

REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
B	RELEASE	2/16/2018	

CPS 505 HIGH VOLTAGE PROBE
INSTRUCTION MANUAL

CUSTOMER	CONTRACT NO.		CPS		7313 SW TECH CENTER DRIVE PORTLAND, OR 97223 PH: (503) 598-9595 FAX: (503) 682-8164 WWW.CPSHV.COM	
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		SCALE	1:1	SHEET 1 OF 9		



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FSCM NO.
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TITLE

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1. Safety

OPERATIONAL SAFETY

THIS DEVICE IS USED FOR MEASUREMENT THE VOLTAGES THAT ARE DANGEROUS AND MAY BE FATAL. OBSERVE EXTREME CAUTION WHEN WORKING WITH THIS EQUIPMENT.

All equipment must be properly grounded and all cables must be properly connected before applying power.

Note that high voltage may remain at internal capacitors during long period of time even without power.

Do not disconnect any cables from working equipment, because it may break some return ground and cause appearance of high voltage on unprotected conductors.

Do not ground yourself or work under wet or damp conditions.

SERVICING SAFETY

Maintenance does not require removing the instrument cover with the power on. Servicing should only be done by qualified personnel aware of the electrical hazards.

“WARNING” notes in the text call attention to hazards in the operation of these units that could lead to possible injury or death.

“CAUTION” notes in the text indicate procedures to be followed to avoid possible damage to equipment.

Technical and safety assistance can be obtained from:

CPS Technical Support
7313 SW Tech Center Dr
Portland, OR 97223, USA

Phone: 503-598 9595
Fax: 503-684-8164
E-mail: info@cpsvh.com

WARNING

IF THE EQUIPMENT IS USED IN ANY MANNER NOT SPECIFIED BY THE CPS, INC. (MANUFACTURER), THE PROTECTION PROVIDED IN THE EQUIPMENT MAY BE IMPAIRED CAUSING EQUIPMENT DAMAGE.

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2. Definitions of Symbols



Direct Current



Protective Conductor Terminal



Caution (refer to accompanying documents)



Caution, risk of electric shock

3. Introduction

The CPS 505 is an AC/DC voltage meter with digital interface. The digital interface uses USB2 communication to a computer with interactive control application.

4. Block Diagram

The CPS 505 includes separate AC RMS Voltage Meters, DC Voltage Meter with Minimum and Maximum Detectors, Temperature Sensor, 3-color LED Status Indicator and acoustical Alarm Indicator. The USB Interface used for communication to external computer.

Connection diagram at Figure 1 explains how these units work together.

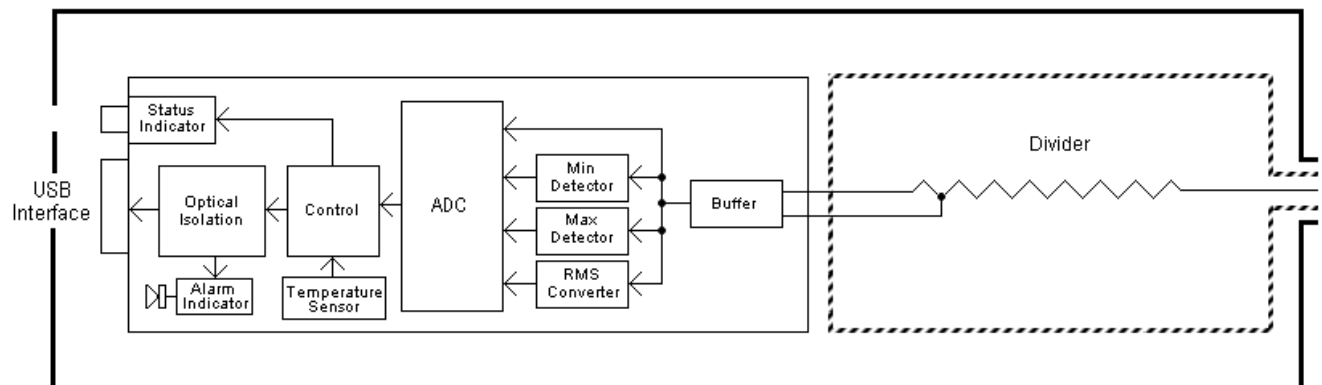


Figure 1. Block Diagram of CPS USB Probe.

