

**Technical Specifications**  
**GUYANA POWER & LIGHT INCORPORATED**  
**TECHNICAL SPECIFICATION**  
**FOR**  
**METER BASES (Socket Type)**  
*For 100Amp rated, Single phase 2-wire (Form 1S)*  
*And 3-wire (Form 2S) Meters*

**I. INTRODUCTION**

**A. PURPOSE**

These specifications were prepared to establish and promote uniform requirements for single phase meter bases (socket type) to be used by Guyana Power and Light Inc. This specification is intended for procurement of equipment and does not include provision of contract. The specification lays down the minimum requirements for equipment acceptable for evaluation.

**B. SCOPE**

This specification applies to newly manufactured, single phase meter bases (socket type) for direct connection of single phase 2-wire (Form 1S) and 3-Wire (Form 2S) socket type meters, for measurement of alternating electrical energy and power consumption.

**II. METER BASE SPECIFICATIONS**

**A. Standards**

All meter bases (socket type) and components, to be provided by manufacturers for use by the Guyana Power and Light Inc shall conform to the latest revision of the following primary industry standards:

ANSI/UL 414, ANSI C12.7, UL 50, UL 489, NEMA 250, NEMA Publication No. EL-17, National Electrical Code (NEC), IEC-60898 and the relevant other standards which are a part of the primary standards.

All Meter bases (socket type) and its components shall be approved by an accepted organization concerned with product evaluation and carry the label of that Agency.

**B. Requirements**

**1. Meter Base Shell Construction**

- i. Meter base shall be constructed of Metallic or Non-Metallic material.
  - a. Metallic bases shall be constructed of Aluminium sheet (3000 series-H14) of minimum thickness of 1.6 mm (0.064 inch)
  - b. Non-Metallic bases shall be constructed of Fiber Glass or Fiber Glass compound of minimum thickness of 4 mm (0.16 inch), with UV Coating.
- ii. Meter base edges shall be smooth after forming and shall be painted the colour grey on the outside, after fabrication to provide a tough, non-chalking weather resistant finish.
- iii. Meter Base construction shall be in accordance with ANSI/UL50 and rated NEMA Type 3R for outdoor use.

- iv. Mounting base shall provide 3 mm (0.125 inch) minimum air space between back of the base and the mounting surface.
- v. Meter base shall have concentric knockouts on both sides of base to accommodate couplings for wiring, according to dimensions specified.
- vi. Meter base shall be constructed with Overhead Hub at top for overhead entry, with opening diameter of 40 mm (1.5 inch).
- vii. Meter bases shall be of the RING-LESS type, where the cover will lock and keep meter in place.
- viii. Meter base cover shall have provision via a slide type window for accessing and inspection of internal circuit breaker, along with provision for security seal.
- ix. Meter base main sealing shall be provided by latch type mechanism with provision for security seal after cover is secured or locked in place.
- x. Meter bases must be fitted with isolation circuit breaker (double pole for form 2S application and single pole for form 1S application)
- xi. Meter bases shall be Moisture, Fire and Impact Resistant.
- xii. Meter bases shall be UL listed and labeled.
- xiii. The fully assembled Meter Base shall have minimum internal dimensions of 363 mm in Height, 206 mm in width and 81.5 mm in Depth.

## **2. Meter Base Socket Jaws**

- i. Socket Jaws shall be of the 4 terminals type for use with single phase 2-wire (Form 1S) meters.
- ii. Socket jaws shall have reinforcing spring clips to maintain electrical connections, along with meter blade guides.
- iii. Socket jaws shall be tin plated, capable of carrying full rated (continuous) current of 100 Amps at 600Volts.
- iv. Socket jaws shall withstand the mechanical and heat rise requirements of ANSI/UL 414.
- v. Socket jaws block assemblies shall be replaceable from the front.

## **3. Meter Base Terminal Connectors**

- i. Terminal connectors shall be suitable for use with aluminium and copper conductors.
- ii. Terminal connectors shall be capable of carrying full rated (continuous) current of 100 Amps and withstand the mechanical and heat rise requirements of ANSI/UL 486B.
- iii. Terminal connectors shall have terminal screws provided with a hex head or Allen head screw.
- iv. Terminal connectors shall not be squeeze on type connections.
- v. Terminal block insulation shall be of 600 volt rating and of such grade as to prevent dielectric breakdown and to provide adequate arc tracking resistance capability.

## **4. Meter Base Circuit Breaker**

- i. Circuit breakers shall be molded case thermal-magnetic quick-make/quick-break, over toggle type.
- ii. Circuit breakers shall be rated for single-phase, 240 volts ac, for a continuous current (frame rating) of 100 amps, for use in systems having a short-circuit capacity of at least 10,000 amps rms.
- iii. Multi-pole circuit breakers shall be of a stack pole design to provide electrical phase isolation and have an internal common trip.

- iv. Each pole of the circuit breaker will have inverse time delay overload and instantaneous short-circuit protection by means of both thermal and magnetic.
- v. The circuit breaker calibration shall not be affected by environmental changes in relative humidity. Breakers shall be calibrated after assembly.
- vi. Circuit breakers shall be operated by a toggle-type handle and multi-pole circuit breakers shall have an internal common trip mechanism.
- vii. Circuit breaker terminals shall be listed for use with copper or aluminum conductors and shall meet UL 486B requirements.
- viii. Circuit breakers shall be UL listed and labeled.
- ix. Circuit breakers shall conform to IEC-60898 standard.

#### **5. External Protection**

- i. Meter base shall be designed to protect personnel against accidental contact with the electrical devices.
- ii. Guard against unauthorized use of electric service and cannot be opened without either breaking the seal or visibly damaging the enclosure.

### **III. OTHER REQUIREMENTS**

#### **1. Quality Assurance**

- i. The manufacturer shall provide type approval certificate (s) with test results of the meter base (socket) and its components being offered, from an international or the national certification body.
- ii. Where test certificates/reports are issued by a laboratory other than the International/National Standards and Testing Authority, a copy of accreditation certificate, under ISO/IEC 17025 from the International/ National certification body must be submitted.
- iii. The manufacturer shall provide current e-mail addresses, fax and telephone numbers of the national/international testing/calibration laboratories and certification bodies. The test certificates shall bear the product type on offer.
- iv. The manufacturer shall provide proof of conformance to ISO 9001(2000) standards.

#### **2. Drawings and Manuals**

The following drawings and information shall be provided by the manufacturer for the meter base assembly and each major component being offered:

- i. Final as-built drawings giving all the relevant dimensions;
- ii. Meter base wiring diagrams;
- iii. Users, Operational and maintenance manuals
- iv. Instruction leaflets and bulletins.

#### **3. Warranty and Defects**

- i. The meter bases and its components shall have a warranty against any defects, which may develop due to faulty material, transportation or workmanship for a period of eighteen (18) months from the date of delivery.
- ii. The Manufacturer shall within sixty (60) days, repair or replace all defective meter bases or components, free of cost at the ultimate destination.
- iii. In the event of any correction of defects or replacement of defective meter bases or components during the warranty period, the warranty for the corrected/replaced meter bases will be extended to a further period of twelve (12) months.

IV. DRAWINGS AND DIMENTIONS

