

**SUPPLEMENT TO
SPECIFICATIONS FOR
ELECTRICAL INSTALLATIONS**

**METER SOCKET
AND
OVERHEAD SERVICE ATTACHMENT BRACKET
REQUIREMENTS**

ELECTRIC SYSTEM BULLETIN No. 751

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Niagara Mohawk
A **National Grid** Company



I. INTRODUCTION

A. Purpose

This Supplement to Electrical System Bulletin (ESB) #750 provides the Company requirements for electric self-contained meter sockets for commercial services and overhead service attachment brackets. This applies to services less than 600 volts.

B. Scope

1. Commercial Self-contained Meter Sockets: Requirements for Commercial meter sockets are provided in Section II.

As of the November 2003 edition of ESB 751, pre-approved commercial meter socket model numbers will no longer be provided by the Company. The Customer along with their installer and third party inspector shall select a meter enclosure that meets the requirements in Section II.

2. For residential meter sockets, pedestal metering and meter center equipment, see ESB 750-2002, Appendices 2 through 3 for Company requirement criteria and specifications.
3. Service attachment brackets: For overhead service attachments, see the list in Section III for material and see ESB 750-2002, Appendix 1 for Company-accepted attachment methods.

II. METER SOCKET SPECIFICATIONS

A. Standards

The meter sockets provided by distributors, contractors, or customers for connection to the Company's electric service shall conform to the latest revision of the following primary industry standards: ANSI/UL 414, ANSI C12.7, NEMA 250, NEMA Publication No. EL-17, NFPA 70, National Electrical Code (NEC), and the relevant other standards which are a part of the primary standards. Meter sockets shall be approved by an AHJ-accepted organization concerned with product evaluation and carry the label of that agency.

B. Criteria

1. Meter sockets shall be of the ringless design (the definition is contained in the national standards).
2. The enclosure of self-contained meter sockets shall be a minimum of NEMA type 3R design (an enclosure that is intended for outdoor use to provide a degree of protection against windblown dust and rain). Other NEMA type designs or enclosures with multiple type designs are permitted as long as the minimum environmental requirements of type 3R are met. Steel enclosures shall be a minimum 16 gauge and shall be such that outside pressures cannot effect contact to energized parts.
3. Meter sockets shall have a 7/8" (22 mm) knockout provision in the coverplate, which allows the socket cover to be sealed to the meter socket body by a utility barrel lock seal.
4. Individual meter sockets shall be rated for 200 ampere or 300 ampere continuous load. Overhead types require hub opening at top for overhead entry. Meter sockets designed for underground entry shall be equipped with 3/8" (10 mm) diameter stud type line terminals sufficient to withstand conductor pulling tensions up to 400 pounds (1.78 kN) force.

5. Each position of a ganged meter socket (six position maximum) shall be continuous duty rated as a minimum of 200 amperes (commercial) or 100 amperes (single-phase 120/208 volt) with line bus rating capable of the maximum sockets connected. The design of a ganged meter socket shall permit the cover to be opened, closed and sealed individually. The central wiring space shall be 8" (200 mm) wide minimum for single-phase applications including hub opening and closure plate for overhead or underground entry and equipped with 3/8" (10 mm) diameter line side connection studs and 250 kcmil load side lay-in terminals. Commercial ganged meter sockets shall be equipped with lever bypass.
6. The neutral connection shall be bonded to the meter socket enclosure. Also, an equipment ground stud provision, sized according to the National Electrical Code (NEC), is required in the load connection part of each meter socket for bonding purposes.

7. **Meter Socket Jaws:**

Meter sockets for commercial services shall have locking jaws of the pressure release design which incorporates a lever operated bypass switch for each line-to-load phase current circuit, that is capable of carrying the continuous duty current rating of the meter socket (HQ 5 or HQ 7 types). Horn-type bypass, mechanical slider or automatic spring loaded bypassing styles are not acceptable in commercial meter sockets.