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5. Electrical Specifications

Maximum input peak voltage $\pm 100\text{kV}$
 Input impedance 2000M Ω /10pF

5.1 AC Meter

Input scale 70kV RMS
 Frequency range 10Hz...10kHz
 Initial accuracy 0.1%
 Temperature coefficient 50 ppm per $^{\circ}\text{C}$ in range (15...25) $^{\circ}\text{C}$

5.2 DC Meter

Input scale $\pm 100\text{kV}$
 Initial accuracy 0.01%
 Temperature coefficient 12 ppm per $^{\circ}\text{C}$; average, in range (15...25) $^{\circ}\text{C}$

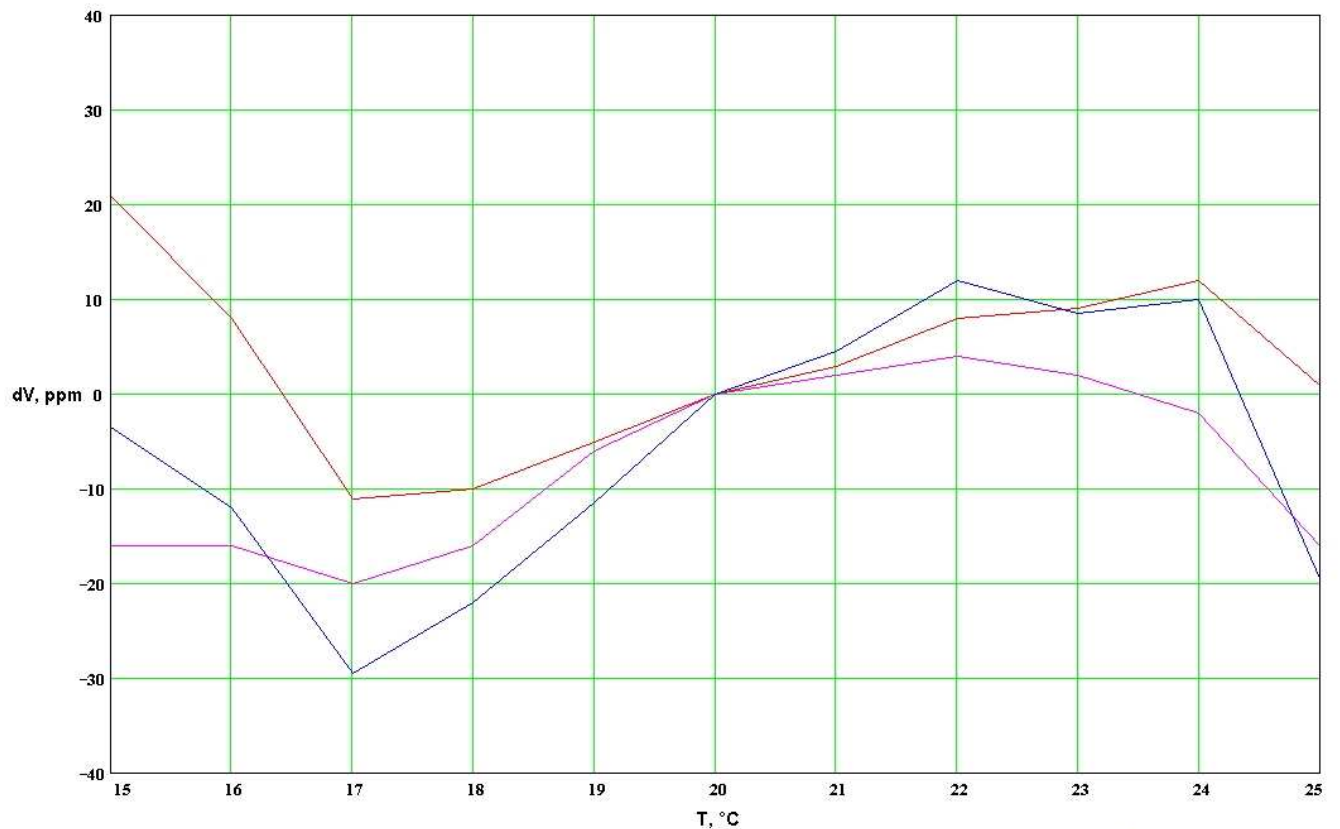


Figure 2. DC temperature coefficient (3 samples of 505).

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6. Environmental Conditions

Model 505 must operate under following conditions:

- The equipment is intended for indoor use only
- Operating temperature 0 to 40⁰C
- Altitude up to 2000 m
- Maximum relative humidity 80% at 31⁰C and 50% at 40⁰C
