

## MONTHLY TESTING

With the circuit energized and the RCCB closed, open the cover of the GF-1/GF-2 and depress the white "T" test button. The RCCB under test will trip. If the breaker does not trip discontinue use of the heating circuit, open the primary overload breaker, and contact our company for further instructions.

## LIMITED WARRANTY

The GF-1/GF-2 is warranted by Automated Systems Engineering, Inc. (ASE) against defects in workmanship and materials for two years from date of sale. This warranty does not apply to damage resulting from accident, misuse, or alteration, nor to equipment improperly installed or wired or maintained in violation of this Owner's Manual. No other written or oral warranty applies. No employee, agent, dealer or other person is authorized to give any warranties on behalf of ASE.

The customer shall be responsible for all costs incurred in the removal or reinstallation and shipping of the product for repairs. Within the limitations of this warranty, inoperative units should be returned, freight prepaid, to ASE, and we will repair or replace, at our option, at no charge to you with return freight paid by ASE to locations in North America. It is agreed that such repair or replacement is the exclusive remedy available from ASE and that ASE IS NOT RESPONSIBLE FOR DAMAGES OF ANY KIND, INCLUDING INCIDENTAL AND CONSEQUENTIAL DAMAGE. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above exclusion may not apply to you. The warranty gives you specific legal rights, and you may also have other rights which vary from state to state.



**AUTOMATED SYSTEMS ENGINEERING, INC.**  
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COLORADO SPRINGS, COLORADO 80907  
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Visit us on the Internet at: [www.goase.com](http://www.goase.com)

Input: 100-240 VAC, 50/60 Hz  
Capacity: 63A Carry/22mA Ground Fault Trip  
Operating Temp: -40°C to +60°C



**USE #14 AWG - #6 AWG COPPER WIRE ONLY**  
**UTILISER SEULEMENT LE FIL DE CUIVRE # 14 AWG - # 6 AWG**

**ALWAYS FOLLOW LOCAL AND NATIONAL ELECTRICAL CODES**  
**TOUJOURS SUIVRE LES CODES ÉLECTRIQUES LOCAUX ET NATIONAUX**

**THIS UNIT MUST BE USED WITH APPROPRIATE PRIMARY OVERLOAD PROTECTION!**

**DO NOT EXCEED 63 AMPS!**

**CETTE UNITÉ DOIT ÊTRE UTILISÉ AVEC APPROPRIÉE PROTECTION DE SURCHARGE PRIMAIRE!**  
**NE PAS DEPASSER 63 AMPS !**

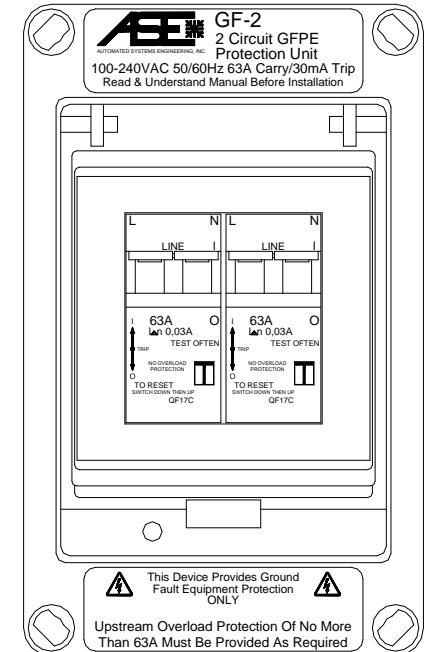
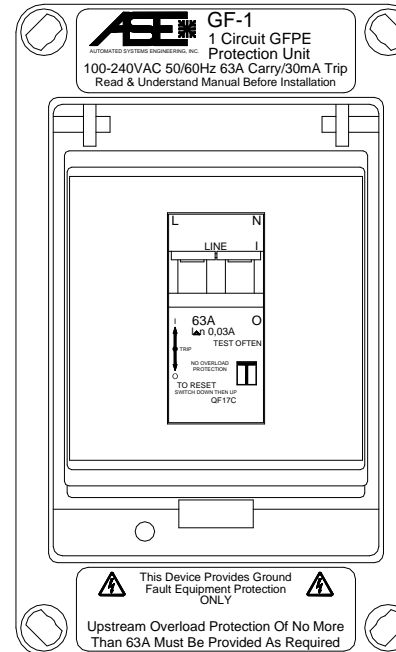
**CAUTION: Read all instructions carefully before installation.**  
**Save this Installation Manual for future reference.**

