



EPS Smart View™ 3-Phase Power Meter

DVA300

User Manual



DVA300 User Manual

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Introduction

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Description

Entertainment Power Systems EPS DVA300 Smart View Power Meter is a UL Listed rack mount 3-phase power meter designed for use in portable or installed applications. This device performs voltage, frequency and current measurement functions. Split core current transformers are available for either 200A or 400A metering capabilities.

Features

- Numeric and graph bar readout
- Bar graph values read out and update in real time
- Large, Daylight Readable Meters
- EPS Smart View™
- Current / Voltage / Frequency metering for all phases
- Ground voltage metering
- Neutral current metering
- Out of range visual warning
- Compact 2 rack space design
- Designed for use in a wide variety of rack mount applications
- Durable black powder coat finish
- UL Listed for installation in the field

Box contents

- (1) DVA300 Meter
- (4) 200A or 400A Split Core Current Transformers
- (1) Voltage Wire Kit

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Safety

Definitions and Symbols



HIGH VOLTAGE: This symbol indicates high voltage. It calls your attention to items or operations that could be dangerous to you and other persons operation this equipment. Read the message and follow the instructions carefully



CAUTION: Indicates a potentially hazardous situation which, if not avoided, can result injury, or damage to the product. The situation described in the CAUTION may, if not avoided, lead to serious results. Important safety measures are described in CAUTION, so be sure to observe them.

Safety Instructions and Information - Read before installation



Installation of the meter must be performed by qualified personnel only, who follow standard safety precautions through the installation procedures. Those personnel should have appropriate training and experience with high voltage and current devices. Appropriate Personal Protective Equipment (PPE) must be worn when installing.



For use with UL Listed Energy-Monitoring Current Transformers. Use of other current transformers may result in injury, damage the meter and void the warranty.



The current transformers are intended for installation within the same rack or enclosure as the DVA300 meter. Current transformers may not be installed within switchgears and panel boards.



Associated leads of the current transformers shall be maintained within the same overall rack or enclosure.



All meter terminals and current transformers and leads must be inaccessible to users of the meter after installation.



Do NOT perform Dielectric (HIPOT) test to any inputs or connections. High voltage testing may damage electronic components of the meter.



Applying more than the maximum voltage to the meter and/or its modules will permanently damage the meter and/or its modules.

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Safety (continued)

Safety Instructions and Information - Read before installation



This meter is suitable for use in dry locations only - IP20 (NEMA 1)



If this meter is used in a manner not specified in this manual, the protection provided by the equipment may be impaired.



This meter is intended to be flush mounted as part of a certified fire/electrical enclosure. The front of the device will be evaluated as part of the overall fire/electrical enclosure in the end use installation.



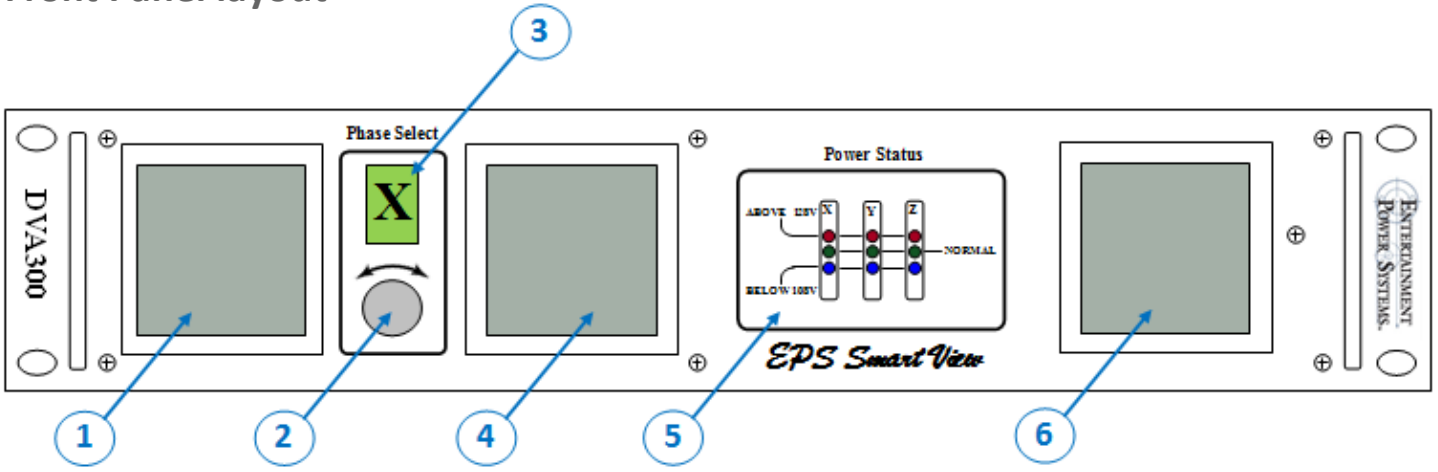
There are no user serviceable parts inside this unit. Do not attempt any repairs yourself; doing so will void the manufactures warranty. Damages resulting from modifications to this meter and/or the disregard of safety and user instructions in this user manual void the manufactures warranty and are not subject to any warranty claims and/or repairs.