- Installation category - Intended for use in installation category (over voltage category) II (IEC 1010-1 standard)
- Pollution degree - Category 2 (IEC 1010-1 standard)

7. Mechanical Specifications

Weight	1.8 lbs.
Length	12 in.
Output connector	mini-B USB
Optional tip	Hook shape
Standard probe tips supplied	One removable corona ball with banana jack receptacle; one removable pointed tip
Unit package	see Figure 3.

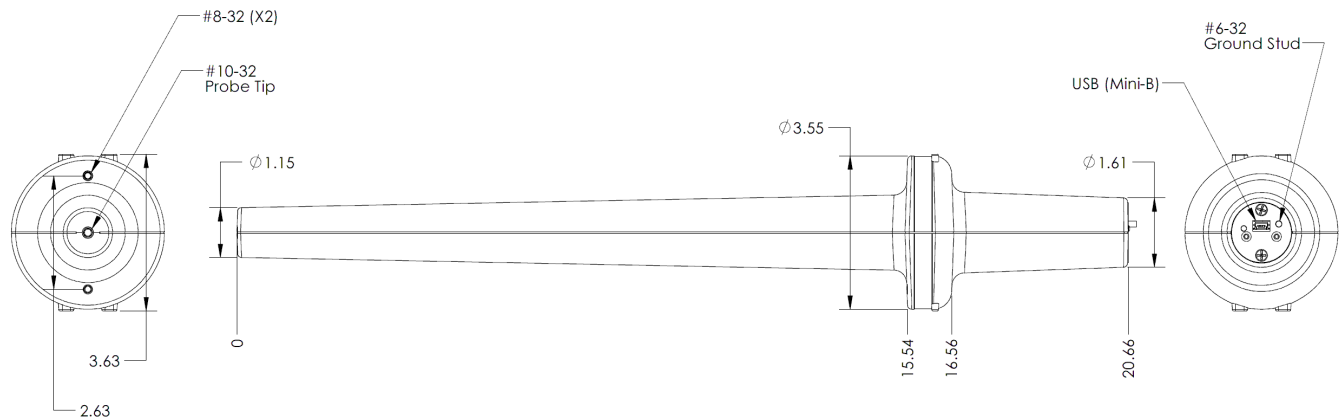


Figure 3. Physical layout and placement of connectors.

WARNING

THE GROUND STUD MUST BE GROUNDED. FAILURE TO FOLLOW THIS WARNING MAY RESULT IN SEVERE HEALTH HAZARD.

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8. Operation

WARNING

THIS EQUIPMENT IS USED FOR MEASUREMENT THE VOLTAGES THAT ARE DANGEROUS AND MAY BE FATAL. PROPER GROUNDING OF ALL HIGH VOLTAGE EQUIPMENT IS ESSENTIAL.

CAUTION

BEFORE USING THIS DEVICE, FOLLOW THIS STEP-BY-STEP PROCEDURE.

