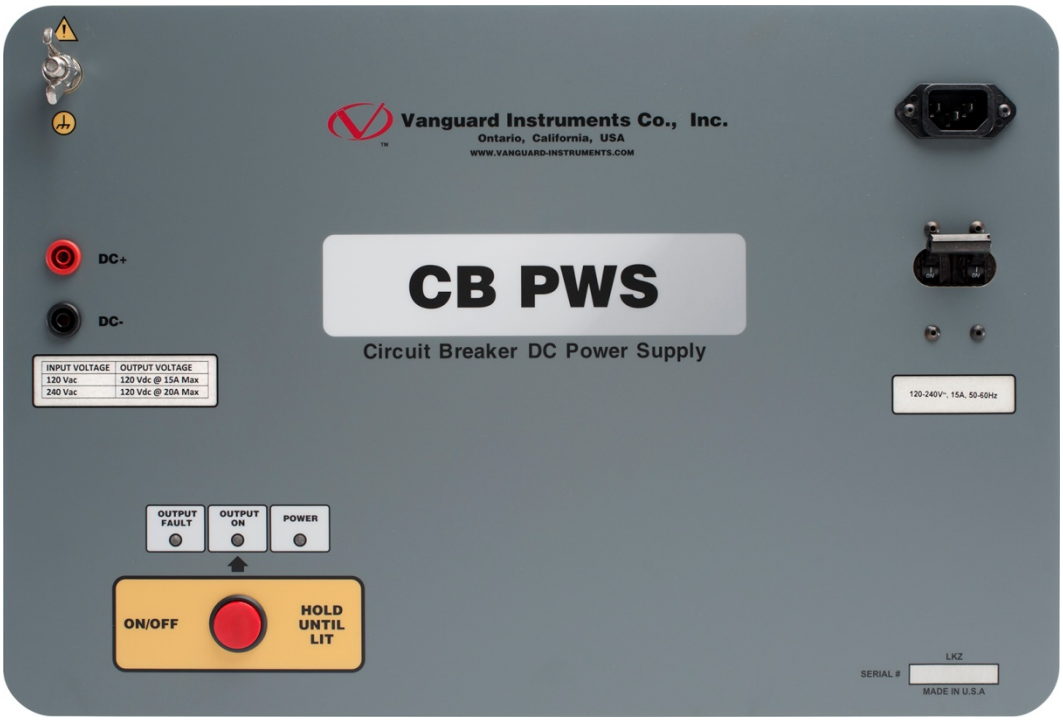
CB PWS

DC Power Supply

USER'S MANUAL



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SAFETY SUMMARY

FOLLOW EXACT OPERATING PROCEDURES

Any deviation from procedures described in this User's Manual may create one or more safety hazards and/or damage the CB PWS. Vanguard Instruments Company, Inc. assumes no liability for unsafe or improper use of the CB PWS.

SAFETY WARNINGS AND CAUTIONS

The CB PWS shall be used only by **trained operators**. All circuit breakers under test shall be **off-line** and **fully isolated**. Do not perform test procedures or service unless another person is also present who is capable of rendering aid and resuscitation.

MAINTENANCE AND REPAIR

To avoid the risk of introducing additional or unknown hazards, do not install substitute parts or perform any unauthorized modification to any CB PWS units. To ensure that all designed safety features are maintained, **repairs and maintenance must be performed only by Vanguard Instruments Company factory personnel or by an authorized repair service provider**. Unauthorized modifications can cause safety hazards and will void the manufacturer's warranty.

WARNING

Do not remove test leads during a test. Failure to heed this warning can result in electrical shock to personnel and damage to the equipment.

POWER SUPPLY

Always connect the CB PWS to an AC receptacle with **protective ground**.

ACCESSORIES AND REPLACEMENT PARTS

The CB PWS must be used with genuine Vanguard cables and accessories.

CLEANING AND DECONTAMINATION

Use a soft rag and denatured alcohol to clean the CB PWS front panel and outer surfaces

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1.0 INTRODUCTION

1.1 General Description and Features

The CB PWS is a standalone DC power supply designed for operating circuit breakers. This compact and lightweight DC power supply can power the circuit breaker control circuit (trip and close coils, and charging motor) in situations where the substation DC supply is not available.

The CB PWS is powered by a wide AC voltage source (120 -240Vac) and available with factory preset 120Vdc or 240Vdc output.

The CB PWS' output rating is listed below:

120 Vac Input:

- 120Vdc @ 15A, 10 second duration max (5% regulation) or 120Vdc@ 4A continuous (3% regulation)
- 240Vdc @ 7.5A, 10 second duration max (5% regulation)or 240Vdc @ 2A continuous (3% regulation)

240 Vac Input:

- 120Vdc @ 20A, 10 second duration max (5% regulation) or 120Vdc@ 4A continuous (3% regulation)
- 240Vdc @ 10A, 10 second duration max (5% regulation)or 240Vdc @ 2A continuous (3% regulation).

