BCS 2200

865-BCS-2200 **http://solar.schneider-electric.com/**

Quick Start Guide

Contact Information

Contact your local Schneider Electric Sales Representative or visit the Schneider Electric website at: http://solar.schneider-electric.com/

Important Safety Information

Read and Save These Instructions. Do NOT discard.

This Guide is intended for any qualified personnel who need to install, operate, configure, and troubleshoot the Backup Control Switch. Certain configuration tasks should only be performed by qualified personnel in consultation with your local utility and/or an authorized dealer. Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. Qualified personnel have training, knowledge, and experience in:

- Installing electrical equipment
- Applying applicable installation codes
- Installing and configuring batteries
- Connecting communication devices into a network
- Selecting and using Personal Protective Equipment (PPE)
- Analyzing and reducing the hazards involved in performing electrical work

The following special messages may appear throughout this document or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

This symbol alerts you to read the related documents, as indicated.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment contains no servicable parts and must only be installed and serviced by qualified electrical personnel.
- Never operate energized with covers removed.
- Energized from multiple sources. Before removing covers identify all sources, de-energize, lock-out, and tag-out and wait 5 minutes for circuits to discharge.
- Always use a properly rated voltage sensing device to confirm all circuits are de-energized.
- Do not operate the equipment if it or its wiring has been damaged in any way.
- Do not disassemble the Backup Control Switch except where noted for connecting wiring and cabling.
- Do not use accessories not recommended or sold by the manufacturer.

Failure to follow these instructions will result in death or serious injury.

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

- Do not operate the Manual Grid Connection Switch in the BCS while any backup power systems are on.
- Turn off all connected backup power sources, including but not limited to inverters, energy storage systems, and generators before using the Manual Grid Connection Switch to connect to the grid.
- Close and secure the switch cover once manual grid connection is complete.

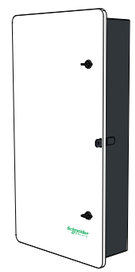
Failure to follow these instructions will result in death or serious injury.

1.0 Introduction

The Backup Control Switch (BCS) provides a way to island a Schneider Electric solar or storage solution from the grid. The BCS can be used with Schneider Electric XW Pro inverters. For more information about installing and configuring the XW Pro Inverter with the BCS, see the *XW Pro Owner's Guide (document number 990-91227)* and *XW Pro Multi-unit Design Guide (document number 990-91373)* (go to https://solar.schneider-electric.com/product/xw-pro-na-solar-hybrid-inverter/ > **Downloads** > **Technical Publications**).

1.1 What's in the Box

IMPORTANT: Inspect the package for damage. If damage is found, contact Schneider Electric customer service.



BCS 2200 (Backup Control Switch)

x2 M6 conical washer and flange nut

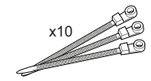
x7 M5 nut

x5 ¼" sealing washer

x2 spare 10A fuse

#10 bonding screw

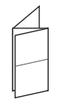
ground electrode label



x10 stud-mount cable ties

wires for optional branch circuit breaker above 60A

PCB connector



Quick Start Guide

1.2 Required Tools and Materials

The following materials and tools are not supplied but are required to complete the installation.

- Appropriate PPE
- Calibrated professional digital multimeter
- AC power cables
- Grounding wires
- RS-485 cable
- Auxiliary wires
- Cable conduits and fittings
- 1/4" (M6) mounting hardware
- Appropriate socket for the mounting hardware
- Adjustable torque wrench
- Power drill set
- Screw driver set (including a #3 Phillips screwdriver)
- 5/16" (8 mm) nut driver
- 3/8" hex key
- Stripper and crimping tool
- Bubble level or spirit level
- High-tension cable tie gun

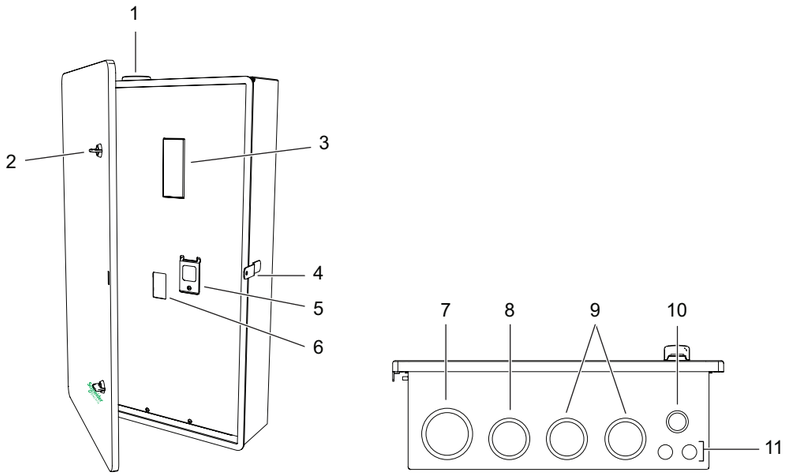
1.3 Optional Components

For more information, see *Wiring the BCS*.

- Main AC circuit breaker, as specified
- Non-backup circuit breaker, as specified
- Extension wires for CTs (see WattNode® manual)
- Square D **Series B** conduit hub for top entry wire routing

