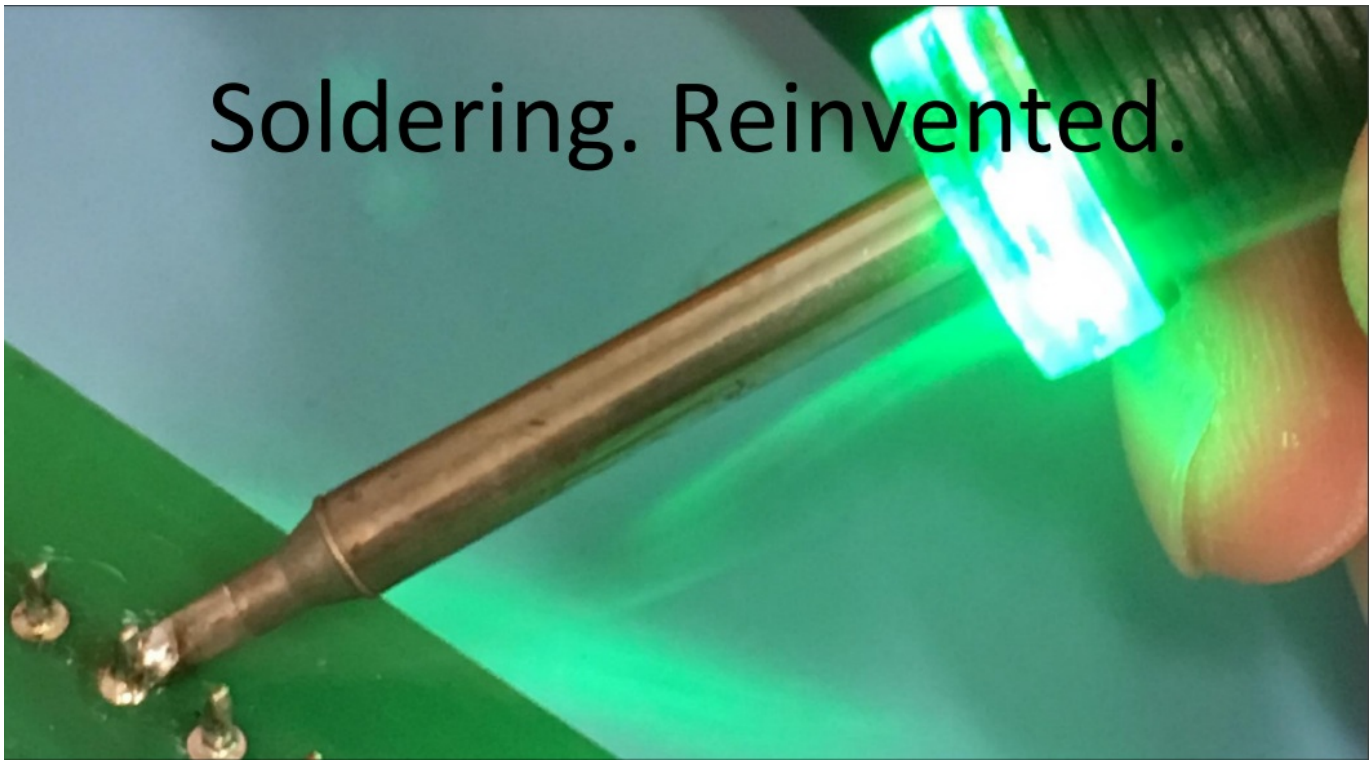
METCAL CV-5210 Connection Validation User Guide

METCAL™

CV-5210 Connection Validation
User Guide



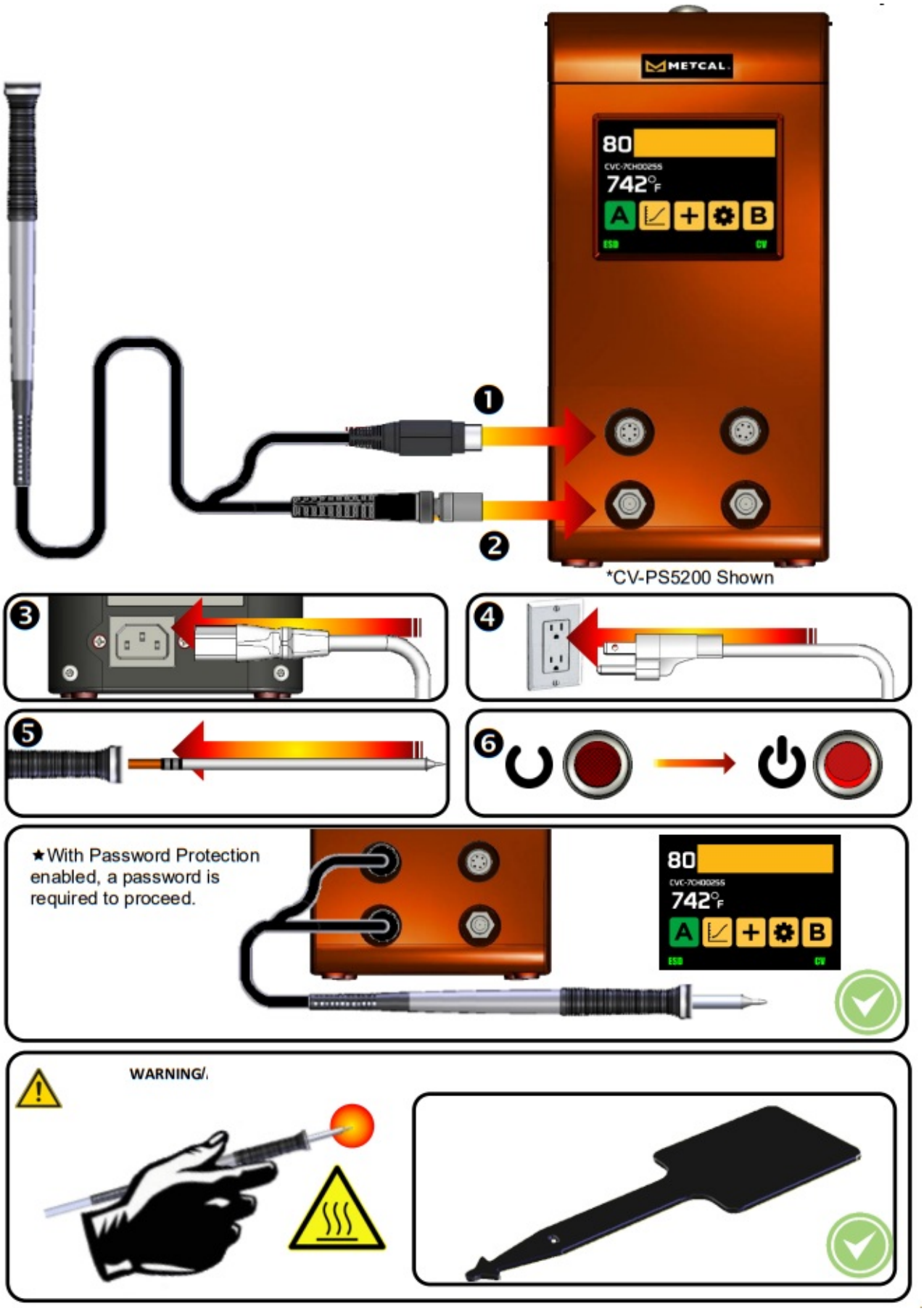
Contents

CV-5210 Connection Validation

WARNING

With power applied, the tip temperature can be > 300°C. Failure to observe the following precautions may lead to injury to users or damage the equipment: Do not touch any metallic parts of the cartridge. Always use cartridge removal pad and turn off system when changing cartridges. Do not use near flammable items. Do not use unit for any function other than described in this manual. Use only genuine Metcal replacement parts. Use in a wellventilated area or with fume extraction. Do not use the equipment with wet hands. Connect only to properly grounded outlets to prevent risk of electric shock. Always place hand-piece back into the work stand to prevent accidental burning of oneself or surrounding objects. Children should be supervised to ensure that they do not play with the appliance. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

SETUP



CONNECTION VALIDATION OPERATION

- Pick a tip that maximizes contact area between the solder joint and tip. Maximizing contact area gives the most efficient heat transfer, producing high quality solder joints quickly.
- Pick a tip that allows good access to the solder joint. Shorter tip lengths allow quicker response. Longer or

angled tips may be needed for soldering densely populated boards.

- Pick the lowest temperature cartridge that will accomplish the task. This minimizes the potential for thermal damage.

Enable CV through the Setup Screen

The system may flash the green and red lights and an optional beep may sound when the tip is cleaned or in the work stand. This is normal and does not signal the start of a solder event.

