



48V STANDARD PRODUCTS
BATTERY COMMISSIONING PROCEDURE
(RB48V100, RB48V200 & RB48V300)

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BATTERY COMMISSIONING PROCEDURE

The following instructions should be followed during the installation of RELiON 48V batteries prior to energizing a system for the first time or re-energizing.

NOTE: The scope of this document only applies to RELiON 48V battery models.

System Type	System Voltage	Battery Voltage	Battery Quantity	Battery Has Power Button	Inverter Quantity
1	48V	48V	1	No	1
2	48V	48V	1	Yes	1
3	48V	48V	≥2	No	1
4	48V	48V	≥2	Yes	1
5	48V	48V	≥2	No	≥2
6	48V	48V	≥2	Yes	≥2



COMMISSIONING BATTERY SYSTEM (Type 1)

STEP 1: Verify the battery voltage before installing. Do not proceed if battery voltage reading does not meet the required value below:

Battery Nominal Voltage	Voltage Requirement
48V	≥50.0

STEP 2: Prior to making any connections to the battery, ensure that all components of the system (including the battery) are as follows and remain this way while making the mechanical connection to the battery:

- Power turned off
- Circuit breakers in the open position
- System not energized (no AC power connected)

STEP 3: Create a wiring diagram detailing connections between the battery and the system components and have it approved by a NABCEP certified installer.

STEP 4: It is strongly recommended the battery is installed in the following manner:

- Two circuit breakers (both rated for 175A - 250A) are installed on the positive (+) cable connection from the battery to the inverter

NOTE: Two circuit breakers are recommended to allow for isolation when working on either circuit breaker if needed.

STEP 5: Install all system components as listed on the wiring diagram, except:

- Do not connect the batteries yet
- Do not energize the system yet (for grid-tied systems only)

STEP 6: Connect the battery mechanically to the system

STEP 7: Close the circuit breaker (battery side)

STEP 8: Close circuit breaker (inverter side)

STEP 9: Energize the system (for grid-tied systems only)

COMMISSIONING BATTERY SYSTEM (Type 2)

STEP 1: Verify the battery voltage before installing. Do not proceed if battery voltage reading does not meet the required value below:

Battery Nominal Voltage	Voltage Requirement
48V	≥50.0

STEP 2: Prior to making any connections to the battery, ensure that all components of the system (including the battery) are as follows and remain this way while making the mechanical connection to the battery:

- Power turned off
- Circuit breakers in the open position
- System not energized (no AC power connected)

STEP 3: Create a wiring diagram detailing connections between the battery and the system components and have it approved by a NABCEP certified installer.

STEP 4: It is strongly recommended the battery is installed in the following manner:

- Two circuit breakers (both rated for 175A - 250A) are installed on the positive (+) cable connection from the battery to the inverter

NOTE: Two circuit breakers are recommended to allow for isolation when working on either circuit breaker if needed.

STEP 5: Install all system components as listed on the wiring diagram, except:

- Do not connect the batteries yet
- Do not energize the system yet (for grid-tied systems only)

STEP 6: Connect the battery mechanically to the system

STEP 7: Turn the battery "ON" (Press the Power Button)

STEP 8: Close the circuit breaker (battery side)

STEP 9: Close circuit breaker (inverter side)

STEP 10: Energize the system (for grid-tied systems only)

COMMISSIONING BATTERY SYSTEM (Type 3)

STEP 1: Verify the battery voltage before installing. Do not proceed if battery voltage reading does not meet the required value below:

Battery Nominal Voltage	Voltage Requirement
48V	≥50.0

STEP 2: Prior to making any connections to the battery, ensure that all components of the system (including the battery) are as follows and remain this way while making the mechanical connection to the battery:

- Power turned off
- Circuit breakers in the open position
- System not energized (no AC power connected)

STEP 3: Create a wiring diagram detailing connections between the battery and the system components and have it approved by a NABCEP certified installer.

STEP 4: It is strongly recommended the battery is installed in the following manner:

- Parallel battery banks use either bus bars or terminal blocks for:
 - Connecting the positive terminals (+) of each battery together
 - Connecting the negative terminals (-) of each battery together
- All cables to busbars should be of equal length
- A circuit breaker (rated for 175A - 250A) be in line on the positive (+) cable from each battery to the busbar or terminal block
- A circuit breaker rated as below on the positive (+) cable connection from the busbar (or terminal block) to the main inverter.
 - Main CB rating = (qty of batteries in parallel) x (175A - 250A)

STEP 5: Install all system components as listed on the wiring diagram, except:

- Do not connect the batteries yet
- Do not energize the system yet (for grid-tied systems only)

STEP 6: Connect the batteries mechanically to the system in sequence (B1, B2, B3, etc.)

STEP 7: Close the "battery side" circuit breakers sequentially (B1, B2, B3, etc.)

STEP 8: Close the "inverter side" circuit breaker

STEP 9: Energize the system (for grid-tied systems only)

COMMISSIONING BATTERY SYSTEM (Type 4)

STEP 1: Verify the battery voltage before installing. Do not proceed if battery voltage reading does not meet the required value below:

Battery Nominal Voltage	Voltage Requirement
48V	≥50.0

STEP 2: Prior to making any connections to the battery, ensure that all components of the system (including the battery) are as follows and remain this way while making the mechanical connection to the battery:

- Power turned off
- Circuit breakers in the open position
- System not energized (no AC power connected)

STEP 3: Create a wiring diagram detailing connections between the battery and the system components and have it approved by a NABCEP certified installer.