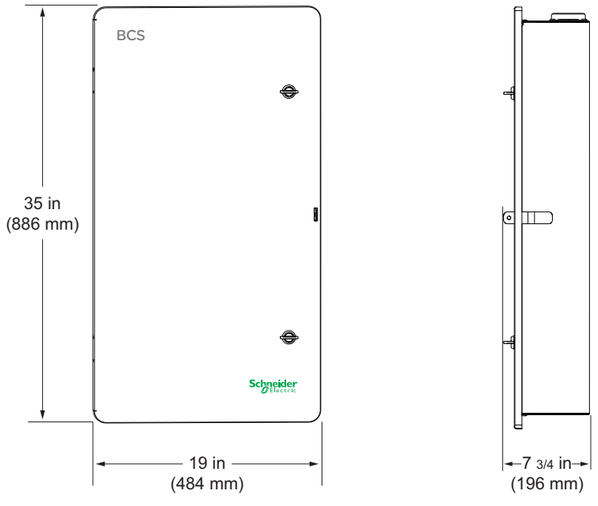
990-91525B
March 2022

1.4 Features



1	Grid input wiring entry - Option 1	7	Grid input wiring entry - Option 2 (for 2.5 or 2" conduit fitting)
2	Door latch (x2)	8	Non-backed up load wiring entry (for 2 or 1.5" conduit fitting)
3	Knockout for Main AC circuit breaker	9	Backed-up load wiring entry (for 2 or 1.5" conduit fitting)
4	Lock-out bracket	10	AC sense and control signal wiring entry (for 1 or 0.75" conduit fitting)
5	Manual Grid Connection Switch	11	Ground wiring entry (for 0.5" conduit fitting)
6	Knockout for non-backup circuit breaker		

1.5 Dimensions



2.0 Choosing a Location

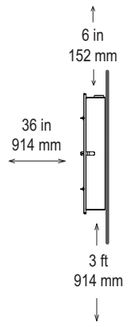
⚠ WARNING

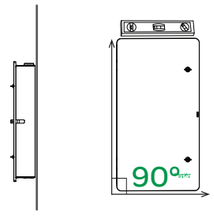
IGNITION AND FIRE HAZARD

This equipment is not ignition protected. To prevent fire or explosion, do not install this product in locations that require ignition-protected equipment. This includes any confined space containing lead acid batteries or flammable chemicals such as natural gas (NG), liquid petroleum gas (LPG), or gasoline (Benzine/Petrol).

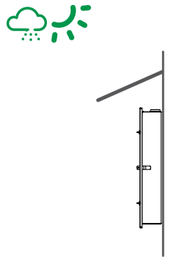
- Do not install in a confined space with machinery powered by flammable chemicals, or storage tanks, fittings, or other connections between components of fuel or flammable chemical systems.
- Do not install the BCS on a flammable surface. If local codes permit installation on a wood surface, ensure that the wood is flame retardant.
- Do not install the BCS near readily flammable materials such as cloth, paper, straw, or plastic sheeting. Keep flammable materials a minimum distance of 24 in (600 cm) from the top surface and 12 in (30 cm) from either side surface and the front of the Backup Control Switch.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

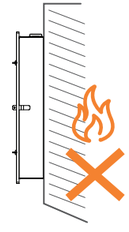




Vertical installation



NEMA Type 3R - Outdoor
shade recommended



Do not install on or near flammable materials

3.0 Mounting the Backup Control Switch

NOTE: Obtain all necessary permits prior to starting the installation. **Installations must meet all applicable local and national codes and standards.**

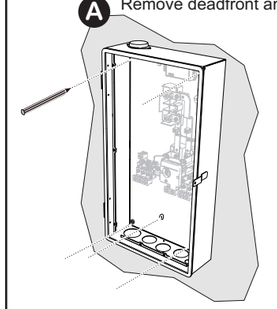
⚠ CAUTION

EQUIPMENT DAMAGE AND PERSONAL INJURY

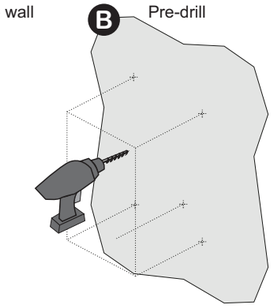
- The BCS weighs approximately 30 lbs (13.6 kg). To prevent personal injury, always use proper lifting techniques during installation.
- The mounting location and anchors must be suitable for the weight of the product. The BCS must be mounted vertically.

Failure to follow these instructions can result in injury or equipment damage.

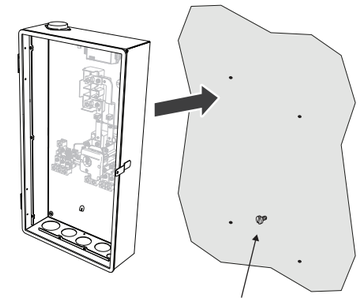
A Remove deadfront and mark the wall



B Pre-drill

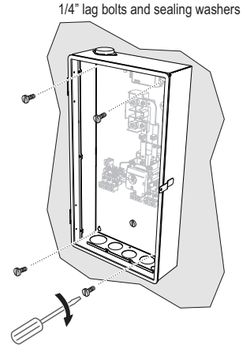


C Align with mounting holes



D Fasten mounting hardware

1/4" lag bolts and sealing washers



1. Open the BCS's door, remove the eight screws from the dead front panel, and then remove the panel. Save the eight screws and the panel for reinstallation.
2. Position the BCS on the wall using a level, and then mark the locations for five 1/4" (M6) lag bolts onto an appropriate mounting surface.
3. Pre-drill holes into the mounting surface.
4. Partially install the middle bottom bolt into the wall.
5. Install the unit over the middle bolt that was installed in step 4.
6. Using a manual screwdriver, fasten the BCS to the mounting surface using four additional 1/4” (M6) lag bolts and the supplied sealing washers. Do not overtighten.

4.0 Lock-out and Tag-out (LOTO)

De-energize, lock-out and tag-out the BCS from all power sources.