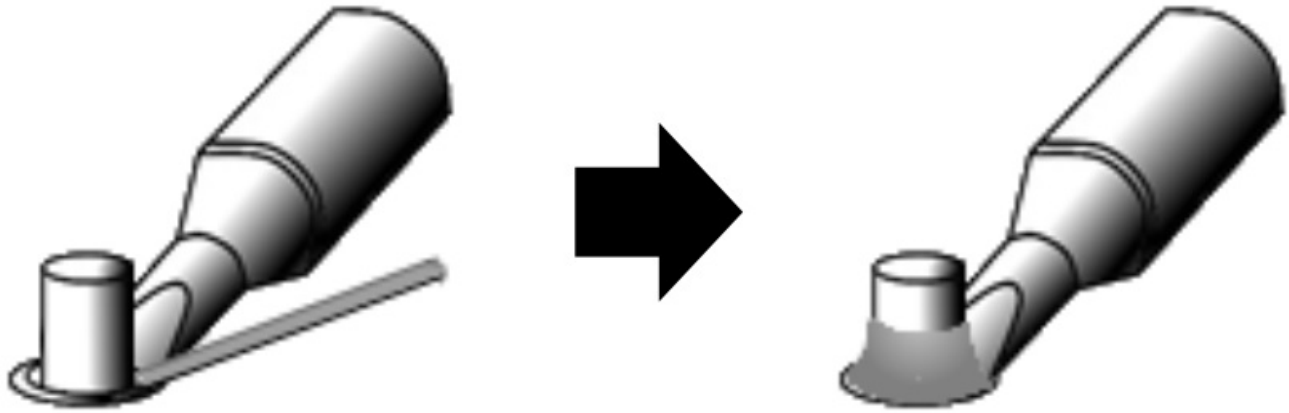
1. Remove the hand-piece from the work stand. Clean your tip using a sulfur-free sponge & de-ionized water or Metcal's brass pad.

2. Place the tip in contact with the land and lead to be soldered. This starts the heat flowing to the connection area. It may be necessary to apply a small amount of solder to start the transfer.
3. The system will signal the start of the solder event with a quick flash of the green and red LEDs.

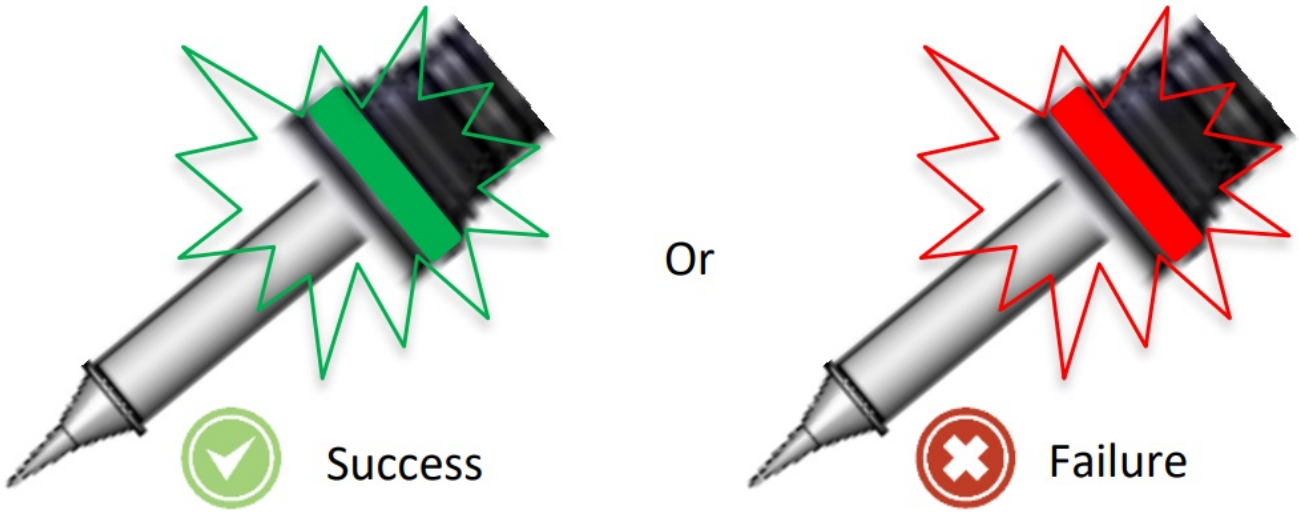
If the system does not signal the start of the solder event, your tip selection is too large for the load or

thermal contact with the load to be soldered is insufficient. This may be prevalent with small, fine tip geometries with minimal surface area.

4. The thermal bridge is formed by touching the solder to the same junction, then moving the solder wire to the opposite side of the land. This causes the liquid solder to move toward the heat source to complete the solder joint.



5. Wait for the CV system to signal the end of the solder event.



6. Promptly remove the soldering tip from the solder joint

⚠ Wait for the LED light to extinguish before starting the next solder joint.

- An immediate red light after solder event detection indicates the tip is improperly sized to the joint.

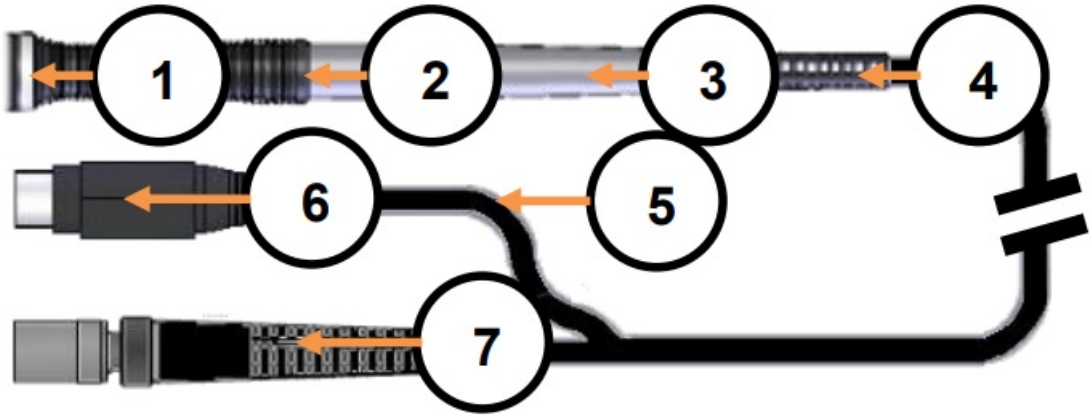
- A red light after approximately 8 seconds indicates too small of a tip or too low of a temperature was selected.

HARDWARE FEATURES

POWER SUPPLY

1. Power Switch
2. Touchscreen
3. Port A, 6 Pin LED Power Connector
4. Port A, RF Connector
5. Communication Port
6. Port B, 6 Pin LED Power Connector
7. Port B, RF Connector
8. Power Connector

HAND-PIECE

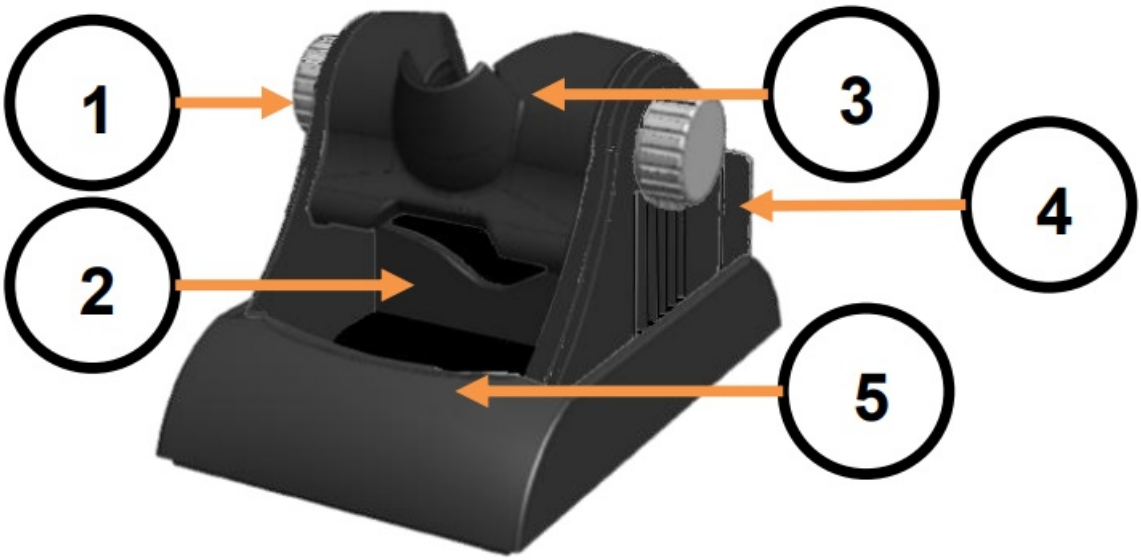


1. LED Light Ring
2. Hand-piece Grip
3. Hand-piece Body
4. Strain Relief, Body
5. Strain Relief, Cable
6. 6 Pin DIN Connector7. F type Connector

