Yes	Yes	Invalid reading of Incoming water temperature
E6	Outlet Sensor	Yes	Yes	Invalid reading of Outgoing water temperature
E7	Triac Sensor	Yes	Yes	Invalid reading of Triac cooling block temperature
E8	Input Voltage	Yes	Yes	Incoming power has voltage too high or too low
E9	Excessive Time On	Yes	Yes	Water flow has been on too long
E10	Processor Failure	No	Yes	Incorrect processor function has been detected
E11	Memory Failure	No	Yes	Flash memory had a read or write failure
E12	Triac Block Overheated	Yes	Yes	The switching elements are running too hot

Product Warranty

Trutankless warrants to the original purchaser at the original address or the authorized transferee of such purchaser (collectively, the "Buyer") the Trutankless **GEN3** Water Heater and its components as manufactured by Trutankless (the "Product") to be free from defects in materials and workmanship, under normal use and service for the period of time identified below beginning from the date of installation, provided that the Product is (i) installed within sixty (60) days from date of shipment from Trutankless and (ii) installed by a licensed electrician and plumber (verification required) and maintained in accordance with Trutankless' written instructions. In order for the Product Warranty to become effective, the purchaser must submit via warranty registration form on the official Trutankless website. A direct URL and/or QR code to the form is listed in the Operating and Maintenance Manual supplied with each new Product.

Parts: **Two (2) Years***
Replacement Parts: **Thirty (30) Days.**

*All product components warranted to be free of manufacturer defect only. Duration of warranty begins on the date the product was installed. If installation date cannot be verified, start date will default to the first day of the month/year of the product's manufacture date.

Such Warranties Do Not Cover

- Product failure caused by liming, sediment buildup, chemical corrosion, chlorine/chloride corrosion, or freezing.
- Product failure caused by the failure to remove air from system prior to or during operation.
- Product misuse, tampering or misapplication, accidental damage, improper installation or improper voltage.
- Costs incurred for shipping, delivery, handling, and/or administrative charges.
- Product failure due to lightening, flood or other natural or man-made calamities.
- Labor charges of any kind.

The foregoing warranties are exclusive and in lieu of any other warranty, expressed or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose or patent or other intellectual property right infringement.

Warranty Transfer Information

The warranty may be transferred to one (1) subsequent homeowner at the same physical address upon payment to Trutankless of a \$75.00 U.S. dollar transfer fee. Said transfer fee and second owner information must be submitted by Certified Mail within seven (7) days of the house sale closing or there will be no further warranty extended under any circumstances. Failure of original owner to provide 2nd owner with information in a timely fashion will not alter the requirements of this paragraph.

Limitation Of Remedies And Damages

Trutankless' liability and Buyer's exclusive remedy hereunder will be limited solely, at Trutankless' option, to repair or replacement by the Trutankless Service Center with respect to any claim made within the applicable warranty period referred to above. Without limiting the generality of the foregoing, all warranty items shall be returned by Buyer, at its sole expense, to the Trutankless Service Center for replacement or repair. Trutankless reserves the right to accept or reject any such claim in whole or in part. Trutankless will not accept the return of any product without prior written approval from Trutankless, and all such approved returns shall be made at Buyer's sole expense.

Trutankless will not be liable, under any circumstances, for consequential or incidental damages, including but not limited to labor costs or lost profits resulting from the use of (or inability to use) the products or from the products being incorporated in or becoming a component of any other product or goods.

GEN3 Warranty / Appendix

Warranty / Product Registration

To be covered under the Trutankless Manufacturer's Limited Warranty you must register your product within 30 calendar days of installation. Warranty registration can be completed online at:



www.trutankless.com/warranty

This is a limited manufacturer's warranty that conveys benefits to the original purchaser, subject to the terms and conditions set forth herein.

Keep your Product documents in a safe and secure location. Your obligation under the terms of purchase and sale require that you completed the online warranty registration form within the prescribed time-frame (within 30 calendar days) and retain all proof of purchase, installer receipts for your warranty in order to protect your rights and obtain Manufacturer's Limited Warranty benefits. The warranty resides with the Buyer with proof of purchase not simply with an individual in possession of a Product. If the heater is to be installed in new construction at a date later than 30 days from the date of delivery, send further information when known so we may update your warranty record.



GEN3



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