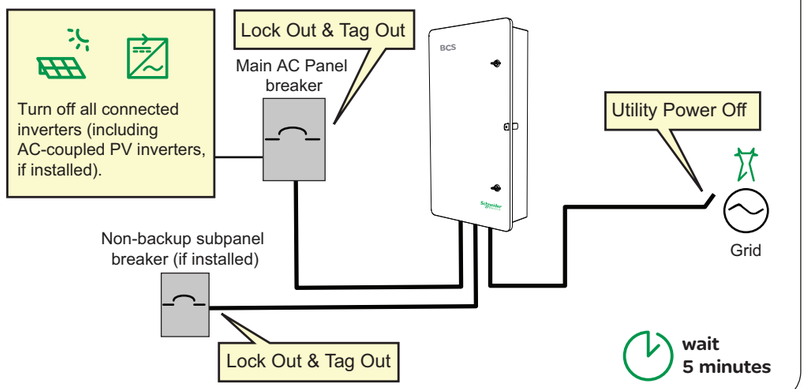
⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

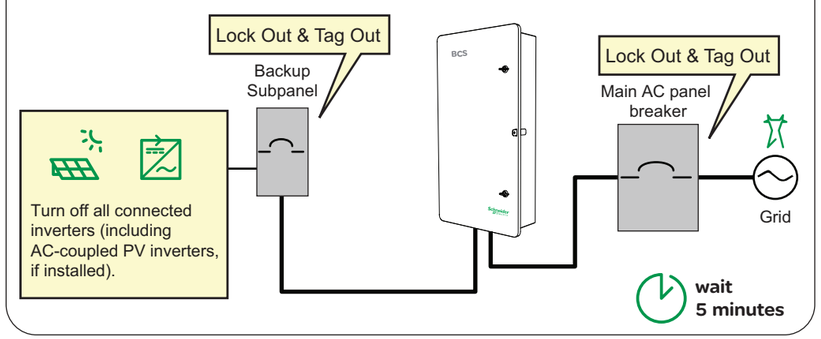
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Never energize the BCS with the covers removed.
- Always use a properly rated voltage sensing device to confirm all circuits are de-energized.
- The BCS is energized from multiple sources. Before opening the cover identify the power source, de-energize, lock-out and tag out, and wait 5 minutes for circuits to discharge.

Failure to follow these instructions will result in death or serious injury.

LOTO for Whole Home Backup (Service Entrance)



LOTO for Installations with a Backup Subpanel



For more information about the two configurations above, see *System Diagrams on page 7*.

5.0 Wiring the BCS

Review *Lock-out and Tag-out (LOTO)* before working.

NOTE: The BCS includes a manual override switch, and an external bypass switch is not required.

⚠⚠ WARNING

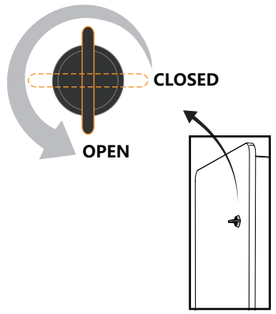
HAZARD OF ELECTRIC SHOCK, EXPLOSION, AND FIRE

DO NOT install a bypass switch that bypasses the BCS unless the BCS and all storage inverters are bypassed as a complete sub-system. Refer to the *XW Pro Multi-unit Design Guide (document number 990-91373)* for information.

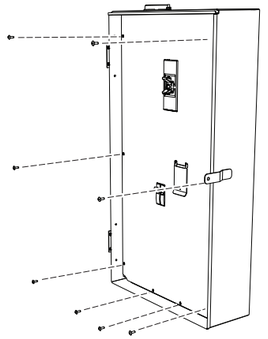
Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTE: The top conduit hole is provided as an option for routing cables to the optional Main AC circuit breaker only (L1, L2, N). See *Features* for bottom entry routing.

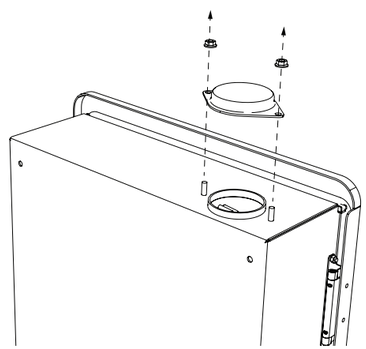
1 Open the two door latches.



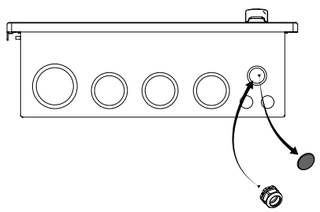
2 Remove the 8 Phillips screws from the deadfront panel, and remove the panel.



3 If needed, remove the cap and install a Square D Series B conduit hub (see table below).



4 Remove the knockouts from the bottom of the BCS (see **Features**).



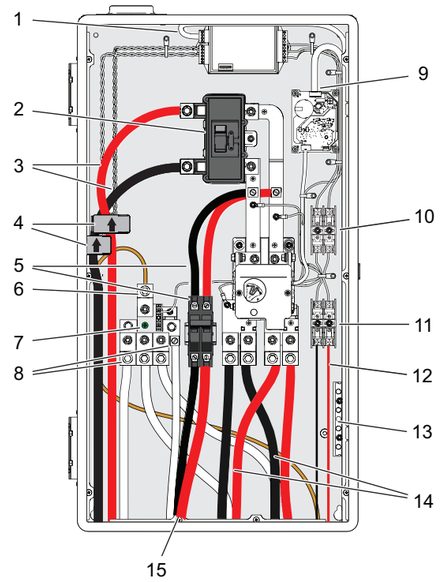
5 Starting with the far right conduit hole, install conduit fittings (suitable for desired ingress rating).

Hub Catalog Number	B075	B100	B150	B200	B250
Conduit Size	3/4"	1.0"	1.5"	2.0"	2.5"

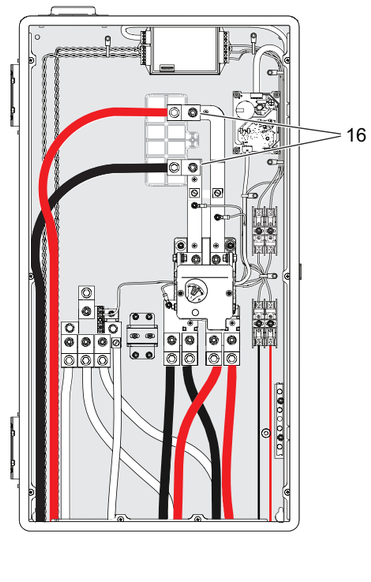
5.1 Wiring Overview

The figures below show examples of the BCS wiring with and without the optional main and non-backup circuit breakers.