CARTRIDGE

1. RF Connector
2. Chip in Cartridge Connector
3. Shaft
4. Tip

WORK STAND



1. Adjustment Knobs
2. Brass pad Receptacle
3. Cradle
4. Cartridge Storage
5. Sponge Receptacle

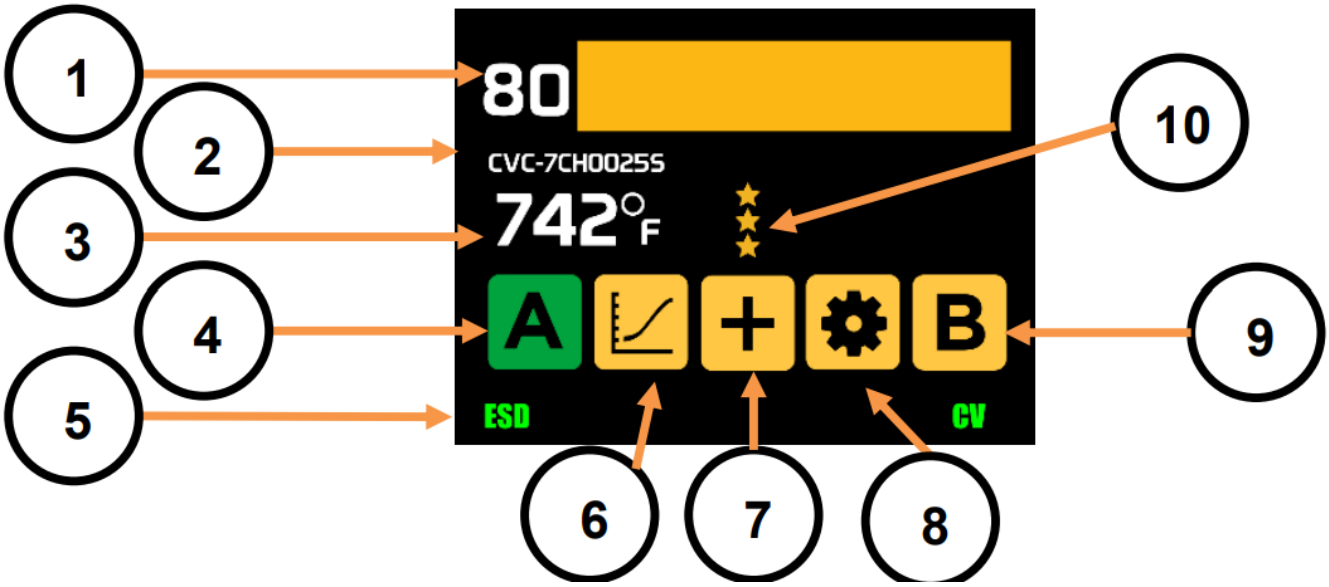
SOFTWARE FEATURES

BOOT SCREEN

1. Connection Validation logo
2. CV5200 Series – 80W CV500 Series – 40W
3. Firmware Version

OPERATIONS SCREEN

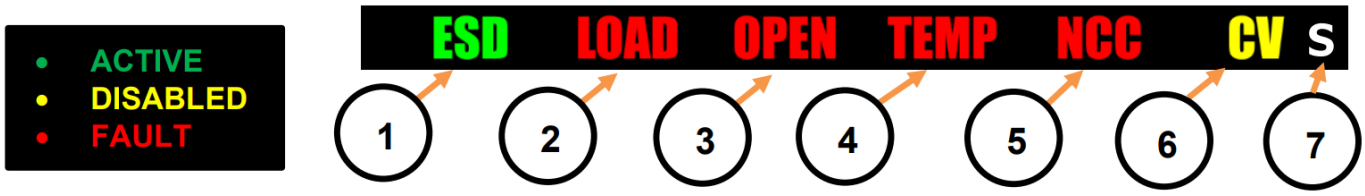
1.



Net Power Meter

2. Port A Cartridge ID
3. Port A Tip Temperature
4. Select Port A
5. System Message Bar
6. Select Power Graph
7. CV-PS5200 Dual Simultaneous Enable/Disable (Link)
8. Setup
9. Select Port B
10. Active User*

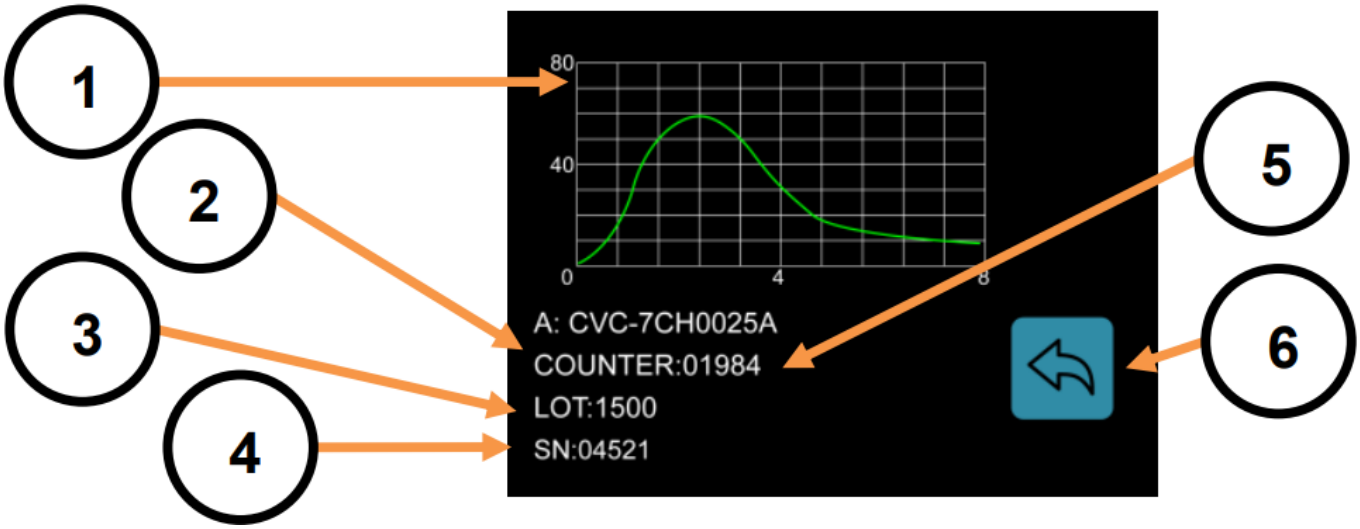
SYSTEM MESSAGE BAR



1. Ground Fault Detection
2. Failure to Load Firmware in Dual Simultaneous Mode
3. No cartridge detected
4. Over Temperature
5. Non-Conforming Cartridge
6. Connection Validation
7. Auto Sleep Indicator

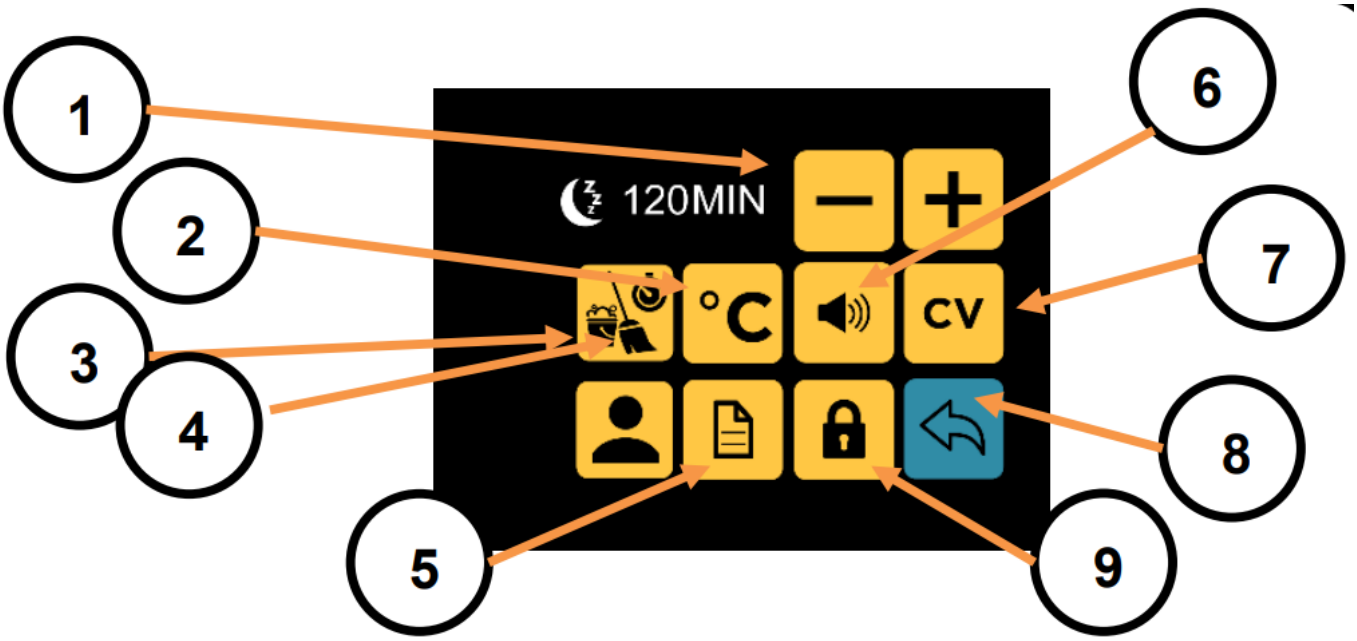
⚠ CV-PS5200 Note: In some cases, the user may experience either “Open Error” or “Load Error” when removing a tip from the handpiece in dualsimultaneous mode.
It is recommended that the user cycles the power when swapping tips in dual-simultaneous mode to recover from either of these error messages. General Safetey Note: It is highly recommended that the user shut off the power supply when changing the cartridge.