The manufacturer of this device is not responsible for injury and/or damages resulting from the misuse of this meter due to the disregard of the information in this manual.

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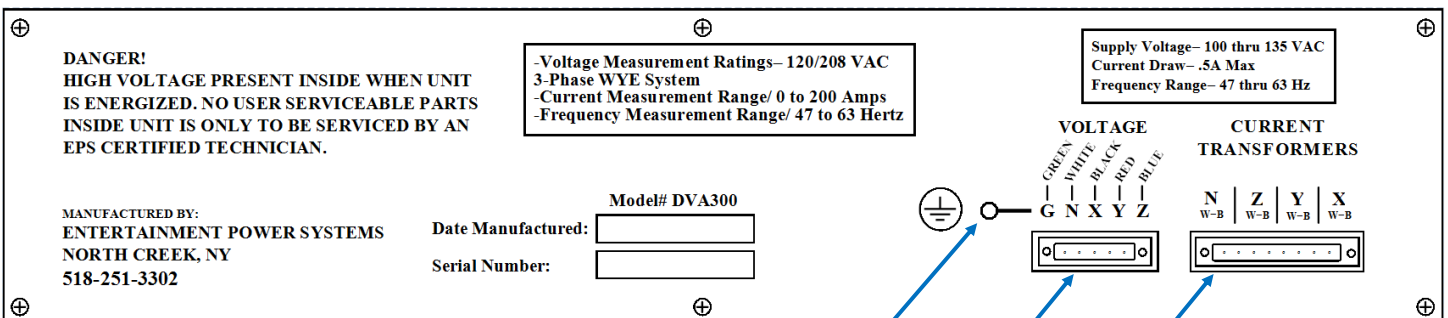
Overview - Front and Rear Panels

Front Panel layout



- 1) Volt meter
- 2) Phase selector rotary switch
- 3) Phase indicator screen
- 4) Amp meter
- 5) EPS Smart View™ power monitor
- 6) Frequency meter

Rear Panel layout



- 7) Protective Earthing connection
- 8) Voltage input receptacle
- 9) Current Transformer input receptacle

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Installation



HIGH VOLTAGE: HAZARD OF ELECTRICAL SHOCK. DISCONNECT INCOMING POWER FROM THE DEVICE TO BE METERED BEFORE INSTALLING or ADOPT SAFE OPERATING PROCEDURES WHEN WORKING ON HAZARDOUS LIVE INSTALLATION DURING APPLICATION AND REMOVAL OF THE CURRENT TRANSFORMERS.

Part 1 - Installing Current Transformers



Use of the incorrect current transformer may cause damage to the meter. 200A or 400A split core current transformers are included.



Current transformers must be UL Listed - Category XOBA



Current transformers must be correctly rated for the primary current to be measured, and have a rated output of 1A. Split core current transformers are recommended for existing installations, allowing for easy installation around conductors.



Current transformers must not block ventilation openings or otherwise restrict airflow.



Current transformers must be used with single conductor cables only.



No metal clamps, bands or hold-downs should be used to secure the current transformers as it may affect operation.



The current transformer leads must not be extended, so be sure to mount the DVA300 meter within reach of the current transformer leads.



The current transformers must be correctly facing the line and load of the conductor per the manufacturer's instructions.

