Secondary Single-Phase Services 320 A Self-Contained Meter Installation

ES54 S1-02

Application

This standard describes the requirements for a customer-owned surface-mounted single-phase 320 A 120/240 V secondary voltage underground service meter socket for installation of a BC Hydro self-contained 320 A revenue meter. 320 A is a new type of customer-owned meter socket, with an integral safety bypass mechanism to facilitate removing the BC Hydro 320 A revenue meter. These underground services shall be installed outdoors for residential customers and may be installed indoors or outdoors for commercial customers.

The BC Hydro 320 A 120/240 V self-contained revenue meter is an 80% rated device for continuous loading. Although a meter socket may be CSA certified as a 100% rated assembly, customer demand for connected service load shall comply with 80% requirements per applicable BC Electrical Code (BCEC) rules.

BC Hydro shall not accept nor energize a 400 A 80% rated customer service main breaker supplied from a 320 A 120/240 V meter socket.

Revision Notes

Added access clearance dimension to Figure 2. Added reference to overhead model to Figure 4. Edited note 3b to replace service duct upgrade information with reference to ES54 S0-04. Changes are marked by green vertical revision lines in the left margin. This standard released concurrently with Standards and Equipment Advisory Information Bulletin 2023-029 R2 *Full Release of Single-Phase Secondary 320A 120/240V Services with Self-Contained Metering*.

References

BC Hydro Distribution Standards

ES54 S0-02	Services General Notes
ES54 S0-04	General Notes Secondary Services
ES54 S0-05	General Notes Service Ducts and Trenches
ES54 S1-01	Secondary Single-Phase Services 200 A Single and 400 A Multiple Self-Contained Meter Installation

Other BC Hydro Documents

Secondary Metering	Requirements for Secondary Voltage Revenue Metering (750 V and less)
DI S10-1	Electric Service Connections – General
DI S10-4	Electric Service Connections – Voltages

External Documents

BCEC	Canadian Electrical Code, Part I (CSA C22.1) adopted for BC and endorsed by Technical Safety BC (TSBC)
TSBC D-EI 2017-01	Directive: Exemptions to public utilities
TSBC IB-EL 2017-04	Information Bulletin: Electrical Safety Regulation application to public utilities

Designed: T. Ismagilov, P. Eng		Professional of Record 2025-01-17 PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA T. ISMAGILOV #61519 Permit to Practice 1002449	Secondary Single-Phase Services 320 A Self-Contained Meter Installation	
Checked: M. Kelvin, P. Eng				
Reviewed: M. Stevens, P. Eng				
Approved: M. Stevens, P. Eng		Issued: 2025-01-21 Effective: 2025-02-03	DISTRIBUTION STANDARDS BC Hydro	ES54 S1-02 R1

Notes

1. General

a. Residential services shall be installed exterior to the building.

b. Customer service, bonding, and grounding conductors shall be installed and terminated on the load side before BC Hydro installs utility supply cables and seals the meter socket for BC Hydro access only.

c. Civil work and grounding installations, including maintenance and repairs, are the responsibility of the customer.

d. BC Hydro accepts both grounding options of meter socket and customer service ground in compliance with BCEC Rule 10-210.

e. Civil installation work for service duct trench shall comply with BC Hydro standards per TSBC D-EL 2017-01.

f. Free-standing outdoor support structures for mounting customer service equipment shall be concrete, masonry, rock walls, or galvanized steel. Support structures made of treated lumber (except power poles) and plywood are unacceptable to BC Hydro. See ES54 S1-01 for more information and installation examples.

2. Service in Duct

a. Underground service duct should be installed outside foundation walls and run on exterior building wall surfaces. Service duct may be installed within the foundation and building wall if encased in concrete.

b. Service ducts inside building walls shall be encased in concrete as a fire barrier. See ES54 S1-01 note 4 *Concrete Encasement* for more information and construction details.

c. For further information on service trench and duct installation see ES54 S0-05.

d. Table 1 shows the variations of acceptable single meter sockets per Figures 1 and 2.