POWER GRAPH SCREEN



1. Power vs. Time graph
2. Cartridge ID
3. Cartridge Production Lot Code
4. Cartridge Serial Number
5. Solder Event Counter
6. Return

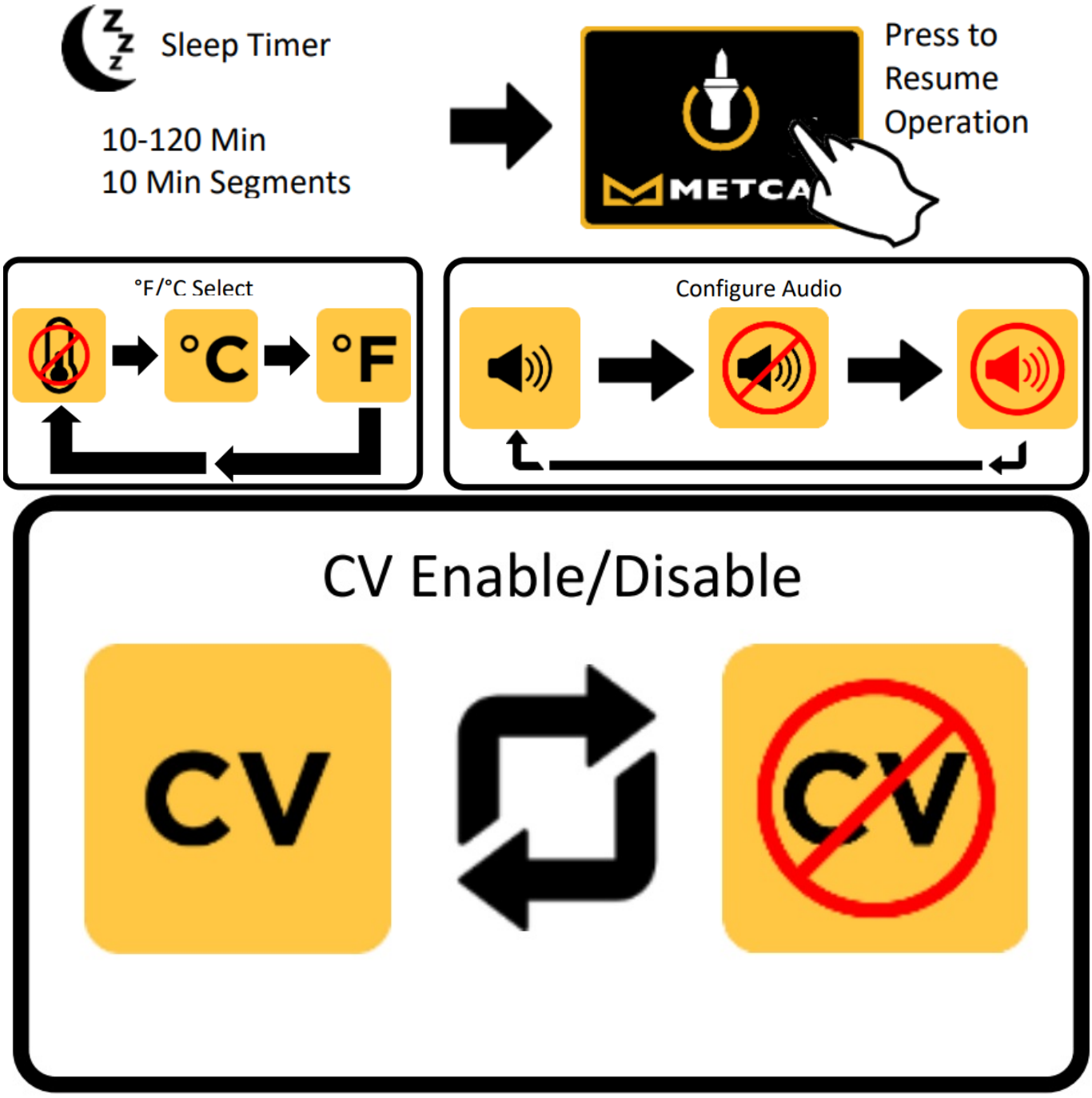
SETUP SCREEN



1. Sleep Timer Setup
2. °F/°C Select
3. Tip Cleaning Reminder
4. Supervisor Access
5. System Notes
6. Configure Audio
7. CV Enable/Disable

8. Return
9. Password Protection

• The auto sleep indicator “S” may not display with certain small tip geometries and low temperatures.
• All hand pieces will enter Sleep Mode when placed in the workstand, regardless of the absence of a notification on the screen. (Indicated by the “S” symbol.)
• Hand-pieces out of the workstand and at idle power will display “S” as to indicate the sleep timer countdown has started



System Notes
No Calibration Required.
ESD Safe – AC ground monitor detects power line ground failures and immediately alerts the operator and shuts down the system. Surface Resistivity – 10 6Ω -1011 Ω

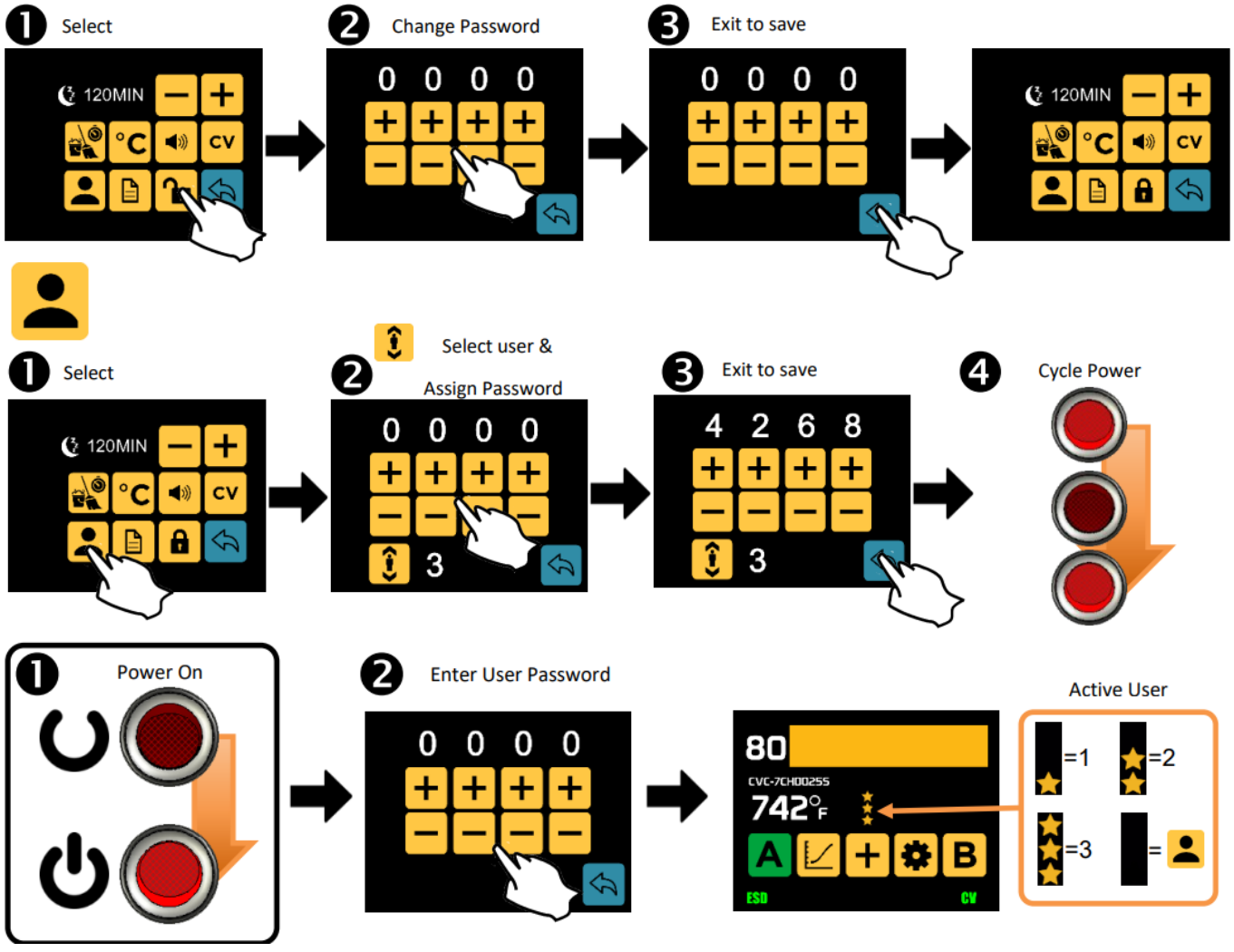
Tip Cleaning Reminder 0, 10-200 Sec 1 Sec Segments