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Installation (continued)



HIGH VOLTAGE: HAZARD OF ELECTRICAL SHOCK. DISCONNECT INCOMING POWER FROM THE DEVICE TO BE METERED BEFORE INSTALLING or ADOPT SAFE OPERATING PROCEDURES WHEN WORKING ON HAZARDOUS LIVE INSTALLATION DURING APPLICATION AND REMOVAL OF THE CURRENT TRANSFORMERS.

Part 1 - Installing Current Transformers (continued)

- 1) Install the split transformers on the X Phase, Y Phase, Z Phase, and Neutral single conductor cables. Secure each current transformer to the cable it is mounted on, using nylon zip ties. Do not use metal bands or clamps as it may interfere with the transformer operation. Use on single conductor cables only. Be sure to observe correct orientation of line and load, per the current transformer manufacturer's instruction.
- 2) Route the black and white leads from current transformers to the area where the meter will mount. Leads may cut to custom length. Be sure to allow enough length to allow the meter to be installed or removed from the rack with the current transformer leads plugged into the meter.
- 3) Attach the black and white wires from the current transformers to the 8-Position current transformer terminal block plug as per the following. Position numbering is from left to right, facing the connector from the wire entry side as shown here.

Current Transformer Terminal Block Plug - Pin Out

Position 1 - White wire from Neutral current transformer

Position 2 - Black wire from Neutral current transformer

Position 3 - White wire from Z Phase current transformer

Position 4 - Black wire from Z Phase current transformer

Position 5 - White wire from Y Phase current transformer

Position 6 - Black wire from Y Phase current transformer

Position 7 - White wire from X Phase current transformer



- 5) Strip each wire from the current transformers back 7 mm (.275") and insert into their respective position in the terminal block plug as shown above and tighten the set-screw to 0.5 - 0.6 Nm (4.4—5.3 in/lbs.)

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Installation (continued)

Part 2 - Connecting to the Voltage Source



HIGH VOLTAGE: HAZARD OF ELECTRICAL SHOCK. DISCONNECT INCOMING POWER FROM THE DEVICE TO BE METERED BEFORE INSTALLING



The installer must determine the appropriate method of connecting the meter voltage leads to the voltage source. Terminal block, ring terminals, or other suitable methods may be used.



The installer must determine the appropriate method of connecting the protective Earth lead to a suitable earthing point. Terminal block, ring terminals, or other suitable methods may be used.



Input power requirements: 100-135 VAC, 500 mA. Branch circuit protection must be provided for each phase, with a 20A maximum rating. Input wiring connections must be rated 75 degrees C minimum.



The 5-Position voltage terminal block is provided with color-coded wires attached. These wires may be cut to length as required.

Voltage Terminal Block Plug - Pin Out

Position 1 - Green wire		Ground
Position 2 - White wire		Neutral
Position 3 - Black wire		X Phase or L1
Position 4 - Red wire		Y Phase or L2
Position 5 - Blue wire		Z Phase or L3



Part 3 - Installing the DVA300 Meter

- 7) Connect earthing wire to chassis earthing point on rear of the meter, and to a suitable earthing point in the enclosure or rack the meter will be mounted in.
- 8) Connect current transformer plug to rear of meter and tighten screws 0.5 - 0.6 Nm (4.4—5.3 in/lbs.) to secure connection to meter.
- 9) Connect voltage plug to rear of meter and tighten screws 0.5 - 0.6 Nm (4.4—5.3 in/lbs.) to secure connection to meter.
- 10) Mount meter in rack using suitable hardware for use with the rack rail.

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Operation

Power On - The DVA300 is powered on automatically when the equipment to be metered is powered on. There is no power switch.

Selecting a Phase or Neutral to be monitored - The rotary selector switch allows the user to select a phase or Neutral to be monitored. The phase indicator window shows what phase, or if Neutral is currently selected for monitoring.

Meter display colors - Voltage, amperage and frequency meters all illuminate green when operating conditions are normal. If voltage, amperage and frequency fall out of acceptable range the meter display will change color to red.

Neutral to Ground measurements

- When monitoring Neutral to Ground, the voltage meter will illuminate red. Observe the voltage numeric reading on the display. Under normal conditions there should be Zero voltage between neutral and ground.
- When monitoring Neutral to Ground, the frequency meter will be red under normal conditions. If the frequency meter is green it also indicates voltage between ground and neutral.
- When the phase selector is in the N position the ammeter will show current flow thru the neutral .