With optional circuit breakers



Without optional circuit breakers



Note: The illustrations above are only examples, and do not show the optional top entry routing of the AC Grid input wires.

1	RS-485 cable (power meter to InsightHome or InsightFacility)	9	PCB J2 connector and cable
2	Optional Main AC circuit breaker	10	Fuse holders (Power Meter)
3	AC Grid input (L1/L2) wiring	11	Fuse holders (AC voltage sensing)
4	Current Transformer (x2)	12	AC voltage sense wiring
5	Optional non-backup breaker and wiring	13	Ground terminal
6	Neutral terminal for optional Main AC circuit breaker (for top wiring entry)	14	Output (L1/L2) wiring to XW Pro inverter (AC1) and main AC panel
7	Bonding screw (Service Entrance installations only)	15	Non-backup circuit breaker wiring (if installed)
8	Neutral terminals (for bottom wiring entry)	16	Grid input (L1/L2) direct busbar connection (if no main circuit breaker is installed)

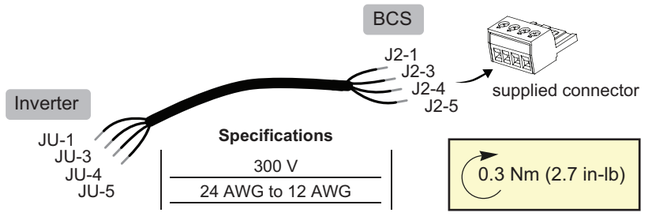
5.2 Connecting to Inverter Aux Terminals

The BCS's auxiliary power is supplied by the XW Pro inverter's auxiliary port. For more information, see the *XW Pro Installation Guide (document number 990-91228)* and *XW Pro Multi-unit Design Guide (document number 990-91373)*.

XW Pro Network Board AUX Port Connector Terminals and Functions

Pin	Reference	Name
JU-1	AUX+12V	+12 VDC User Voltage Supply
JU-2	Not used in multi-unit installations. See the *XW Pro Multi-unit Design Guide (document number 990-91373)*.	
JU-3	AUX-COM	Common Ground Reference
JU-4	EXT_TS_OUT	External Transfer switch: Output signal
JU-5	EXT_TS_IN	External Transfer switch: Input signal

Connect wires from the BCS's PCB J2 terminals (see *Wiring Overview* #9) to the master inverter's JU terminals. **Note:** Max. output is 250 mA.



5.3 Option 1: Service Entrance Installation

⚠⚠ WARNING

HAZARD OF ELECTRIC SHOCK, EXPLOSION, AND FIRE

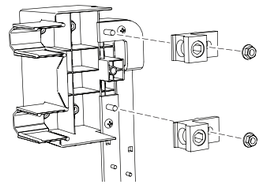
- For Service Entrance installations, the supplied bonding screw must be installed.
- Verify that only one neutral-to-ground bond exists in the system. Having more than one neutral-to-ground bond in a system may violate local codes, create a shock or fire hazard, or cause sensitive equipment to malfunction.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

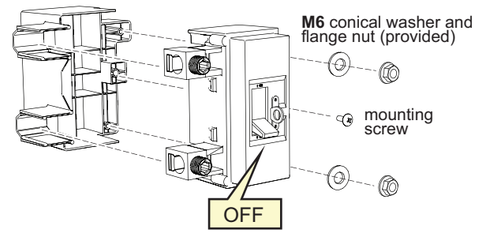
When the BCS is installed as a Service Entrance, a main circuit breaker must be installed in the BCS according to NEC 230 part VII (230.90). The following Square D circuit breakers are recommended (see the *Instruction Bulletin for QOM2 Main Circuit Breaker for QO® Series S_ _ and HOM® Series S_ _ Load Centers (document number 48940-014-05)*).

Part Number	Current Rating	Voltage Rating	Interrupting Rating
QOM2100VH	100 A	120/240 VAC	22 kA
QOM2125VH	125 A	120/240 VAC	22 kA
QOM2150VH	150 A	120/240 VAC	22 kA
QOM2175VH	175 A	120/240 VAC	22 kA
QOM2200VH	200 A	120/240 VAC	22 kA

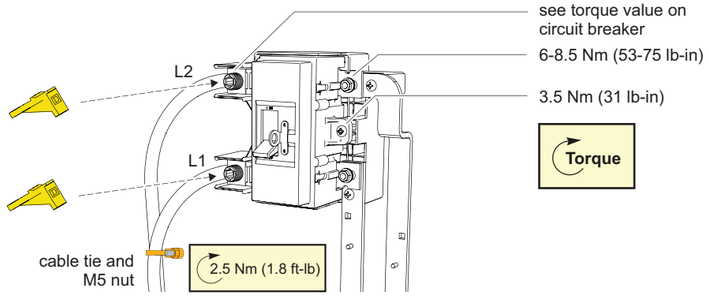
1 Remove lugs.



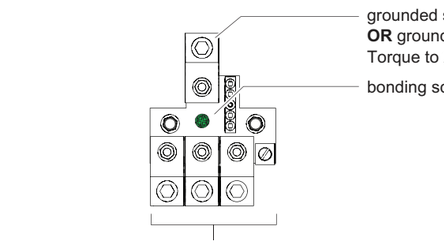
2 Install circuit breaker.



3 Connect L1/L2, and install Touch Safe Guards (see circuit breaker manual).



4 Connect grounded service entrance cable/ground electrode, and bonding screw to neutral terminals.



NOTE: The ground electrode may need to be connected at an external location instead of the ones listed here. Always follow local codes.

Apply label near ground electrode connection

5 Remove the main circuit breaker knockout from the deadfront panel, and then apply the "Service Disconnect" label (see circuit breaker manual).

5.4 Option 2: Subpanel Backup Installation

⚠ WARNING

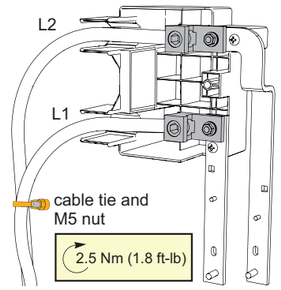
RISK OF FIRE AND EQUIPMENT DAMAGE

For Subpanel Backup Installations, DO NOT install the supplied bonding screw.