Press to Resume Operation

Password Protection & Supervisor Setup

Default password: 0000

Changing the default password will enable Supervisor mode, allowing the Supervisor to assign three user passwords



SPECIFICATIONS

Power Supply	CV-PS5200 CV-PS500

Ambient Operating Temperature	10 to 40°C	
Maximum Enclosure Temperature	55°C	
Input Line Voltage	100 — 240 VAC, grounded circuit	
Input Frequency	50/60 Hz	
Power Consumption	125W	45W(Nominal) 85W(Max)
Operation	2 single port or dynamic dual simultaneous*	2 Single Port
Output Power (per channel)	80W*	40W
Output Line Frequency	13.56 MHz	
Tip-to- Ground Potential	<2mV	
Tip-to-Ground Resistance	<2 ohms	
Tip Temperature Accuracy	Meets or Exceeds IPCJ-STD-001	
Idle Temperature Stability	± 1.1°C in still air	
Display	2.8″ Color TFT LCD Display	
Resolution	320*240 RGB	
Size	2.8″ Diagonal	
Active Area	43.20 x 57.60 mm	
Connections		
RF Connector	F type power connector	
LED Power Connector	6 pin DIN	
Power	IEC C14 Male	
Communications	USB A Female	
Surface Resistivity	1060 -10110	
Dimensions (w x d x h) (mm)	121 x 130 x 235 121 x 121 x 220	
(w x d x h) (in)	4.8 x 5.1 x 9.3 4.8 x 4.8 x 8.66	
Weight (kg)	3.35 2.65	
(lbs.)	7.4 5.84	
Hand-piece	CV-H1-AV	
Cable Length	1220 mm, burn proof, ESD safe	
Hand-piece connector		
RF Connector	F type power connector	
LED Power Connector	6 pin DIN	

LEDs	3 green / 3 red
Hand-piece Temperature (Holding)	<55°C
Workstand	CV-W1AV
Dimensions (w x d x h) (mm)	86 x 191 x830
(w x d x h) (in)	3.4 x 7.5 x x3.3
Weight (kg)	0.
(lbs.)	1.

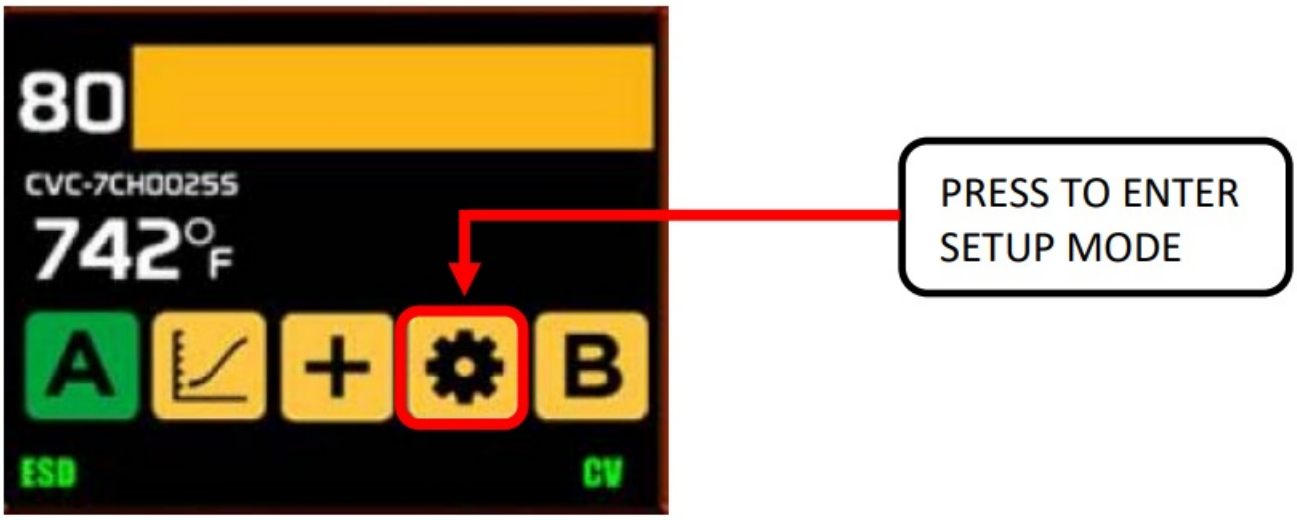
RESTRICTED TIP / LOCKOUT FEATURE – Firmware v1.60.01 +

• **NOTE** – In order to use this feature both the ADMIN PASSWORD MODE and OPERATOR PASSWORD must be enabled

TEP 1: ADMIN PASSWORD MODE

a. Turn CV-PS5200 power supply ON

b. Press setup button to enter SETUP MODE



c. IN SETUP MODE, press button # 9 for ADMIN Password Protection

SETUP SCREEN

1. Sleep Timer Setup
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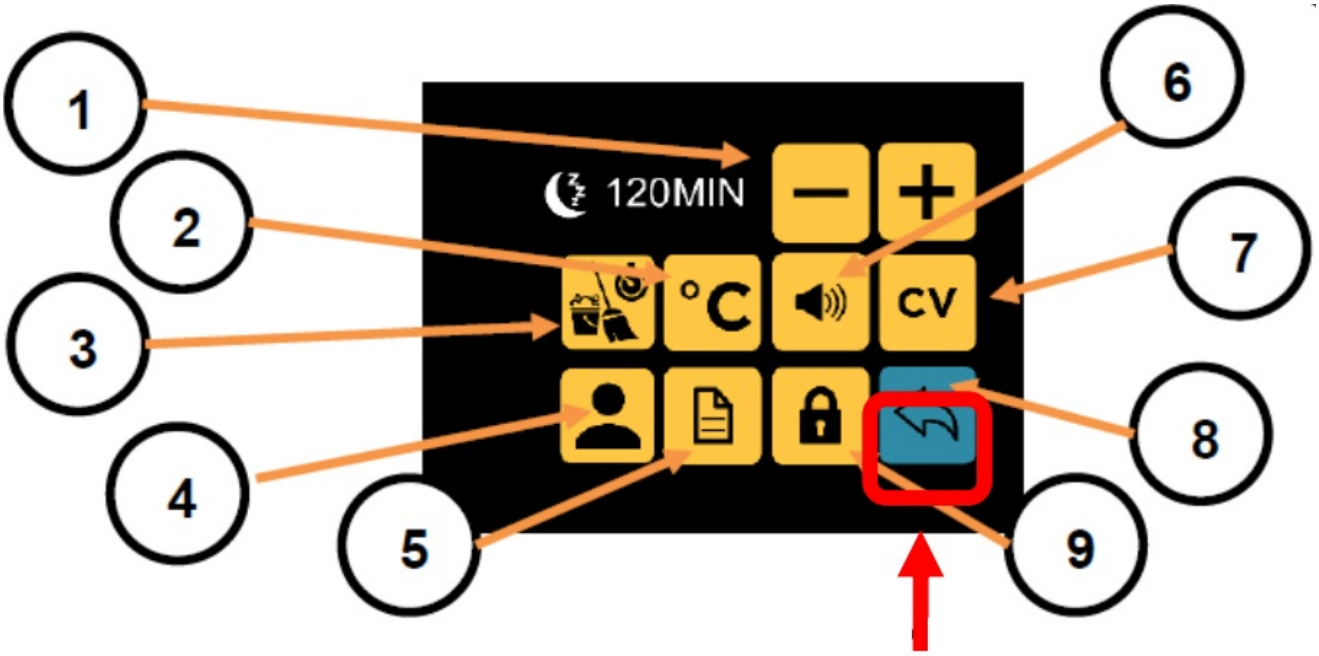
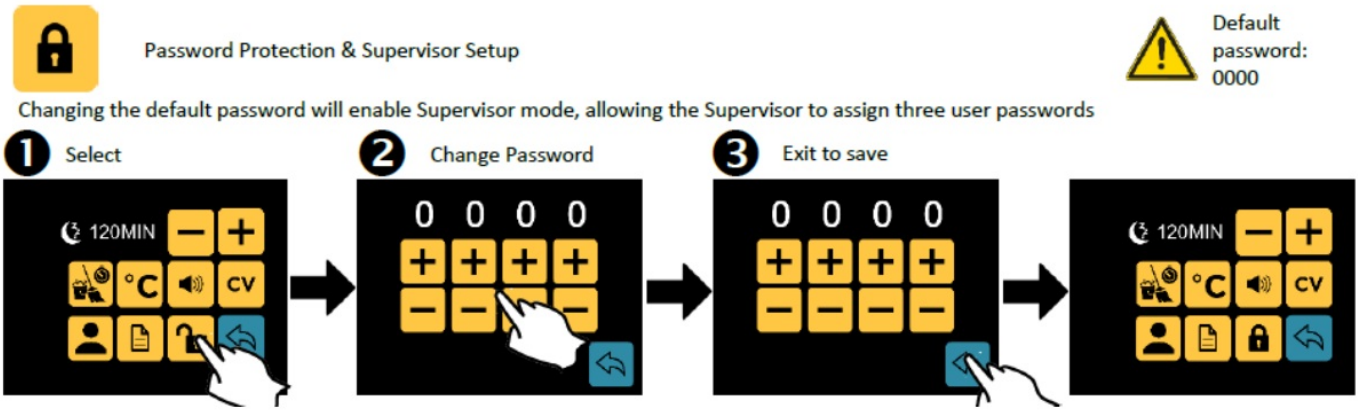