Jaw assembly configurations shall be one of the following:

4 jaw – 100 to 200 Amps Continuous Duty	For use with Form 2S Watt-hour Meters; on 1 phase, 3 wire, 120/240 volts service
5 jaw – 100 to 200 Amps Continuous Duty	For use with Form 12S Watt-hour Meters; on 1 phase, 3 wire, 120/208 volt or 277/480 volt "Network" service. The 5 th jaw shall be oriented to the 6 o'clock position (HQ 5 Type)
7 jaw – 100 to 200 Amps Continuous Duty	For use with Form 14S and Form 16S Watt-hour Meters; on 3 phase, 4 wire, 208 wye/120 volt or 480 wye/277 volt services (HQ 7 Type).

The meter socket jaw assembly shall permit the use of Safety Arc Shields or "mylar plastic disconnect sleeves," being applied over the blades of the watt-hour meter, without cutting or mutilation of the plastic insulator material. A fifth jaw terminal having an insulated #10AWG, 1/c wire connected to the service neutral, shall be provided in the 6 or 9 o'clock mounting position on all meter sockets that are intended for use with Form 12S watt-hour meters on three-wire, 120/208 volt services. 100 and 150 ampere rated meter socket jaw assemblies shall be compatible with Class 200 rated watt-hour meters.

8. A minimum connection temperature rating shall be 75°C for the rated ampacity of the meter socket. A 90°C rating is preferred. Bolted type connectors or lay-in terminals intended for use with stranded copper or aluminum wire, shall be constructed of tinned-copper or aluminum, with terminal screws that are provided with a hex head or allen head screw, rated for a minimum of 150 inch-pounds (17 N•m) of tightening torque (compression connectors shall be used in lieu of bolted type connectors for stud type terminations).
9. 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. The terminal block insulation material shall be capable of withstanding a minimum of 150 inch-pounds (17 N•m) of torque on the terminal screw without breakage, or undue deformation of the connector itself.

10. **Small Commercial Applications** - Relating to small commercial applications only, a Customer requesting a single phase commercial service of 100 Amps or less, the meter socket may be permitted without a lever operated bypass switch for the following application types: remote water pump, signs/billboards, telephone company air dryer, CATV, pole barn, apartment house management meter, garage next to Customer's house, parking lot lighting, traffic control, and temporary service to construction sites. This is only permitted where the Customer is not concerned with service interruption for meter maintenance in these applications. The Customer is advised to commit in writing to waive the requirement of bypass operability and upon the first instance that the Company cannot service the meter, the Customer will install a meter socket with a lever operated bypass switch. These applications do not apply in network and underground manhole/duct line service areas.
11. Small commercial 120V single phase, 100A, 2 wire services may be installed as shown in **Figure 1** with a four jaw meter enclosure provided the maximum demand is less than 3kVA.