# GF-1/GF-2

## GFPE 1/2 CIRCUIT

### GROUND FAULT PROTECTION UNIT

#### INSTALLATION MANUAL



Manufactured By



**AUTOMATED  
SYSTEMS  
ENGINEERING**

2833 N El Paso Street Ste 100 Colorado Springs, Colorado 80907

## General Safety Instructions

1. THIS UNIT SHOULD BE INSTALLED, OPENED, AND REPAIRED BY QUALIFIED PERSONNEL ONLY!  
CETTE UNITÉ DEVRAIT ÊTRE INSTALLÉE, OUVERTE, ET RÉPARÉE PAR LE PERSONNEL QUALIFIÉ SEULEMENT!
2. THIS UNIT MUST BE USED WITH APPROPRIATE PRIMARY OVERLOAD PROTECTION! DO NOT EXCEED 63 AMPS!  
CETTE UNITÉ DOIT ÊTRE UTILISÉ AVEC APPROPRIÉE PROTECTION DE SURCHARGE PRIMAIRE! NE PAS DEPASSER 63 AMPS !
3. THIS UNIT SHOULD BE USED WITH 120/220VAC L-N and 208/240VAC L-L ONLY.  
CETTE UNITÉ DEVRAIT ÊTRE UTILISÉ AVEC 120/220VAC L-N ET 208/240VAC L-L SEULEMENT.
4. Seal all conduit penetrations properly if installed outdoors.  
Sceller toutes les pénétrations correctement si elle est installée à l'extérieur.

## GROUNDING OF EQUIPMENT AND CONDUIT

Ground in accordance with the requirements of the National Electrical Code.

Conduit hubs for metallic conduit must have a grounding bushing attached to the hub on the inside of the enclosure. Grounding bushings have provisions for connection of a grounding wire.

Non-metallic conduit and hubs require the use of a grounding wire in the conduit. Grounding bushings are not required.

System grounding is provided by connection wires from all conduit entries to the subpanel or to other suitable points which provides continuity. Any device having a metal portion or portions extending out of the enclosure must also be properly grounded.

## GF-1/GF-2 Description and Application

Electric snow melting and outdoor pipe heating systems installed in the United State and Canada require ground fault protection for safe operation. The GF-1/GF-2 Ground Fault Protection Units can be used to meet the NEC 426.28/427.22 and CEC Part I, Rule 62-300 requirements for ground fault protection for equipment. The GF-1 provides single circuit protection and the GF-2 provides dual circuit protection. The unit is housed in a rugged IP65 NEMA 4X rated enclosure suitable for either indoor or outdoor installation. The GF unit should be installed between the overload-protected branch circuit and the snow melt/heat trace control and heating equipment. The GF unit only provides ground fault protection.