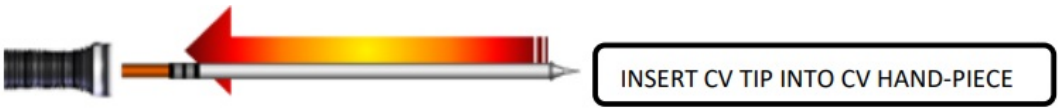
d. Enter 4-digit ADMINISTATOR/ADMIN/SUPERVISOR PASSWORD using the [-][+] buttons

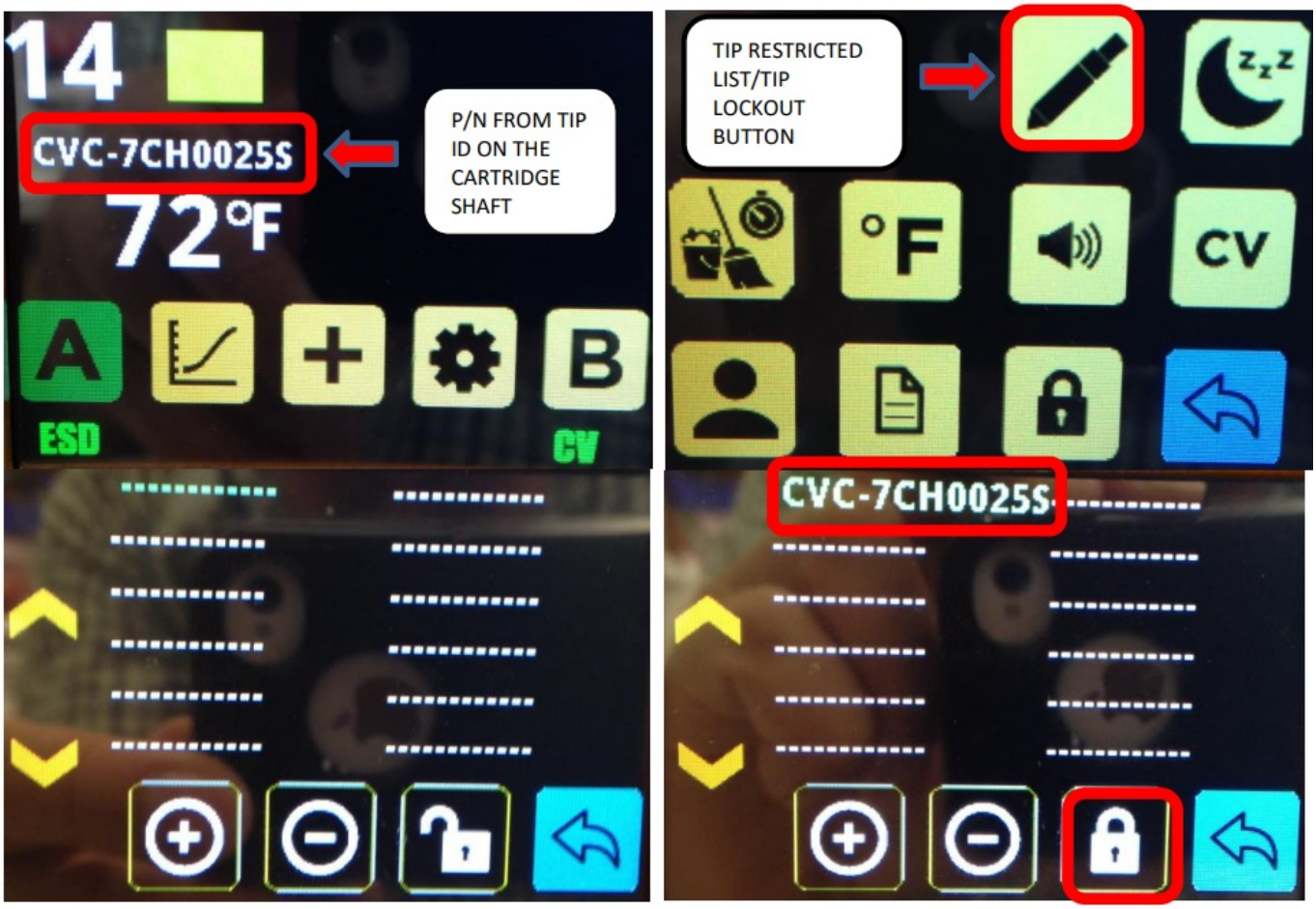


e. Exit Setup Mode, turn unit OFF (unless proceeding with next steps)

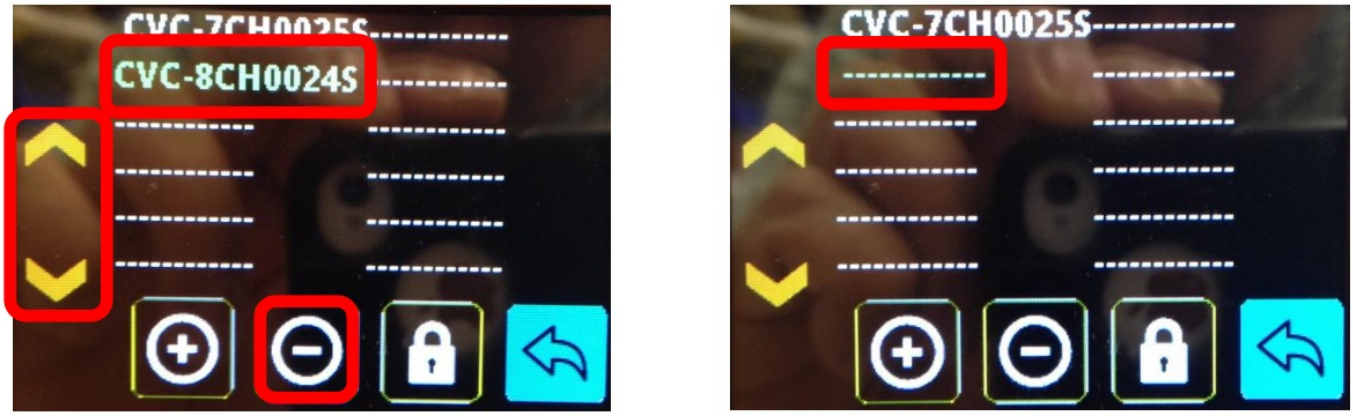
STEP 2: ADDING CV TIP PART NUMBERS TO TIP RESTRICTED LIST
NOTE: Tip part numbers can only be added to TIP RESTRICTED LIST/TIP LOCKOUT setup screen when in ADMINISTATOR/ADMIN/SUPERVISOR MODE
NOTE: The tip that is currently inserted into the CV hand-piece will be the tip part number to add to the restricted tip list. There are 12x fields for 12x CV tip p/n to be added to the restricted tip list
a. Insert physical CVC tip part number to add to Tip Restricted List into the CV hand-piece
b. Turn CV-PS5200 power supply ON
c. Noted CV tip part number on screen from tip ID; this is the part number available for adding to the restricted tip list.
d. Press setup button to enter SETUP MODE and enter 4 digit ADMIN PASSWORD using the [-][+] buttons
e. Press TIP RESTRICTED LIST button (tip icon)
f. Press the [+] button to add CV tip part number to the restricted tip listg.
g. Press the LOCK button to enable tip lockout mode
h. Exit tip restricted list screen; Exit setup mode

