This document provides the information and connection diagram necessary to install the "INTERRUPTIBLE SERVICE" rate schedule option, when selected by the electric service customer, at their facility.

**INTERUPTION AND RESTORATION OF SERVICE**

**AUTOMATIC INTERRUPTION**

Electrical power delivered shall be subject to automatic interruption in the event of a reduction of frequency on the PG&E system to the scheduled frequency.

**INTERUPTION BY CUSTOMER**

Electrical power delivered shall be subject to manual interruption by customer upon notice from PG&E when system conditions warrant.

**SERVICE RESUMPTION**

After any interruption, whether automatic or manually activated, the customer shall "NOT" resume use of electric power except by permission from PG&E's designated switching center.

**GENERAL NOTES**

1. The automatic interruption of electric power occurs when the fundamental frequency of 60 Hertz (Hz) lowers to a scheduled frequency of 59.75 Hz, for 6 cycles or longer.

2. An underfrequency tripping action will cause the customer's electric power circuit breaker or switch to automatically open and stay open (while blocking any automatic reclosing) until the underfrequency relay is manually reset. This manual reset action is performed by the customer, See Note 10.

3. During automatic interruption, the customer's circuit breaker "OPEN" status is communicated to a PG&E designated switching center as a continuous signal alarm which is turned on only when the customer's breaker is in the "CLOSED" (energized) position. No status (alarm) is sent when the customer manually trips the service.

**RELAY POTENTIAL**

4. The 120 Volts 60 Hertz AC potential source for energizing the underfrequency relay is also the underfrequency signal source.

5. The underfrequency relay potential shall be obtained from the "SOURCE SIDE" of the customer's interruptible service circuit breaker or switch. Any phase of any potential instrument transformer located on the source side of the customer's interruptible service circuit breaker can be used.

6. The underfrequency relay potential may be obtained from any phase of any potential instrument transformer located on the source side of the customer's interruptible service circuit breaker.

**PG&E PROVIDED EQUIPMENT**

7. PG&E shall install, own, and maintain the automatic interrupting initiating facilities and all revenue metering, recording devices, and the 120 Volt A.C. potential source.

**CUSTOMER PROVIDED EQUIPMENT & FACILITIES**

8. The customer shall provide and maintain an exclusive telephone company-type 3002 communications circuit from the PG&E provided terminal block at the customer's facilities (See Note 11a or 11b) to PG&E's designated switching center (The type 3002 telephone circuit is a 4 wire full duplex unconditioned line).

9. A normally closed Form "B" contact for alarm purposes shall be provided from each interruptible service circuit breaker or switch. Also, a tripping circuit will allow a contact from PG&E's underfrequency relay to trip the customers' circuit breaker or switch. These circuits shall be wired and terminated on the PG&E provided terminal blocks.

10. A reclose blocking (interlock) circuit shall be wired and terminated on the PG&E provided terminal blocks when the customer circuit breaker or switch has automatic reclose capability. (See sheet 4 for connections)

11. Space shall be provided for the mounting and installation of PG&E supplied equipment, consisting of either:
   (a) A surface mounted enclosure located on the outside of the customers metalized switchgear (See Fig. 1 sheet 6) or on an adjacent wall or structure, convenient for the customer's wiring and access for resetting the underfrequency relay or
   (b) A switchboard or panel mounted at the same location where the controls for the customer's interruptible circuit breaker or switch are installed. (See Fig. 2 Sheet 8).

12. The customer shall provide and install all the necessary conduits, control wiring, interconnections, and telecommunication circuitry and equipment at a PG&E provided terminal in the enclosure or switchboard. See Notes 11a or 11b.

13. A ground resistance value of the customer's facility shall be provided to the phone company at their request for the calculation of voltage rise during ground fault conditions. Upon request PG&E will supply the customer with the phase-to-ground short circuit current of its facility.

**REFERENCES**

- Diagram of Connections Metering Polyphase Loads Using Transformer Rated Meters
- Instrument Transformers for Distribution Application
- Operating and Maintenance Manual for Puf-59 Underfrequency Relay

**GENERAL NOTES AND REFERENCES**

No. 8336 10-2-69

**INSTALLATION REQUIREMENTS FOR TIME METERED INTERRUPTIBLE SERVICE**

**ELECTRIC OPERATIONS**

**PACIFIC GAS AND ELECTRIC COMPANY**

**SAN FRANCISCO, CALIFORNIA**

**SUPERSSEDES**

- SHEET NO. 062143
- OF 19 SHEETS
- DRAWING NUMBER
- REV 3

**SUPPLIED BY**

**PROOFREAD BY**

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**CNC. G. B. LIN**

**DTP. F. R. GRAF**

**DATE 3-24-87**

**SCALE**
NOTES:
(a) Customers' Instrumentation and Protection Devices are not shown.
(b) PG&E's Metering Instrument Transformers (CTs & PTs) shall be sized and selected for each installation, for voltage, current and ratio values.
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(b) PG & E's Metering Instrument Transformers (CTs & PTs) shall be sized and selected for each installation, for voltage, current and ratio values.