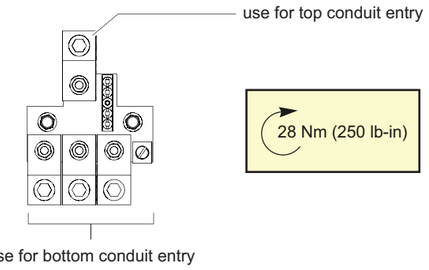
Failure to follow these instructions can result in death, serious injury, or equipment damage.

When the BCS is not connected to the grid service entrance, a main circuit breaker is not required. Use the box lug terminals to connect L1 and L2 in the BCS to a main AC (grid) panel.

1 Connect grid L1/L2 cables (4 AWG to 300 kcmil) to the pre-installed box lugs at L1/L2 busbars.



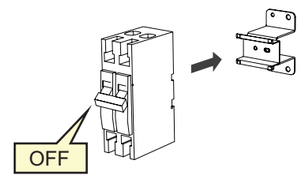
2 Connect the Neutral cable to the neutral terminal.



5.5 Install an Optional Non-backup Circuit Breaker

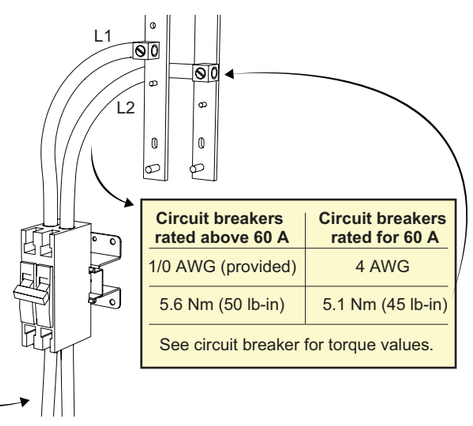
A non-backup subpanel can be connected to the BCS by installing an optional non-backup circuit breaker to feed the subpanel.

1 Install the circuit breaker on the DIN rail provided.



Schneider Electric QOU series
60 to 125 A, 2-pole

2 Install wires from the circuit breaker to the terminals on the L1/L2 busbars (see below).



Circuit breakers rated above 60 A	Circuit breakers rated for 60 A
1/0 AWG (provided)	4 AWG
5.6 Nm (50 lb-in)	5.1 Nm (45 lb-in)
See circuit breaker for torque values.	

3 Install L1/L2 and Neutral wires (see **Wiring Overview**).

4 Remove the knockout from the deadfront panel.

5.6 Power Meter Connections

The BCS comes with the WattNode® Modbus WND-WR-MB power meter.

Install Current Transformers

Install the two pre-connected CTs inside the BCS to measure Grid current. For installation instructions and guidelines, see:

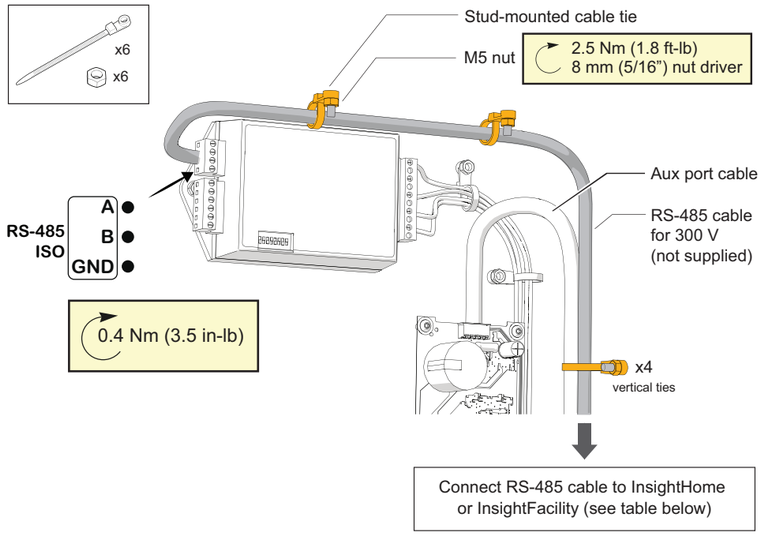
- *WattNode Modbus Electric Power Meter Installation Manual*
- *Accu-cT® ACTL-0750 SeriesSplit-Core Current Transformer Installation Guide*

Notes: • Point the "SOURCE" arrow on each CT toward residential loads (see *System Diagrams*). If the CT is mounted backwards, the measured power will be negative. • Avoid extending the CT wires beyond 100 ft (30 m). For more information, see the WattNode Installation guide above.

1. Locate the two pre-connected CT's inside the BCS, and install the CTs in one of the following ways:
   a. For Whole Home Backup (Service Entrance) installations, install the CTs over the AC Grid input cables (L1/ L2) from the Grid (see *Wiring Overview* #4).
   b. When the BCS is between the Main AC panel and a subpanel (Subpanel Backup), install the CTs over the AC Grid input cables (L1/ L2) between the Grid and the Main AC panel.
2. Fasten the CT to each conductor with a cable tie.

Install the RS-485 Cable

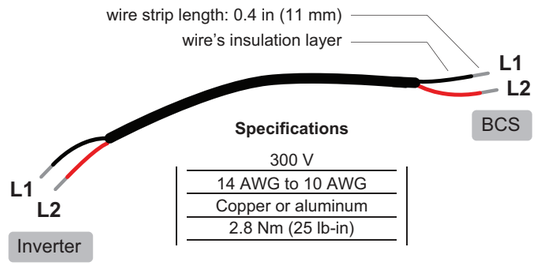
For more information, see the *WattNode Modbus Electric Power Meter Installation Manual*.
NOTE: The Modbus **X** terminal is not active on the power meter.