DC output is enabled via the power control switch on the front panel. LED indicators show the "Output On", "Output Fault", and "Power Input Available" status on the front panel.

The CB PWS offers several outstanding features:

- very lightweight (14 lbs. / 6.4 Kg)
- thermal and short circuit protected output
- output dc voltage source is isolated from the power input
- wide ac voltage input range (120 Vac to 240 Vac)

The CB PWS is housed in a heavy-duty, impact-resistant plastic enclosure and furnished with a power cord, ground cable, and DC power test leads.

1.2 Technical Specifications

Table 1. CB PWS Technical Specifications

TYPE	DC Power Supply
PHYSICAL SPECIFICATIONS	**Dimensions:** 17"W x 7"H x 13" D (43 cm x 17.8 cm x 33 cm) **Weight:** 14 lbs. (6.4 Kg)
INPUT VOLTAGE	120 – 240 Vac (15A at peak demand), 50/60 Hz
OUTPUT VOLTAGE	**120 Vac input voltage:** • 120 Vdc model: 120Vdc @ 15A, 10 second duration max (5% regulation) or 120Vdc@ 4A continuous (3% regulation) • 240 Vdc model: 240Vdc @ 7.5A, 10 second duration max (5% regulation)or 240Vdc @ 2A continuous (3% regulation) **240 Vac input voltage:** • 120 Vdc model: 120Vdc @ 20A, 10 second duration max (5% regulation) or 120Vdc@ 4A continuous (3% regulation) • 240 Vdc model: 240Vdc @ 10A, 10 second duration max (5% regulation)or 240Vdc @ 2A continuous (3% regulation)
LED INDICATORS	Power, Output On, and Output Fault
SAFETY	Designed to meet the UL 61010A-1 and CAN/CSA C22.2 No 1010.1-92 standards
ENVIRONMENT	Operating: -10°C to 50°C (+15°F to +122°F); Storage: -30°C to70°C (-22°F to +158°F)
CABLES	Power cord, safety ground, 10ft DC power supply test leads
OPTIONS	Shipping case
WARRANTY	One year on parts and labor

NOTE

The above specifications are valid at nominal operating voltage and at a temperature of 25°C (77°F). Specifications may change without prior notice.

1.3 CB PWS Controls and Indicators

The CB PWS' controls and indicators are shown in Figure 1 below and cross-referenced in Table 2. The purpose of the controls and indicators may seem obvious, but users should become familiar with them before using the CB PWS. Accidental misuse of the controls will usually cause no serious harm. Users should also be familiar with the safety summary found on the front page of this User's Manual.