IMPORTANT: Tip list changes will NOT save unless exiting to FUNCTION SCREEN



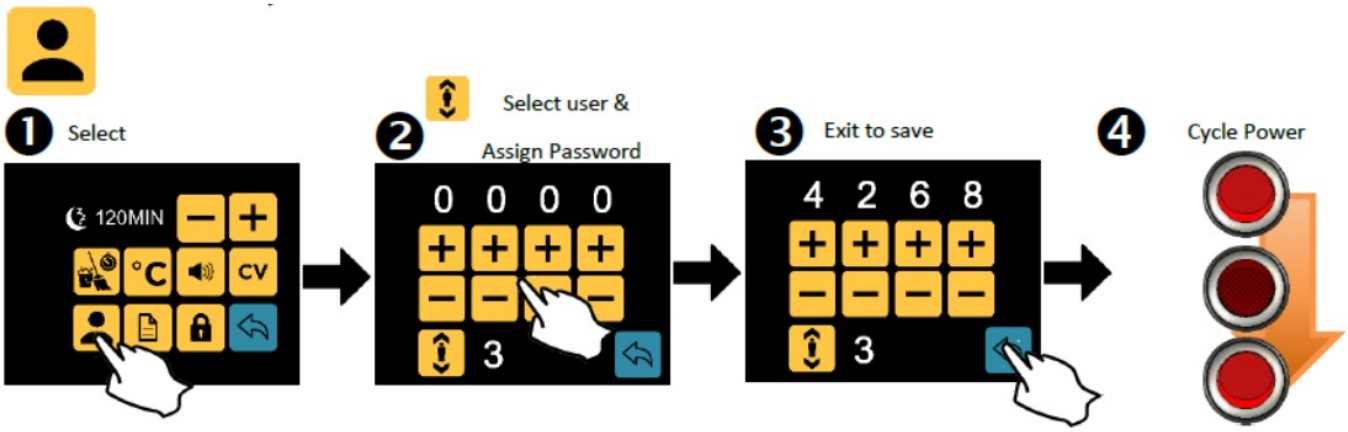


TIP RESTRICTED LIST; 12x fields for 12x tip p/n
Press [+] to add tip p/n in handle to 'approved' list
Press lock button to 'lock' to enable tip lockout mode
To REMOVE CV tip part number from restricted tip list:
i. Press setup button to enter SETUP MODE and enter 4 digit ADMIN PASSWORD using the [-][+] buttons. Press TIP RESTRICTED LIST button (tip icon)
j. Press up or down buttons to select tip part number to REMOVE from list
k. Selected tip part number will be in GREEN COLOR
l. Press the [–] button to REMOVE selected CV tip part number from list
m. Exit tip restricted list screen; Exit setup mode
IMPORTANT: Tip list changes will NOT save unless exiting to FUNCTION SCREEN

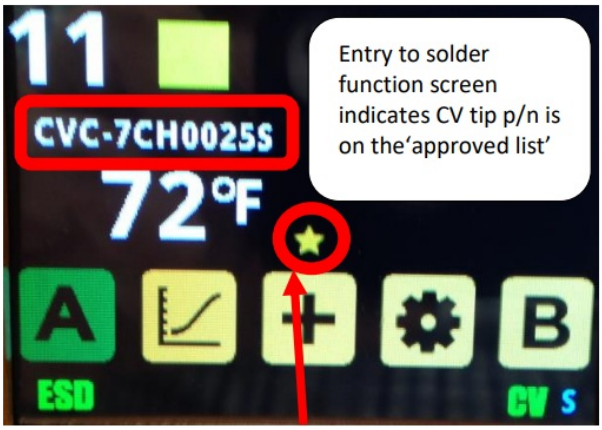


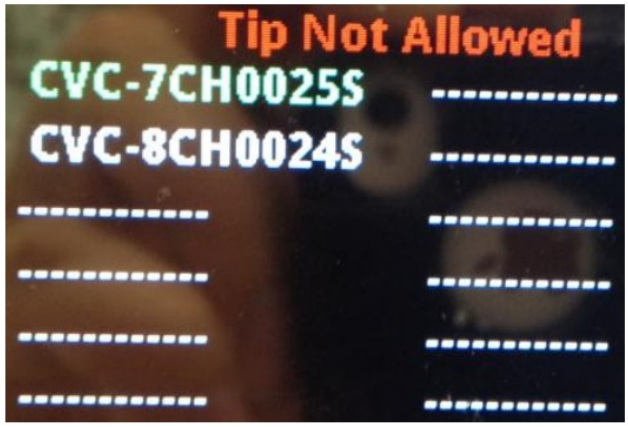
STEP 3: ENABLE OPERATOR PASSWORD MODE (allows for 3x Operator passwords)
a. Press setup button to enter SETUP MODE and enter 4 digit ADMIN PASSWORD using the [-][+] buttons
b. Press Operator Password button to enter Operator Password screen
c. Use bottom operator # button to select between Operator # 1, 2, 3

d. Enter 4-digit numerical OPERATOR PASSWORD using the [-][+] buttons
e. Exit tip restricted list screen; Exit setup mode
f. Turn unit OFF



STEP 4: OPERATION WITH RESTRICTED TIP LIST/TIP LOCKOUT ENABLED
a. Turn CV-PS5200 power supply ON
b. 4-digit OPERATOR PASSWORD SCREEN should appear
c. enter 4 digit OPERATOR PASSWORD using the [-][+] buttons
d. Enter SOLDER FUNCTION screen;
The 'STAR(S)' symbols on top of [+] dual port button on screen indicate Operator # (corresponding to operator password used)
(1x 'star' * = Operator 1; 2x 'stars' ** = Operator # 2; 3x stars ***= Operator # 3)
CV TIP ON 'APPROVED'/RESTRICTED TIP LIST:
If CV tip inserted into handle is on the 'approved'/restricted tip list, there will be operator solder function for single port mode LEFT and RIGHT and DUAL port mode selection.
CV TIP NOT ON 'APPROVED'/RESTRICTED TIP LIST = TIP LOCKOUT
If CV tip inserted into handle is NOT on the 'approved'/restricted tip list, there will be ERROR MSG for 'TIP LOCKOUT' stating 'TIP NOT ALLOWED'
System will CHECK CV tip ID for 'approved' tip part number on SYSTEM START-UP, PORT CHANGE, and PORT RESET (tip inserted into 'open' hand-piece)



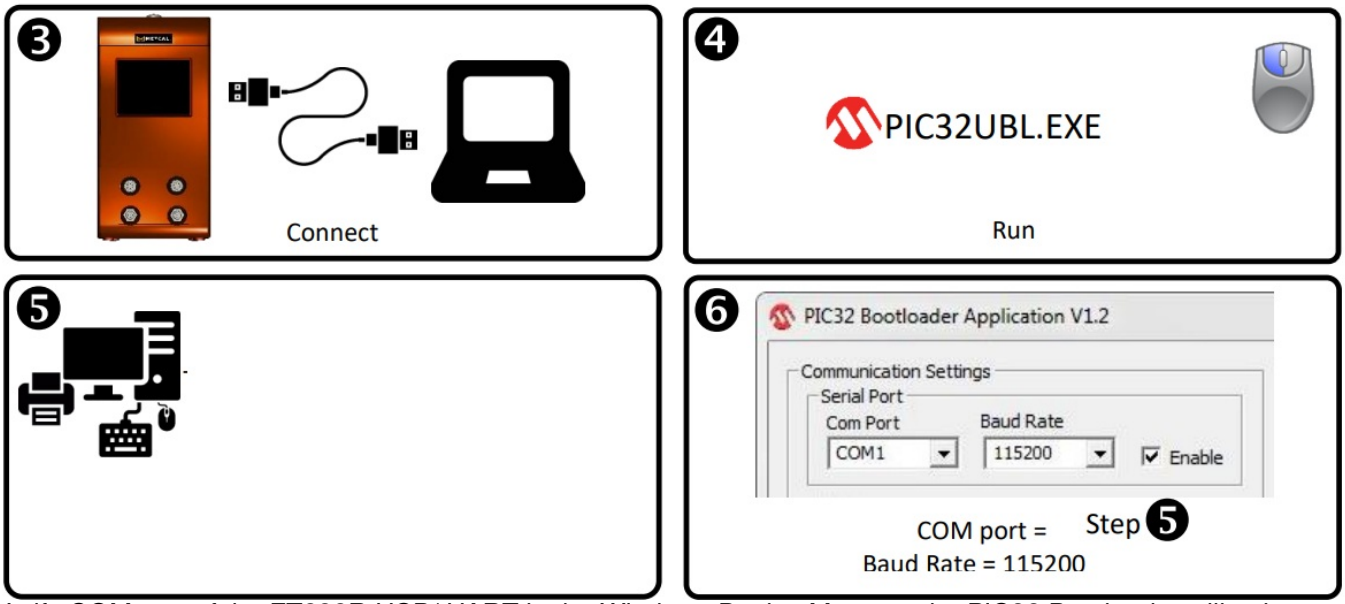


of 'stars' indicates Operator # For example, 1x star * = Operator # 1
CV TIP NOT on approved/restricted tip list will generate ERROR MSG 'TIP NOT ALLOWED' and show list of approved tips on the restricted list. In this example, CVC-7CH0025S and CVC-8CH0024S are the only 2x tips that are 'approved' to work with the CV System