Power Meter	InsightHome	InsightFacility (Modbus 1)	InsightFacility (Modbus 2)
Common: C	Pin 7: GND ISO	Pin 16: ISO2 RS-485 GND	Pin 22: ISO2 RS-485 GND
Inverting pin: A-	Pin 11: RS-485 B ISO	Pin 20: ISO2 RS-485 1B	Pin 26: ISO2 RS-485 2B
Non-inverting pin: B+	Pin 9: RS-485 A ISO	Pin 18: ISO2 RS-485 1A	Pin 24: ISO2 RS-485 2A

5.7 Install AC Voltage Sense Wiring

Using the specifications below, connect the AC voltage sense wires from the BCS to the master inverter's AC2 input terminals (see *Wiring Overview* #12):



5.8 Neutral Connections

These are the required neutral connections (see *Wiring Overview*):

Connection	Qty	Wire Specifications	Torque
Grid/main panel	1	4 AWG to 300 kcmil	28 Nm (250 lb-in)
Backed-up load	1-2*	4 AWG to 300 kcmil	28 Nm (250 lb-in)
Non-backed up load[1]	1	12 AWG to 1/0 AWG	• 12 to 4 AWG: 5.1 Nm (45 lb-in) • 3 to 1/0 AWG: 5.6 Nm (50 lb-in)

[1] When optional non-backup circuit breaker is installed. *Install one neutral wire per load.

5.8.1 Neutral Disconnect Procedure (Service Entrance Installations Only)

This procedure can be used to disconnect the neutral wires when necessary for testing or other procedures.

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- This equipment must only be installed and serviced by qualified electrical personnel.

Failure to follow these instructions will result in death or serious injury.

Note: The grounded service entrance wire, the grounding electrode wire (if present), and the green neutral-ground bonding screw must remain connected to the neutral bus bar.

1. Verify that LOTO for Whole Home Backup (Service Entrance) is still applied.
2. Disconnect the load-side neutral wires from the neutral bus in the BCS:
   a. Disconnect the 1 to 2 neutral wires for backed-up loads (depending on how many are installed).
   b. Disconnect the neutral wire for the non-backed up load, if present.
3. Once testing is completed, neutral wires must be reconnected in their original positions.

5.9 Ground Connections

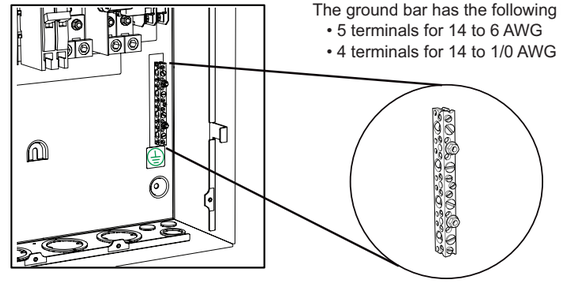
⚠ WARNING

UNGROUNDED EQUIPMENT

Equipment ground terminals must be reliably connected to ground by appropriately sized grounding conductors. All installations must comply with national and local codes. Consult national and local codes for specific grounding and bonding requirements.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Connect ground wires to the ground terminal bar inside the BCS (shown below).



The ground bar has the following terminals:
- 5 terminals for 14 to 6 AWG
- 4 terminals for 14 to 1/0 AWG

Required Ground Connection	Qty	Torque
Ground Electrode connected to BCS Neutral busbar[2] OR main AC panel connected to ground bar[3]	1	**Ground bar (small terminal):** ■ 14-10 AWG : 2.3 Nm (20 lb-in) ■ 8 AWG: 2.8 Nm (25 lb-in) ■ 6 AWG: 4.0 Nm (35 lb-in) **Ground bar (large terminal):** ■ 14-10 AWG : 4.0 Nm (35 lb-in) ■ 8 AWG: 4.5 Nm (40 lb-in) ■ 6-4 AWG: 5.1 Nm (45 lb-in) ■ 3-1/0 AWG: 5.6 Nm (50 lb-in)
Backed-up load	1-2*	
Non-backed up load[4]	1	

[2]Service Entrance installations. See section *5.3*

[3]NON-Service Entrance installations. See section *5.4*

[4]When optional non-backup circuit breaker is installed. See section *5.5*

*Install one ground wire per load

6.0 Commissioning Checklist

Before powering on the inverter, perform the following inspections:

- ❑ All clearances are correct (see *Choosing a Location on page 2*).
- ❑ The BCS is stable and fixed to the wall, per the instructions in this guide.
- ❑ There are no objects such as tools or extra screws inside or on top of the BCS.
- ❑ The cables are routed through cable glands or conduits and protected against potential mechanical damage. Do not over-tighten the sealing locks, if used.
- ❑ The wires are properly and firmly connected.
- ❑ There is no damage to the door gasket.

Checklist continues on next page.

- ❑ The product labels, and those described in *Wiring the BCS* are installed and affixed permanently.
- ❑ Reinstall the deadfront panel using the eight Phillips screws. Torque to 2 Nm (17.7 lb-in).
- ❑ XW Pro inverter(s) and InsightHome/InsightFacility are installed and commissioned.
- ❑ Verify that you have the latest firmware installed on your gateway device (go to https://solar.schneider-electric.com/product/insighthome-and-insightfacility-edge-devices/ > **Downloads** > **Firmware**)
- ❑ Check that you have a laptop with Microsoft® Windows® 7 or later, or Mac OS® X 10.4.8. or later at the commissioning site, and that you have valid login credentials for InsightLocal.

7.0 Start-Up Procedure

Before proceeding, make sure that all commissioning steps are complete. The following procedures require access to the InsightLocal web portal.

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462EN 50110.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Before energizing the BCS, verify that no tools or materials have been left inside.
- Never operate energized with covers removed.
- Energized from multiple sources. Before removing covers identify all sources, de-energize, lock-out, and tag-out and wait 5 minutes for circuits to discharge
- Always use a properly rated voltage sensing device to confirm all circuits are de-energized.

Failure to follow these instructions will result in death or serious injury.