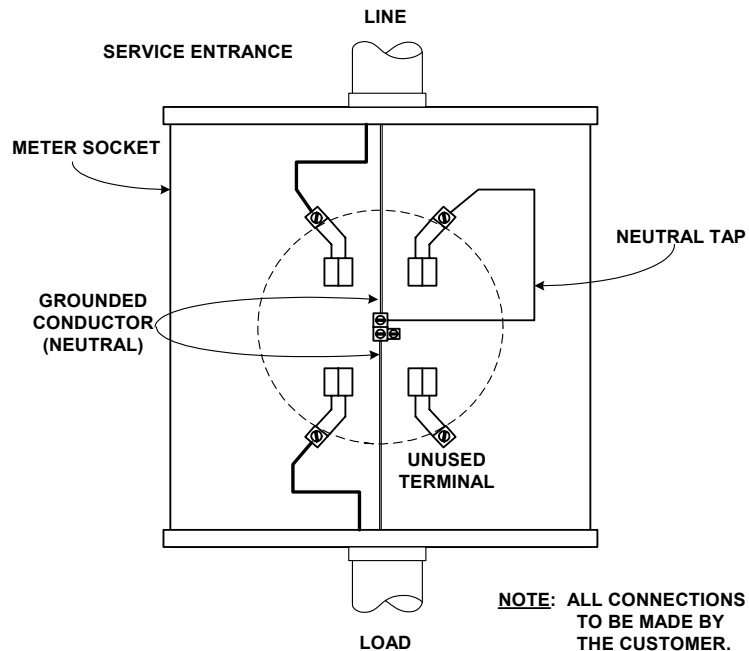


Figure 1 – Small commercial 120V, single phase, 100A Installation

III. COMPANY-APPROVED SERVICE ATTACHMENT MATERIAL LIST

(See ESB 750-2002, Appendix 1 for item illustrations.)

<u>NM Item</u>	<u>Description</u>	<u>Vendor ID</u>	<u>Vendor Cat. No.</u>
B53A	Bracket, insulated service. Reinforced porcelain wire holder for attachment of multiplex services to 1-1/4" through 2-1/2" metal mast.	Joslyn Cooper	J0588 DW2C3
B53B	Bracket, insulated service. Reinforced porcelain wire holder for attachment of multiplex services to 3" to 4" metal mast.	Chance Cooper Porc. Prod.	C207-0076 DW3C1 6913
B54	Bracket, insulated service. "House Knob." Reinforced porcelain or nylon wire holder with 3" #22 hot dip galvanized wood screw. EEI TD 24 Style 5. (1)	Chance Joslyn Cooper Porc. Prod.	3-11-45 JO893 DW2R4 1987
B17	Bolt, "J". 3/8" x 11" galv. steel special for attaching service bracket to house. (2)	Joslyn Cooper	BT3917 DR6E1
I-10	Insulator Clevis. Insulated galv. assembled with dry process porcelain insul. for #2 AWG & #4 AWG triplex services. (1)	Joslyn Cooper	J1945 DC7F11
I-11	Clevis, insulated spool type sec. dead-end EEI-TD20-Item 2 clevis with ANSI C29.3 Class 53-3 insulator.	Joslyn Cooper Porc. Prod.	J0342W/J97 DC3F66 4113
I-12	Clevis, secondary insulator clevis galv. steel for use with I-25 insulator (Not included) 3000# ult. For use on #1/0 AWG & 336 kcmil triplex services. 5/8" cotter bolt & s.s. cotter key. (2)	Chance Joslyn Cooper Porc. Prod.	T207-0105 23491 DC13C4 4112
I-25	Insulator, sec. rack spec. ANSI C29.3-class 53-2, 0-600V.	Chance Joslyn Cooper Porc. Prod. Victor Ins. Lapp	C909-1032 J151 DE4S5 5101 2012 8442-70
B7A2	2 1/2" Expansion Shield Lag Screw, cast of zinc-base alloy. Long style for use with 3/8" lag screws on masonry construction. (1)	Diamond Rawl Star	001106 1155 1825-00200
B11A	3/8" x 3" Galv. Steel Lag Screw, with square head shoulder shank and gimlet point. (1)	Cooper Joslyn	DF3L3 J8773
B11B	3/8" x 4" Galv. Steel Lag Screw, with square head shoulder shank and gimlet point. (2)	Cooper	DF3L4
B13	Machine Bolt, 5/8" x 12" square head steel bolt (with nut). Galv. Steel with 6" min. thread length. (2)	Chance Hughes Cooper	8812 B612-4 DF3B12
W1	Flat Washer, 2-1/4" square x 3/16" Galv. Steel	Chance Joslyn Cooper Flagg (MIF) Proc. Prod.	6814 J1076 DF2W5 P56A 6330

Notes: (1) For up to 600 lbs. service drop tension only.
(2) For up to 1100 lbs. service drop tension only.