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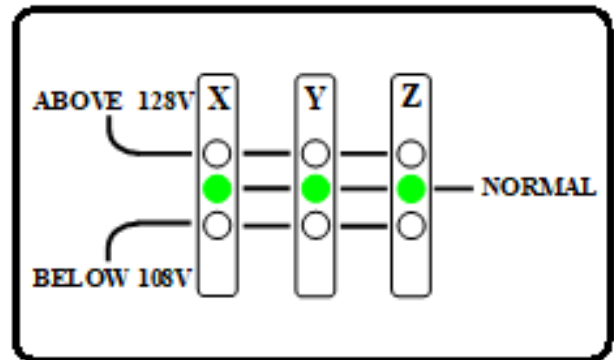
Operation (continued)

EPS Smart View™

Smart View™ allows users to monitor voltage conditions of all three phases at a glance.

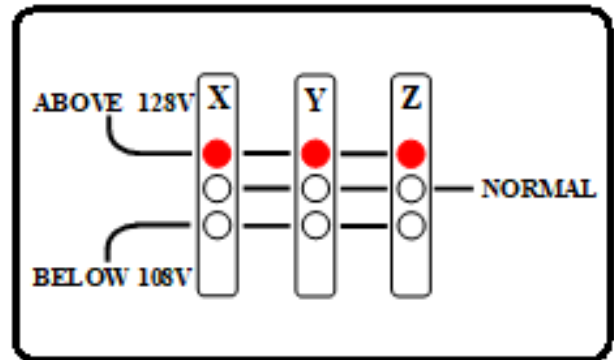
Correct Voltage - Normal Operation

When voltage is within range (108V to 128V), the **Green - Normal** LED will be lit for that phase.



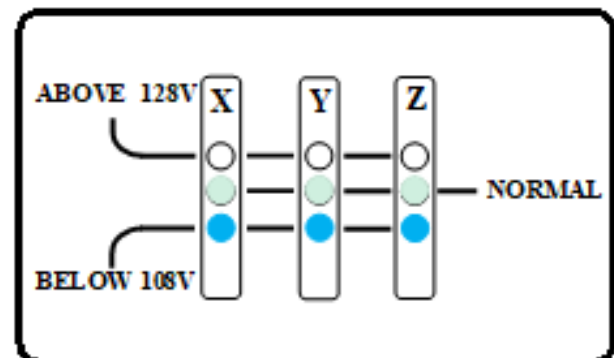
Over-Volt Warning

If an over-volt condition occurs on any phase, the **Red - Above 128V** LED will be lit for that phase.



Under-Volt Warning

If an under-volt condition occurs on any phase the Blue LED for that phase will begin to illuminate at **108.5V** and the green LED will fade out at **105V**.



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Specifications

Electrical

Power supply input rating range - 100-135 VAC, 47-63 Hz, 500 mA

Voltage measurement rating: 120/208 VAC 3-phase Wye system, 47-63 Hz, Measurement Category II

Current measurement rating: Maximum 5A from external current transformers

Accuracy: Voltage 1%, Frequency 0.5%, Amperage 1%*

**The accuracy of the current transformers used will affect accuracy of the meter's amperage measurements.*

Dimensions and weight (Not including current transformers)

19" Wide (482.6 mm)

7-1/8" Deep (8-1/4" deep including handles) (181 mm) (209.6 mm)

3-1/2" High (88.9 mm)

7.95 lbs. (3.6 kg)

Calibration

Not required for the life of the unit

Certification

cULus Listed - E499094

Environmental

IP20 (indoor) rated

Operational Temperature Range: -20° F to 140° F (-29° C to 60° C)

Humidity: 0% to 80% non-condensing humidity

Altitude to 2000 meters (6500')

Warranty

Creative Stage Lighting, Inc. warrants this product to be free from defects in materials or workmanship for a period of one (1) year following delivery. In the event a warranty claim Creative Stage Lighting, Inc.'s sole obligation will be, at its election, to repair or replace the product in question. Further details can be found at <https://www.creativestagelighting.com/support/warranties/>

Contact Us

We'd love to hear from you! Please contact us with any questions or concerns regarding this meter.

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