7.1 Configure External Contactor Settings Using InsightLocal

IMPORTANT: To verify that the External Contactor has been enabled in InsightLocal, refresh the web page and verify that the toggle switch is still in the Enabled position. If this setting is not enabled properly, the voltage sensing fuses will blow.

To enable external contactor control, the XW Pro inverter must be configured following the instructions in the *XW Pro Owner's Guide (document number 990-91227)* and *XW Pro Multi-unit Design Guide (document number 990-91373)*.

7.2 Check Voltage (Service Entrance Installations)

1. Verify that all tools are removed and all safety covers/panels on all devices are installed.
2. Verify that the XW Pro inverter is in **Standby** mode.
3. Verify that the Manual Grid Connection Switch in the BCS is in the "Disconnected from Grid" position.
4. Coordinate with the grid operator to restore grid power to the BCS.
5. In the BCS, close the Main AC circuit breaker.
6. In InsightLocal, confirm the AC2 voltage input of the master inverter:
   - AC2 Voltage: 240 V • AC2 L1 Voltage: 120 V • AC2 L2 Voltage: 120 V
7. Set the XW Pro inverter to **Operating** mode. Confirm that the Manual Grid Connection Switch moves to "Connected to Grid". **Note:** The relay will change state in approximately 40 s with the default inverter to grid transfer time delay.
8. In the BCS, open the main AC circuit breaker. Confirm that the Manual Grid Connection Switch moves to "Disconnected from Grid".
9. In InsightLocal, confirm that the master inverter is providing voltage:
   - AC1 Voltage: 240 V • AC1 L1 Voltage: 120 V • AC1 L2 Voltage: 120 V
10. Close the main AC circuit breaker.

7.3 Check Voltage (Subpanel Backup Installations)

1. Verify that all tools are removed and all safety covers/panels on all devices are installed.
2. Verify that the XW Pro inverter is in **Standby** mode.
3. Verify that the Manual Grid Connection Switch in the BCS is in the "Disconnected from Grid" position.
4. In the Main AC panel, close the breaker for the BCS.
5. In InsightLocal, confirm the AC2 voltage input of the master inverter:
   - AC2 Voltage: 240 V • AC2 L1 Voltage: 120 V • AC2 L2 Voltage: 120 V
6. Set the XW Pro inverter to **Operating** mode. Confirm that the Manual Grid Connection Switch moves to "Connected to Grid". **Note:** The relay will change state in approximately 40 s with the default inverter to grid transfer time delay.
7. In the Main AC panel, open the circuit breaker for the BCS. Confirm that the Manual Grid Connection Switch moves to "Disconnected from Grid".
8. In InsightLocal, confirm that the master inverter is providing voltage:
   - AC1 Voltage: 240 V • AC1 L1 Voltage: 120 V • AC1 L2 Voltage: 120 V
9. Close the circuit breaker for the BCS.

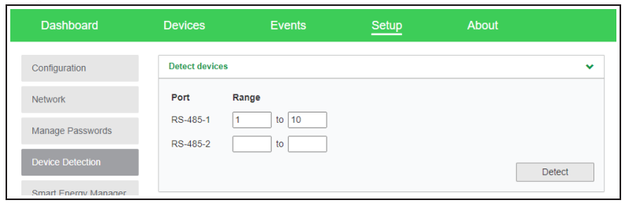
7.4 Verify Power Meter Operation

To establish communication with the InsightHome or InsightFacility:

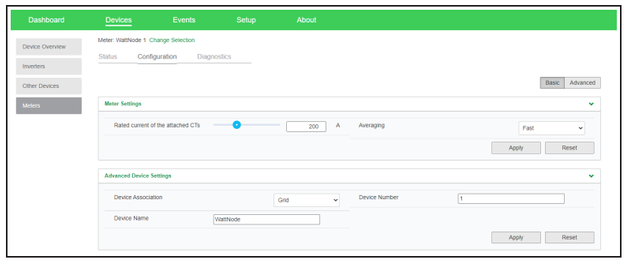
1. Go to **Setup** > **Configuration** > **Modbus Settings** and set the following:

Baud rate: 19200	**Error Limit:** 1
Parity: none	**Timeout (ms):** 500
Stop bits: 1	

2. Go to **Setup** > **Device Detection** and then expand the **Detect devices** menu.
3. On the RS-485 Port that is connected to the power meter, enter the Modbus address range. The address is the Modbus slave address of the meter.



4. Click **Detect**. Once the power meter is detected and online, it will appear as a configurable device.
5. Go to **Devices** > [your power meter] > **Configuration**.
6. Under **Meter Settings**, enter the **Rated current of attached CTs**: 200 A.



7. Set Averaging to **Fast**.
8. Under **Advanced Device Settings**, configure the **Device Association**, based on the location of the CTs in the system.
9. Check that the power meter is tracking the power flow accurately.

7.5 Close the BCS

Once all commissioning and voltage checks are complete:

1. Install the small screw to fasten the Manual Grid Connection Switch cover closed.
2. Close and latch the BCS.

8.0 Electrical Specifications

Nominal Voltage	120/240 VAC
Frequency	60 Hz
Phase	1 Ø
Max. current rating (mains)	200 A
Certified for use with 167°F (75°C) copper and aluminum conductors.	
Suitable for use as Service Equipment when Main AC Circuit Breaker is installed.	

9.0 Mechanical Specifications

Specification	BCS
Regulatory approvals	UL 1741, UL 869a, UL 67 (relevant sections)
Enclosure Type	NEMA Type 3R outdoor
Operating Temperature Range	-40–122°F (-40–50°C) [6]
Dimensions (H × W × D)	35 × 19 × 7 3/4" (889 × 485 × 196 mm)
Shipping Dimensions (H × W × D)	40 ¾ × 25 ½ × 17 ½" (1035 × 645 × 440 mm)
Weight	30 lb (13.6 kg)

[6] Always take into account the specifications for the optional circuit breakers, if installed.