FAILURE TO FOLLOW THESE PROCEDURES MAY VOID THE WARRANTY AND WILL RESULT THE SAFETY VIOLATION.

Step A

The ground stud must be grounded. Use the ground cable, provided with the probe for this connection.

Step B

Connect the digital USB interface connector to the computer with an USB2 cable. Be sure that cable is connected to the host computer's USB port.

Status indicator must show the flashing green state.

Step E

Run the software on the control computer. Once the program is run, the Control Panel dialog window will appear on the screen (see Figure 4).

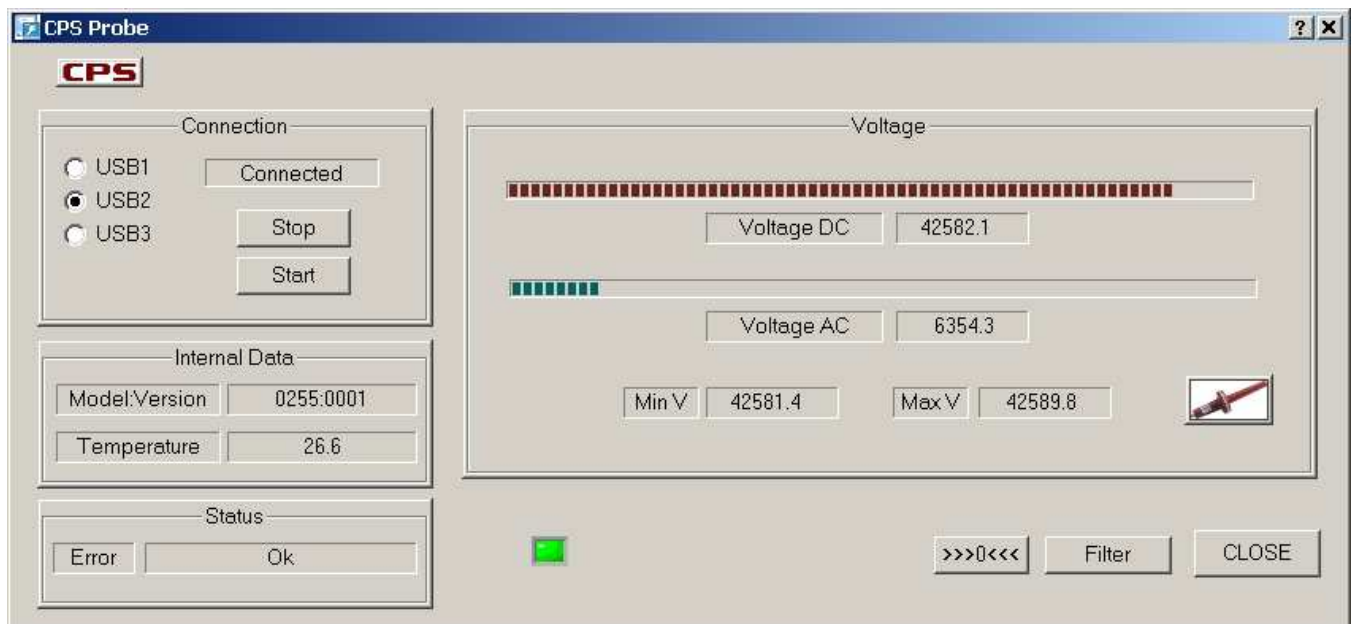


Figure 4. Control Panel screen (desktop).