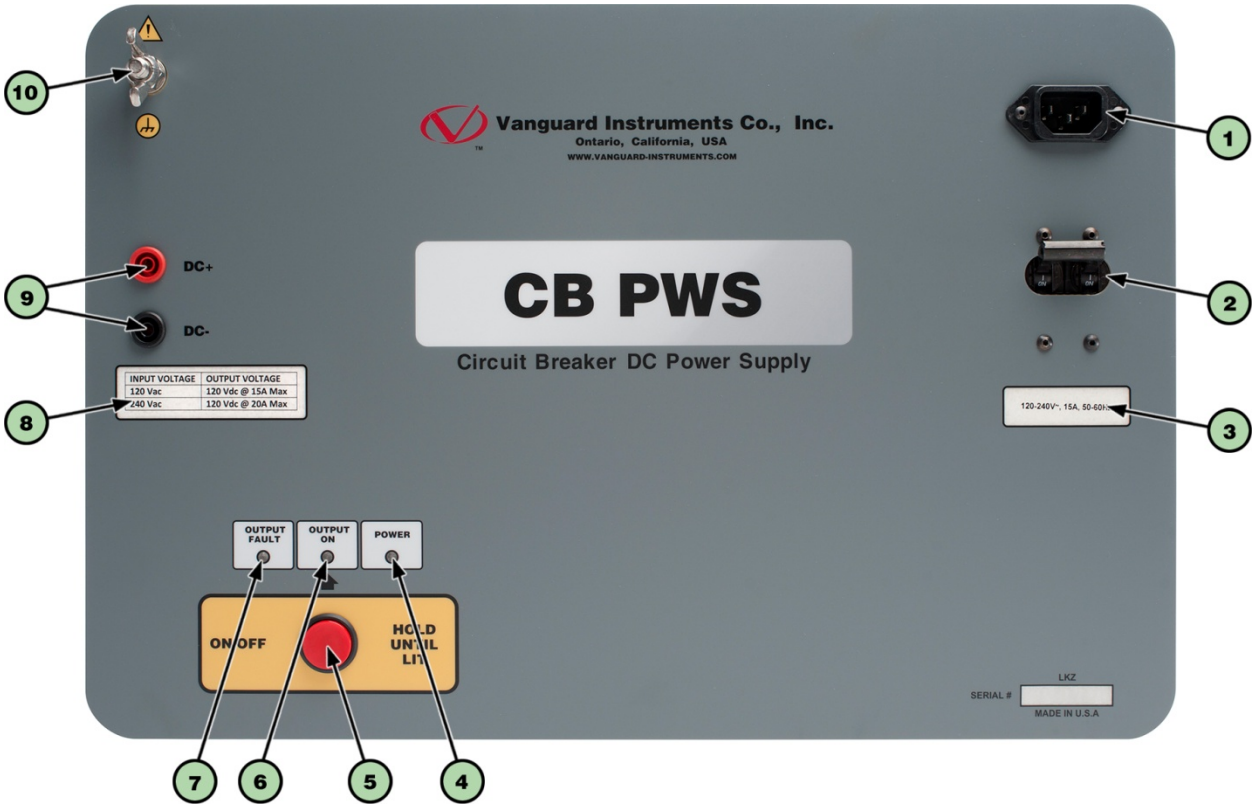

Figure 1. CB PWS Controls and Indicators

Table 2. Functional Descriptions of CB PWS Controls and Indicators

Item Number	Panel Markings	Functional Description
1		AC receptacle
2		AC power switch/circuit breaker
3	120-240V~, 15A, 50-60Hz	Input voltage label
4	POWER	AC input available indicator
5	ON/OFF	DC power toggle switch
6	OUTPUT ON	DC output available indicator
7	OUTPUT FAULT	DC output fault indicator
8	INPUT VOLTAGE / OUTPUT VOLTAGE 120Vac / 120Vdc @ 15A Max 240 Vac / 120Vdc @ 20A Max	DC output rating table
9	DC+/DC-	DC voltage output terminals
10		Ground stud

2.0 OPERATING PROCEDURES

Typical CB PWS connection to a circuit breaker is shown below.

WARNING Always connect the CB PWS ground stud to the sub-station ground.

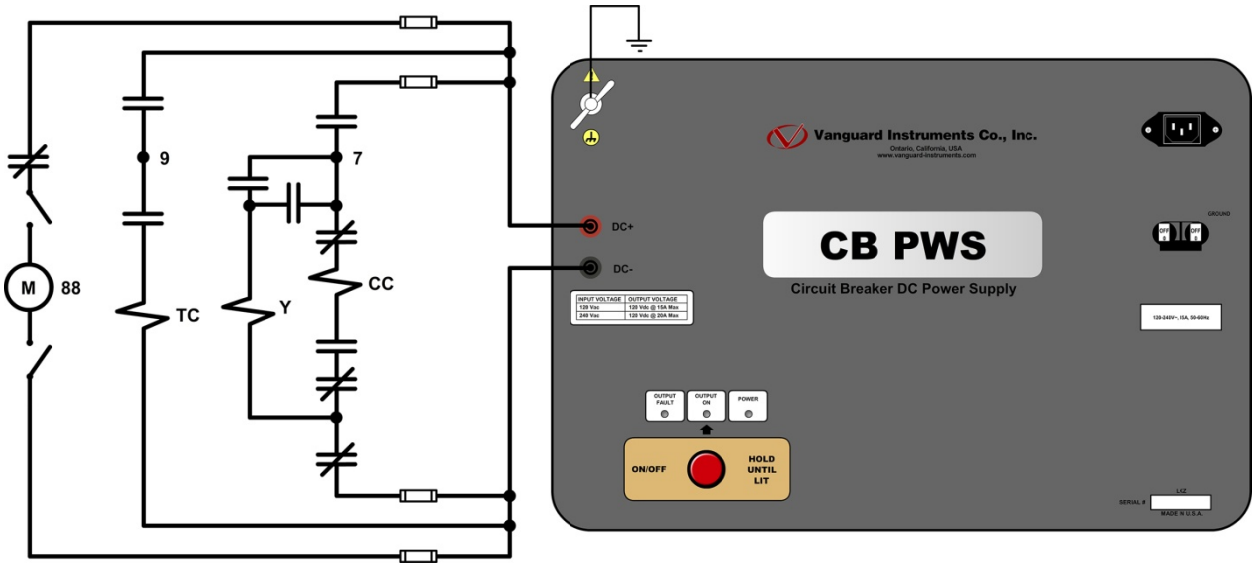

Figure 2. Typical CB PWS Connections to a Circuit Breaker

CB PWS Power Input

The CB PWS can accept an AC input from 120 Vac to 240 Vac.

CB PWS Main Circuit Breaker

The CB PWS AC input is protected by a 20A re-settable circuit breaker. The "POWER" LED will be lit when power is available to the CB PWS.

Turning on the CB PWS' DC Output

To turn on the CB PWS' DC output, press and hold the "ON/OFF" switch until the "OUTPUT" LED is lit, and then release the switch. The "POWER ON" indicator will be lit to indicate that DC output is available.

Output Fault Indicator

In the event that an over-current is detected by the CB PWS, the unit will turn off the DC output and the "OUTPUT FAULT" LED will be lit. The fault indicator can be reset and DC output can be turned on by following the "Turn-on" sequence outlined above.

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