TYPICAL SINGLE LINE METER AND RELAY DIAGRAM
(FOR PRIMARY METERED SERVICE)
<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUAN.</th>
<th>DESCRIPTION</th>
<th>ENGRAVING</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Completely Factory Assembled Unit. The Assembly Shall Comprise of all the Following Itemized (*) As Identified Components. Securely Mounted and Safely Wired as a Integral Unit. All Mounted In an Outdoor Type NEMA 3R Lockable Enclosure with Hinged Interior Panel. Provide six 3/8&quot; Knockouts in Bottom of Enclosure and an External Grounding Stud. Finish Color-Vary. Enclosure to be sized to suit. Approximately 24&quot; W x 24&quot; H x 18&quot; D. See SHE. 7.</td>
<td>24-5296</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Reel, Type HHA, Auxiliary, Multi-Contact, Hand Reset, 120 Volt AC, 25 Amp, 60 Hertz, 4 Normally Open-2 Normally Closed Contacts, With Oval Handle. Escutcheon Plate Marked: &quot;Trip-Reset&quot; For Mounting 1/8&quot; Steel Panel (Device Floris E - Co. Model 12HHA4249 or Equivalent)</td>
<td>01-2226</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Switch, Test, 2 Pole, Double Pole Potential Assembly, Yellow Handles. Front Connected. W/O cover. (Device: Mark 6 Co. Catalog No. 2402K2. Device: Equivalent)</td>
<td>053468</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>Lamp, Indicating Type ET-6, 115V AC, W/Type T2 Code 24 EX Lamp, Resistor &amp; Transparent Blue Cap For Mts. on 1/8&quot; Steel Panel. G.E. EIC6050D1806</td>
<td>34-9677</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>Terminal Block, Medium Duty, Screw Terminals Both Sides. 12 Terminals. 6.0F.C. Cat. No. E25A612M</td>
<td>057384</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>Door Mounted Card Rack. Similar to Do-Tel Research Model C7030B. Exact Equipment with 66800-F Power Supply, Two Line Transformers, One Transformer Model G-2886-1 a 1275 Hertz Frequency. The Rack to be Quad Module. The Rack shall be wired to Accommodate a Future Receiver Model G7006 and Modules G701, G7026 and G7026-1 Applications</td>
<td>24-5297</td>
<td></td>
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<tr>
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<td>Guard for Handle of Feature Cut-out Switch (Use with Item 5)</td>
<td>027586</td>
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<td>10</td>
<td>1</td>
<td>Nameplate for Feature Cut-out Switch Port &quot;A&quot; (Use with Item 5)</td>
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<td></td>
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<td>12</td>
<td>1</td>
<td>Lamp, Indicating Type ET-6, 115 Volts AC, Compl. With Type T2 Code 24 EX Lamp, Resistor, and Translucent White Cap For Mts. on 1/8&quot; Steel Panel, G.E. EIC6050D1806</td>
<td>34-9677</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>Knob, Type 1B, PVC 3/4&quot;, Female, Slip Fit</td>
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<td></td>
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<tr>
<td>14</td>
<td>1</td>
<td>Bushing, for 3/4&quot; PVC Conduit</td>
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<td></td>
</tr>
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<td>15</td>
<td>1</td>
<td>As req'd, Cable, 1/2&quot;, No. 16 AWG, 200 V, 10 Strand (Flexible Swbd, Hnge Wire) Black Jacket-Symbol SIS</td>
<td>055672</td>
<td></td>
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<tr>
<td>16</td>
<td>1</td>
<td>As req'd, Wire, Solid, BC, #2 AWG, or 1/0 kcmil as req'd. (For Enclosure Grounding)</td>
<td>29-8294</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>1</td>
<td>As req'd, Cable PVC, No. 10 AWG, 600 V, 10 Strand (Flexible Swbd, Hnge Wire) Black Jacket-Symbol SIS</td>
<td>055672</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- Components of Feature Assembled Unit.
- Mount on front and back of panel.
- Nameplate size 5" H x 2½" W.
FIG. 2
TYPICAL CUSTOMER'S SWITCHBOARD OR FRONT DOOR OF CIRCUIT BREAKER SWITCHGEAR CONTROLLING THE INTERRUPTIBLE LOAD

NOTE:
The PG and E installed equipment may be physically located on the switchboard if space is available. The communication rack may require mounting on an adjacent wall or structure, for telephone and auxiliary wiring access. The telephone line may then terminate directly at the communication racks terminal blocks.
Flexible Switchboard Hinge Wire

TB-1, 2, & 3 are for future expansion applications for customer notification unit and acknowledgement functions.

Customer's Telephone Line Termination Block

TB-1, 2, & 3

Notes:
(a) All wiring to be #16 AWG. Except for wire numbers 1C-1, 1C-2, UX-2, UX-2C, CC-1 and CC-2 which shall be #10 AWG minimum. (See BIM Items 23 & 25).
(b) The customer must confirm to their own requirements that the suggested #10 AWG tripping (1C-1B, 1C-2) circuit, and the reclose blocking (CC-1B, CC-2) circuit wire size is large enough to prevent any undervoltage conditions, for safe and reliable operation of their circuit breaker.

Diagram of Connections for Interruptible Service Enclosure

Installation Requirements for Time Metered Interruptible Service

Electric Operations
Pacific Gas and Electric Company
San Francisco, California