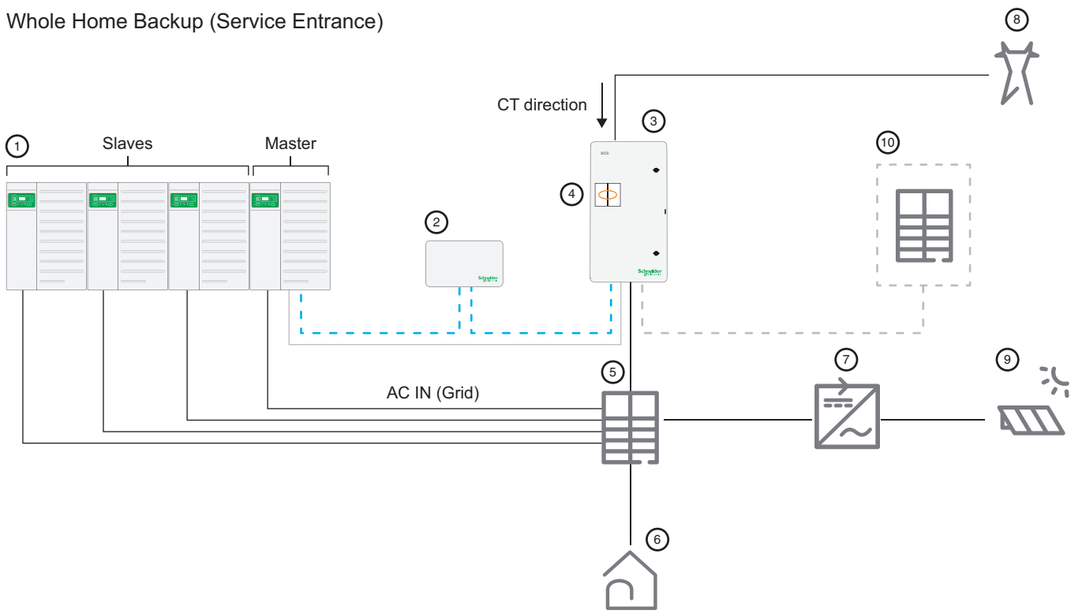
10.0 Recycling and Disposal

Always follow regional, national, and/or local waste disposal directives concerning disposing, discarding, and recycling of equipment containing electronic and electrical components.

11.0 System Diagrams

The diagrams below illustrate the most basic configurations and are for reference only. Specific installations may require additional equipment to meet national or local electric codes. Ensure that all safety requirements are strictly followed.

Whole Home Backup (Service Entrance)

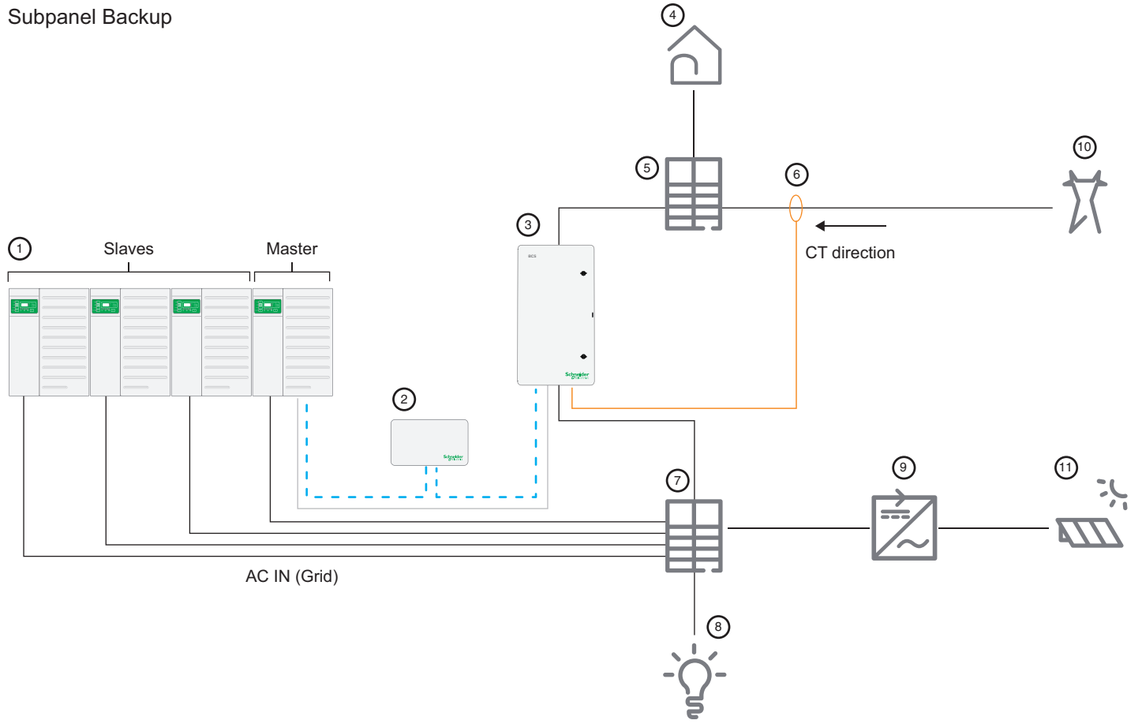


Legend

1. XW Pro inverters (with optional Conext MPPT Charge Controllers)
2. InsightHome or InsightFacility
3. BCS
4. CTs for AC Grid input L1/L2
5. Main AC panel
6. Residential loads
7. Optional AC-coupled PV inverter
8. Grid
9. PV panels
10. Optional non-backup subpanel

Auxiliary wiring
Communication wiring
CT wiring

Subpanel Backup



Legend

1. XW Pro inverters (with optional Conext MPPT Charge Controllers)
2. InsightHome or InsightFacility
3. BCS
4. Non-backup residential loads
5. Main AC panel
6. CT (optional location on AC Grid input cables (L1/ L2))
7. Backup subpanel
8. Backup loads
9. Optional AC-coupled PV inverter
10. Grid
11. PV panels

Auxiliary wiring
Communication wiring
CT wiring