Table 1 – Minimum meter socket enclosure requirements for 320 A 120/240 V services

Type of 320 A enclosure	Sockets	Minimum outside dimensions (mm)			Minimum K.O. and duct size	Minimum line side connector range
		Height	Width	Depth		
Hydel	1	980	450	170	3"	#4/0-500 kcmil Cu/Al cables tunnel lugs
ABB Microlectric	1	890	400	150	3"	#4/0-500 kcmil Cu/Al cables BC Hydro compression lugs

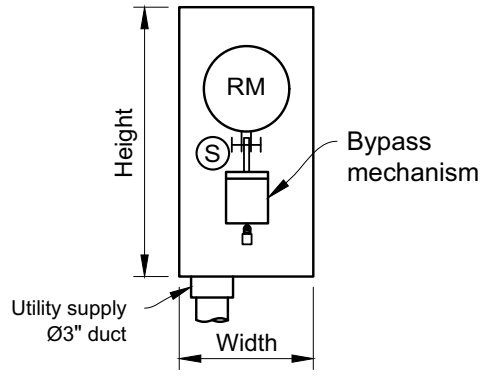


Figure 1 – ABB Microlectric 320 A self-contained meter socket

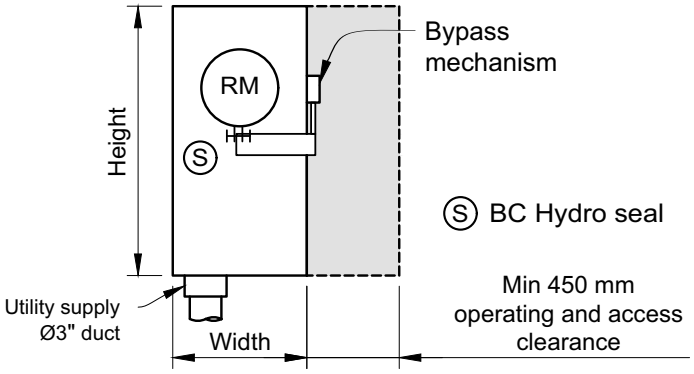
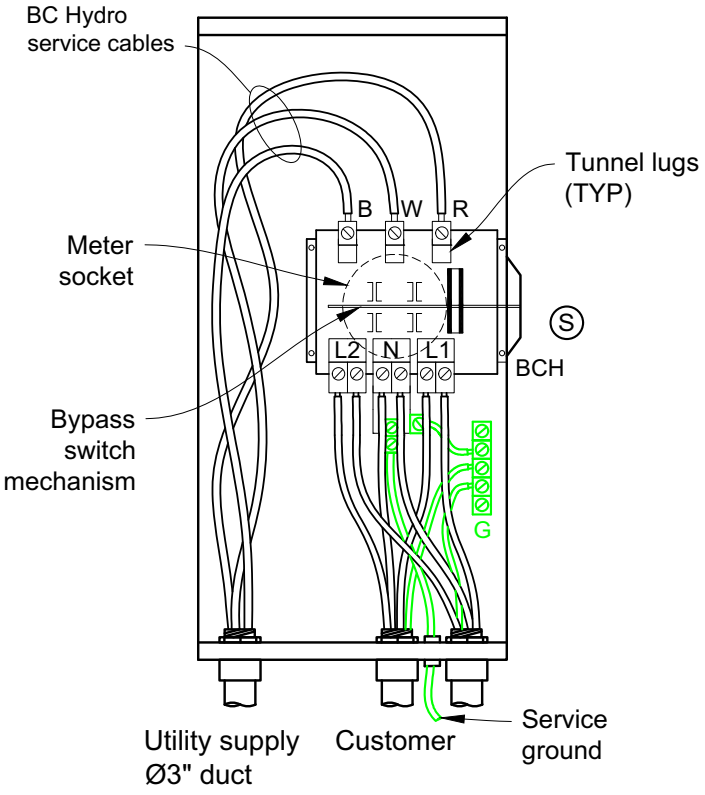


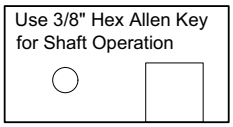
Figure 2 – Hydel 320 A self-contained meter socket

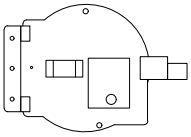


Front Elevation
(Cover Plate Removed)

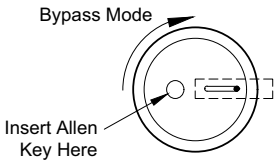
Bypass Switch Operation

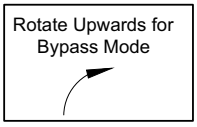
1. 320A meter socket with bypass switch mechanism, shipped in METER MODE from factory.
2. Remove meter sealing ring and bypass door locking glasp.
3. Standard 3/8" hex allen key is used for bypass operation. Key is provided in loose with enclosure.