**THIS UNIT MUST BE USED WITH PRIMARY OVERLOAD PROTECTION! DO NOT EXCEED 63 AMPS!**

**CETTE UNITÉ DOIT ÊTRE UTILISÉ AVEC PROTECTION DE SURCHARGE! NE PAS DEPASSER 63 AMPS!**

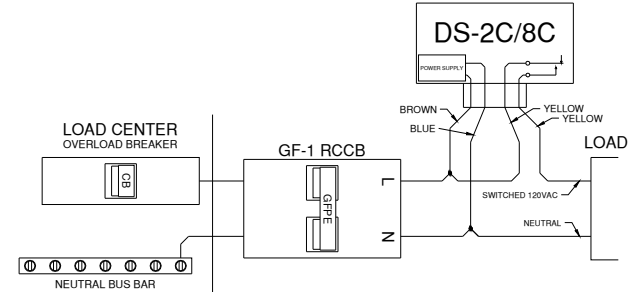
## Mounting and Connecting the GF-1/GF-2

The GF unit enclosure is weatherproof and corrosion resistant. The residual current circuit breakers (RCCB's) have an operating temperature range of -40°F/C to +140°F/+60°C. Therefore, the unit may be safely installed indoors or outdoors. The installer should choose a location that allows relatively easy access as the RCCB's should be tested monthly. If installed outdoors the conduit penetrations into the enclosure must be properly sealed.

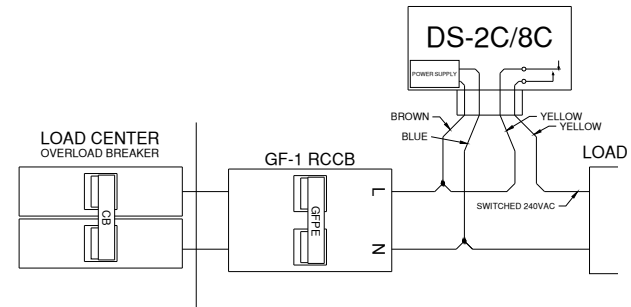
Prior to mounting remove the top cover of the GF unit by unscrewing the plastic screws in each corner. The GF unit should be mounted by installing #10/M5 or similar screws through the mounting holes in each corner of the enclosure base. These holes are "outside" the sealing gasket and their use will ensure the weather integrity of the enclosure.

**DO NOT DRILL HOLES THROUGH THE ENCLOSURE FOR MOUNTING!  
NE FONT PAS LES TROUS DE FORET PAR LA BOÎTE POUR LE SUPPORT!**

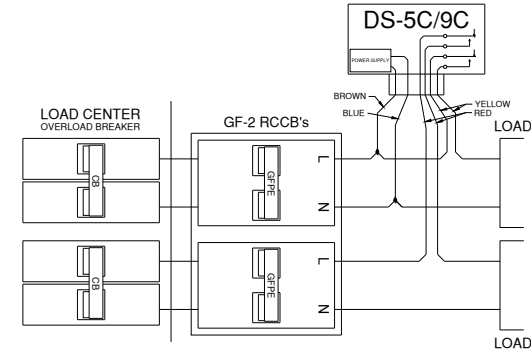
This can allow water into the enclosure causing a potential shock hazard. The mounting hole dimensions are 3.75"/95mm side-to-side and 6.50"/165mm top-to-bottom. The provided enclosure knockouts can be used for conduit termination. The Pg16 knockout will accommodate a 1/2" conduit hub. The Pg21 knockout will accommodate a 3/4" conduit hub. Be sure to properly seal the conduit hubs and penetrations if mounting outdoors. Use copper wire only, #14 AWG-#6 AWG as required. Tighten the RCCB terminal screws to 20 In/Lbs (2.26 N/m.) Complete wiring as required then reinstall the top cover of the GF unit. Set the breakers, test the system, and confirm that pressing the (T)est button on the RCCB will disconnect the attached circuit. Be sure to close and latch the front cover once testing is complete. Test the RCCB(s) monthly by pressing the Test button and observing a circuit breaker trip. Reset.



Single Circuit GF-1 120VAC Feed



Single Circuit GF-1 240VAC Feed



Dual Circuit GF-2 240VAC Feed

These are some of the possible wiring schemes that can be used to connect the GF-1/GF-2 to your snow melt system. Remember, these are only suggestions. **You should always consult a qualified electrician or inspector to assure conformance with applicable local and national electrical codes!**