STEP 4: It is strongly recommended the battery is installed in the following manner:

- Parallel battery banks use either bus bars or terminal blocks for:
 - Connecting the positive terminals (+) of each battery together
 - Connecting the negative terminals (-) of each battery together
- All cables to busbars should be of equal length
- A circuit breaker (rated for 175A - 250A) be in line on the positive (+) cable from each battery to the busbar or terminal block
- A circuit breaker rated as below on the positive (+) cable connection from the busbar (or terminal block) to the main inverter.
 - Main CB rating = (qty of batteries in parallel) x (175A - 250A)

STEP 5: Install all system components as listed on the wiring diagram, except:

- Do not connect the batteries yet
- Do not energize the system yet (for grid-tied systems only)

STEP 6: Connect the batteries mechanically to the system in sequence (B1, B2, B3, etc.)

STEP 7: Turn the batteries "ON" sequentially (B1, B2, B3, etc.) by pressing their Power Buttons

STEP 8: Close the "battery side" circuit breakers sequentially (B1, B2, B3, etc.)

STEP 9: Close the "inverter side" circuit breaker

STEP 10: Energize the system (for grid-tied systems only)

COMMISSIONING BATTERY SYSTEM (Type 5)

STEP 1: Verify the battery voltage before installing. Do not proceed if battery voltage reading does not meet the required value below:

Battery Nominal Voltage	Voltage Requirement
48V	≥50.0

STEP 2: Prior to making any connections to the battery, ensure that all components of the system (including the battery) are as follows and remain this way while making the mechanical connection to the battery:

- Power turned off
- Circuit breakers in the open position
- System not energized (no AC power connected)

STEP 3: Create a wiring diagram detailing connections between the battery and the system components and have it approved by a NABCEP certified installer.

STEP 4: It is strongly recommended the battery is installed in the following manner:

- Parallel battery banks use either bus bars or terminal blocks for:
 - Connecting the positive terminals (+) of each battery together
 - Connecting the negative terminals (-) of each battery together
- All cables to busbars should be of equal length
- A circuit breaker (rated for 175A - 250A) be in line on the positive (+) cable from each battery to the busbar or terminal block
- A circuit breaker rated as below on the positive (+) cable connection from the busbar (or terminal block) to the main inverter.
 - Main CB rating = (qty of batteries in parallel) x (175A - 250A)

STEP 5: Install all system components as listed on the wiring diagram, except:

- Do not connect the batteries yet
- Do not energize the system yet (for grid-tied systems only)

STEP 6: Connect the batteries mechanically to the system in sequence (B1, B2, B3, etc.)

STEP 7: Close the "battery side" circuit breakers sequentially (B1, B2, B3, etc.)

STEP 8: Close the "inverter side" circuit breakers sequentially:

1. Master Inverter (M1)
2. Slave inverters sequentially (S1, S2, S3, etc.)

STEP 9: Energize Inverters sequentially in the following order (for grid-tied systems only):

1. Master Inverter (M1)
2. Slave inverters sequentially (S1, S2, S3, etc.)

COMMISSIONING BATTERY SYSTEM (Type 6)

STEP 1: Verify the battery voltage before installing. Do not proceed if battery voltage reading does not meet the required value below:

Battery Nominal Voltage	Voltage Requirement
48V	≥50.0

STEP 2: Prior to making any connections to the battery, ensure that all components of the system (including the battery) are as follows and remain this way while making the mechanical connection to the battery:

- Power turned off
- Circuit breakers in the open position
- System not energized (no AC power connected)

STEP 3: Create a wiring diagram detailing connections between the battery and the system components and have it approved by a NABCEP certified installer.

STEP 4: It is strongly recommended the battery is installed in the following manner:

- Parallel battery banks use either bus bars or terminal blocks for:
 - Connecting the positive terminals (+) of each battery together
 - Connecting the negative terminals (-) of each battery together
- All cables to busbars should be of equal length
- A circuit breaker (rated for 175A - 250A) be in line on the positive (+) cable from each battery to the busbar or terminal block
- A circuit breaker rated as below on the positive (+) cable connection from the busbar (or terminal block) to the main inverter.
 - Main CB rating = (qty of batteries in parallel) x (175A - 250A)

STEP 5: Install all system components as listed on the wiring diagram, except:

- Do not connect the batteries yet
- Do not energize the system yet (for grid-tied systems only)

STEP 6: Connect the batteries mechanically to the system in sequence (B1, B2, B3, etc.)

STEP 7: Turn each battery "ON" sequentially (B1, B2, B3, etc.)

STEP 8: Close the "battery side" circuit breakers sequentially (B1, B2, B3, etc.)

STEP 9: Close the "inverter side" circuit breakers sequentially:

1. Master Inverter (M1)
2. Slave inverters sequentially (S1, S2, S3, etc.)

STEP 10: Energize Inverters sequentially in the following order (for grid-tied systems only):

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ISO 9001:2008

ISO/TS 16949:2009

ISO 14001:2004

OHSAS 18001:2007

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Quality Management System

Quality Management System

Environmental Management System

Occupational Health and Safety Management System

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