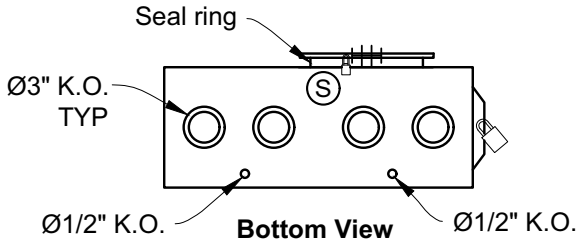




4. Open bypass door, push the side lever backward to access.
5. Insert 3/8" allen hex key and move in upward direction FROM METER MODE TO BYPASS MODE as shown.







Hydel Meter Socket
(Suitable for O/H and U/G Services)

Figure 3 – Hydel meter socket installation and operation details

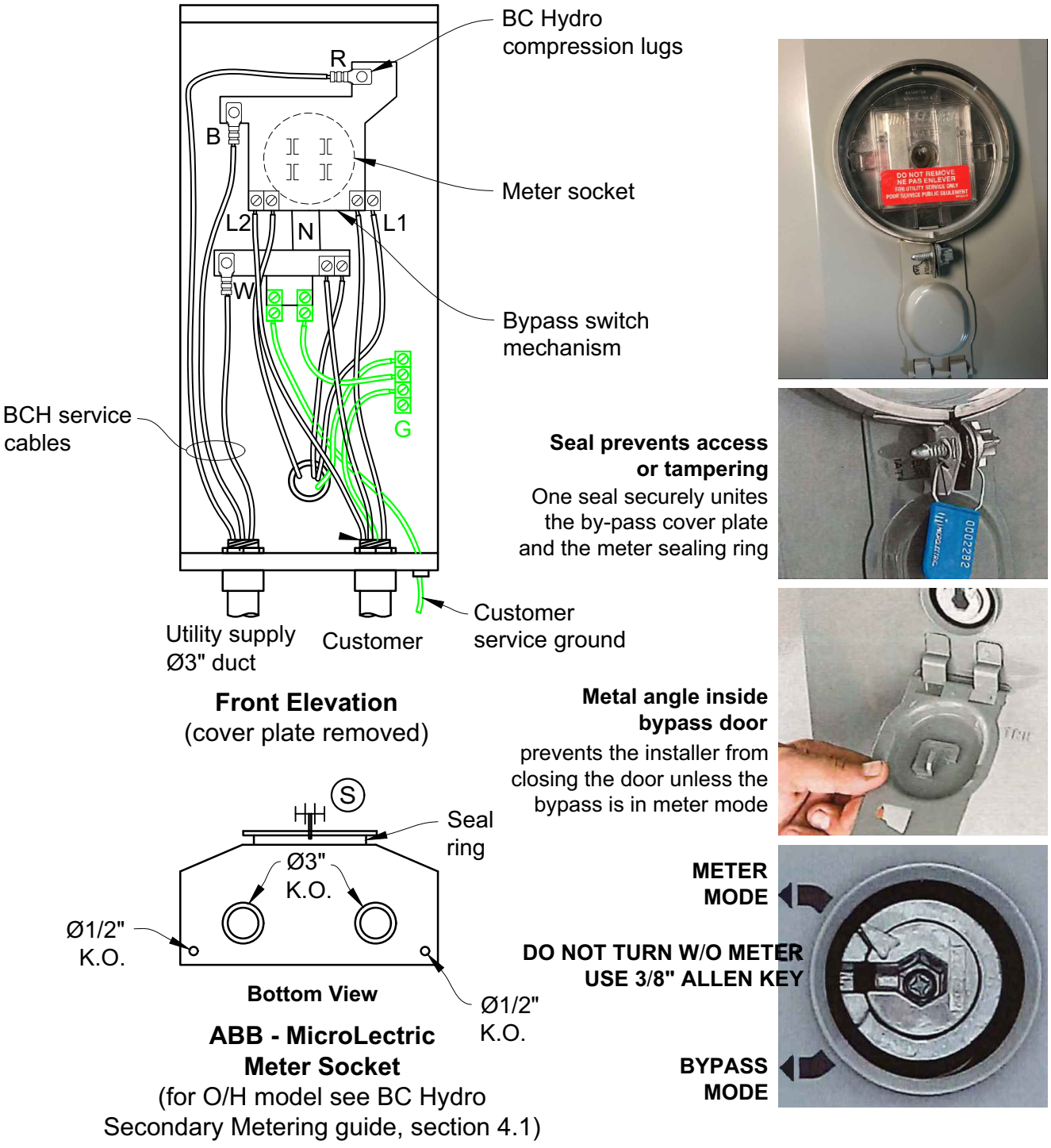


Figure 4 – ABB Microlectric meter socket connection and operation details

3. Service Upgrade to 320 A

a. If the customer wishes to upgrade an existing 200 A service to 320 A service, the existing 200 A meter socket shall be replaced with a new 320 A meter socket. New service grounding and bonding shall be installed to comply with applicable BCEC rules.