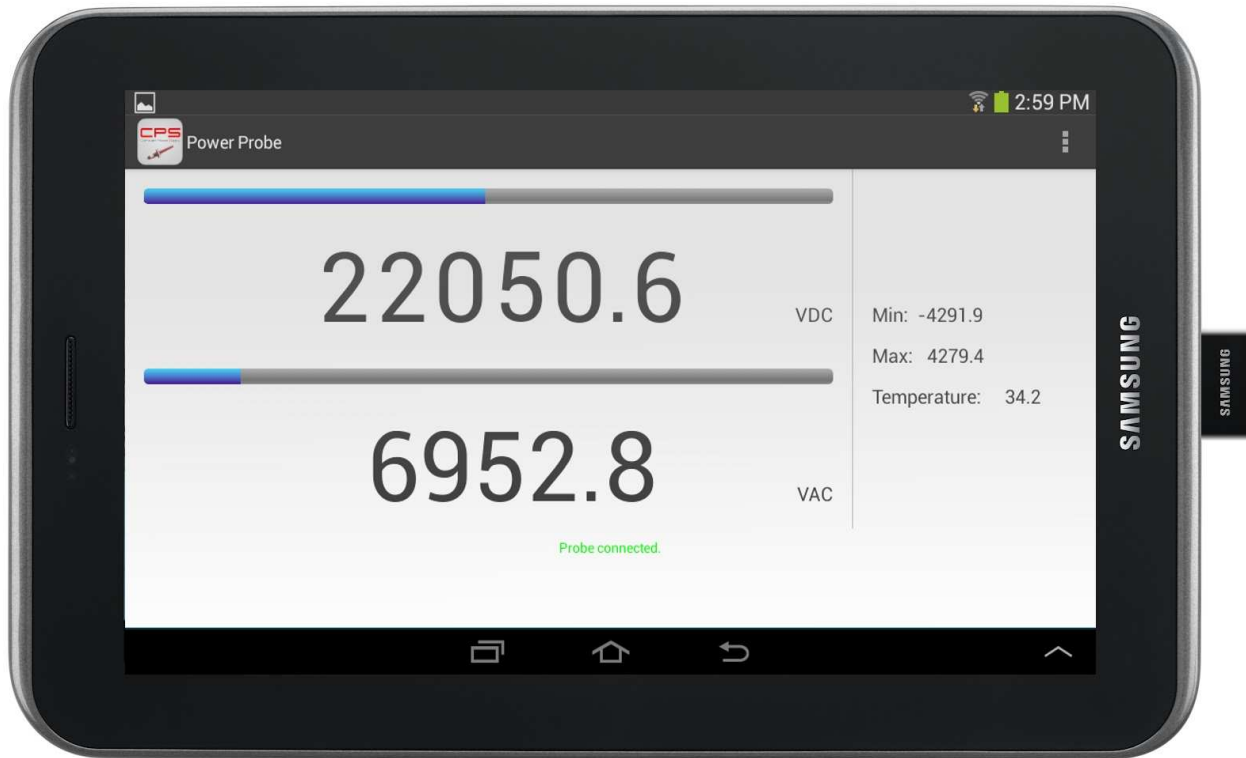


Figure 5. Control Panel screen (mobile).

Check the status of connection in the [Connection] window, this must be “Connected”. If no connection was established, the “no comm” displayed in the window.

In such case check that you use correct USB port to attach the interface cable. Refer to your computer manual regarding the USB port configuration.

The connection can be stopped with the [Stop] button and restarted with the [Start] button. If you connect more than one of the CPS USB Probe, more than one USB button will be able. In this case you can select one of the probes, connected to the computer. You can run one application for each probe. To determine the probe, connected to a port, click the port selection button: the connected device will show the flashing red state.

After a connection is established, status indicator shows the blue state and you can read actual values from the meters.

Step F

Carefully approach the tip to the object. If the ground stud is not properly grounded, the alarm indicator generates sound and the status indicator shows the red state. In this case do not touch the object and check ground connection.



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9. Warranty

COMPUTER POWER SUPPLY, Inc. (CPS) warrants equipment of its manufacture against defective materials or workmanship for a period of one year from the date of shipment.

CPS will repair or replace any defective product, which was not damaged by negligence, misuse, improper installation, accident, unauthorized repair or alteration by the Buyer.

This warranty is applicable to the original Buyer only and constitutes the sole and exclusive warranty of the Seller. No other warranty is made, expressed or implied.