b. If the existing service duct is adequate to accept the upgraded service conductors, BC Hydro will accept the existing service duct installation. See ES54 S0-04 for service duct upgrade requirements.

c. The BC Hydro 320 A 120/240 V self-contained revenue meter is an 80% rated device. Customers may install a second breaker panel rated for 125 A in addition to the existing 200 A service breaker panel and connect both to the new 320 A meter socket as shown in Figure 5. BC Hydro will also accept a 300 A service main rated panel, or two 150 A rated breaker panels. BC Hydro will not accept a 350 A service main rated breaker panel.

d. BC Hydro could install larger pad-mounted transformers with a higher available fault level (above 10 kA on the secondary 120/240 V side) to meet increased customer load demand. The customer shall upgrade the existing 200 A customer-owned service breaker panel and new 125 A breaker panel to 22 kA interrupting capacity.

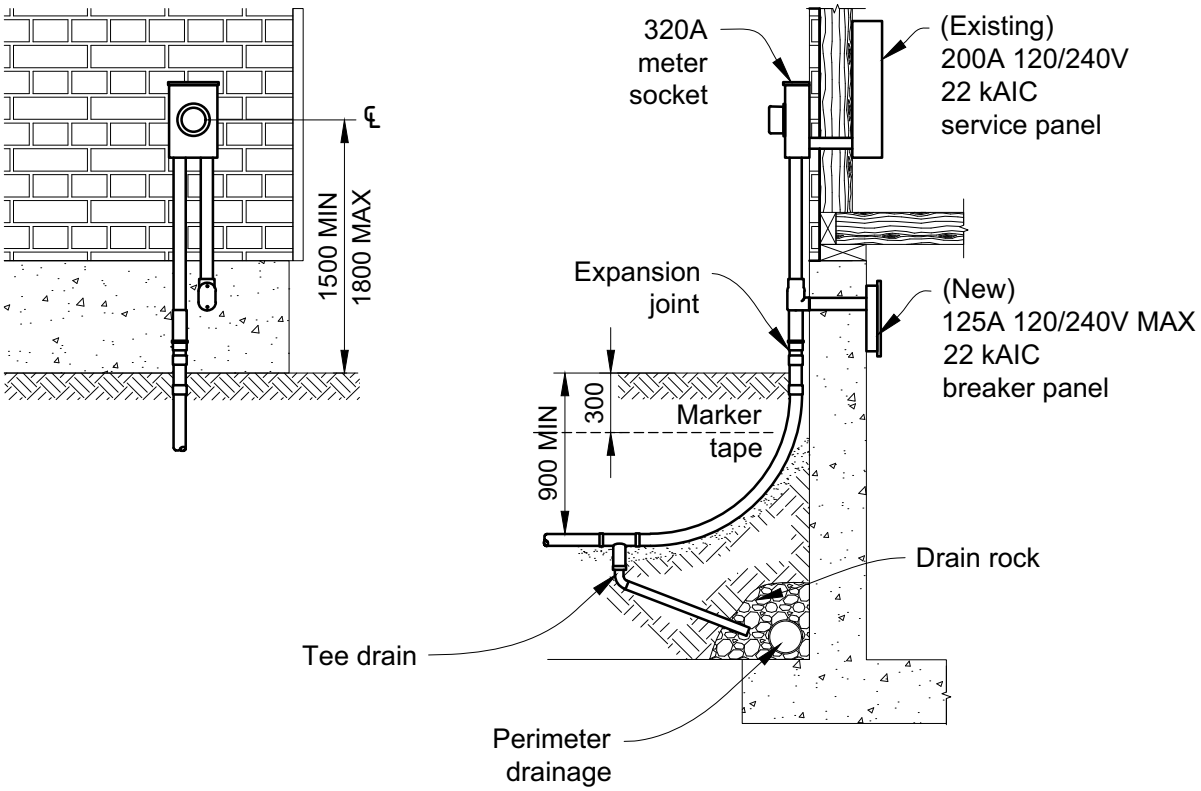


Figure 5 – Typical 320 A 120/240 V meter socket installation with existing 200 A and new 125 A panels