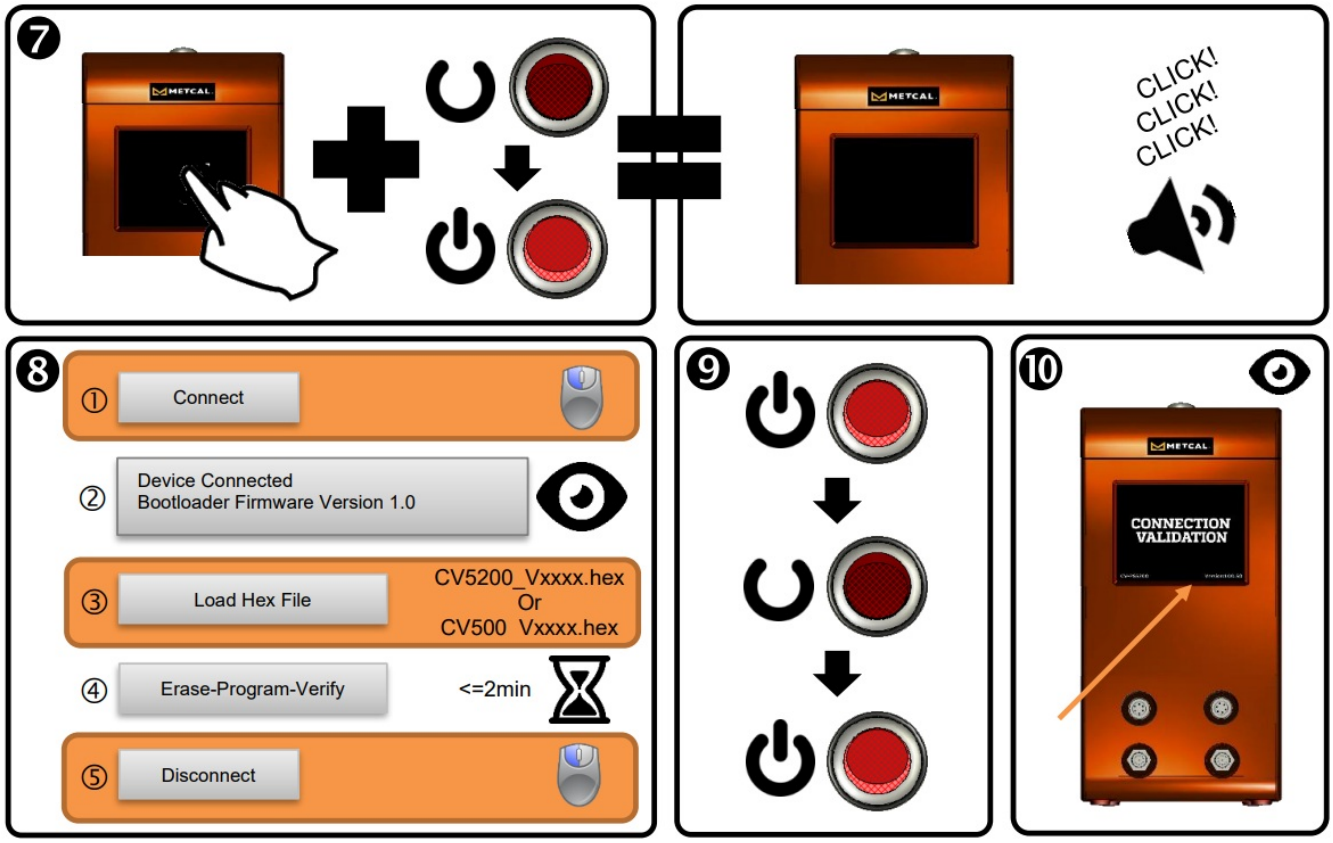
FIRMWARE UPGRADE

Download AN1388 Source Code and CV5200rX.XX.XX hex or CV500rX.XX.XX hex from www.metcal.com/resources/CV_comm

1st time users download & unzip FIRMWARE- AN1388-Source-Code-2014-02-14.zip. Install the software.



Verify COM port of the FT232R USB/ UART in the Windows Device Manager. he PIC32 Bootloader will only recognize COM ports 1-9. If needed, change the assigned COM port to a Port within range.

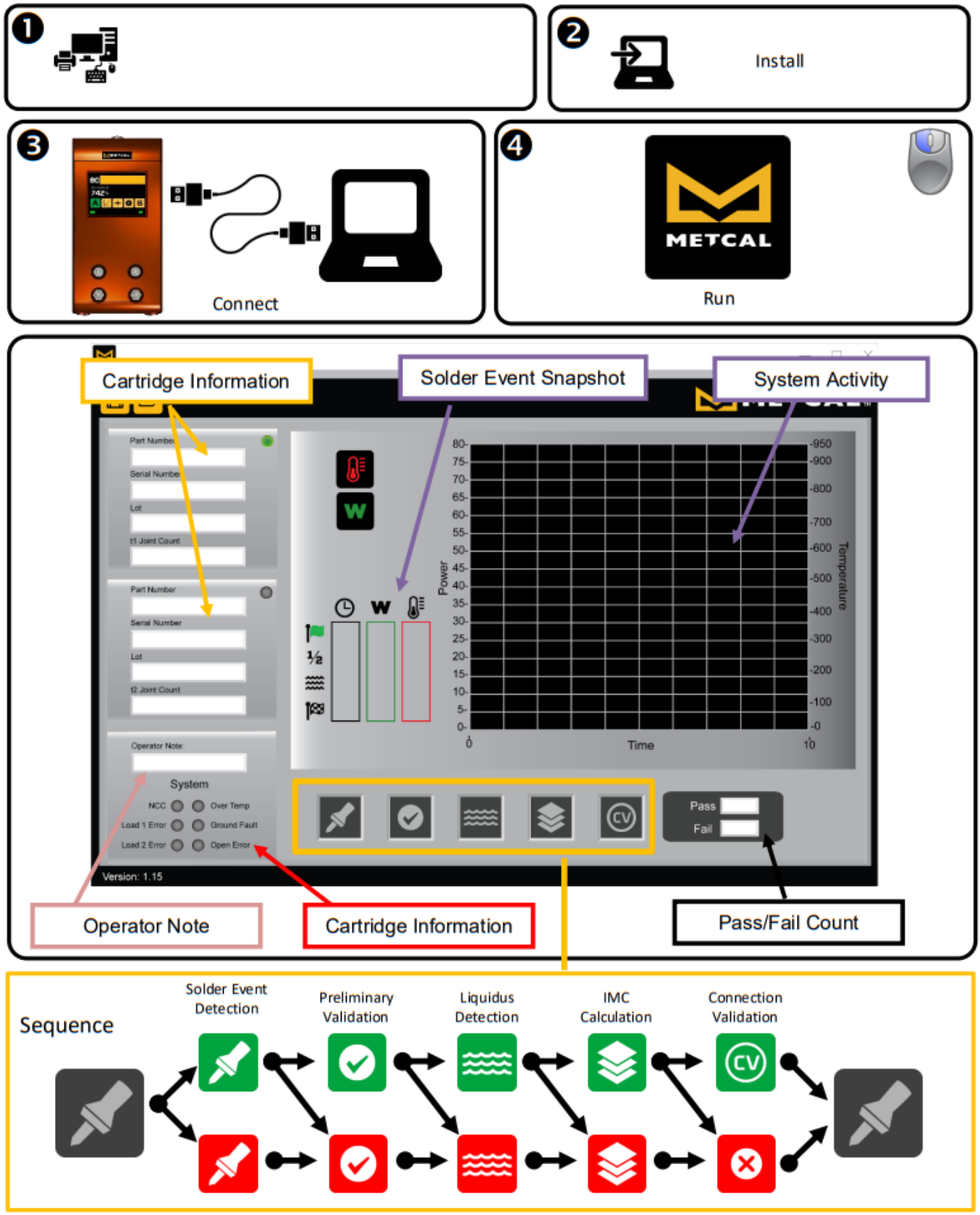


Updating the firmware from v1.41 or earlier will require a system reset. Contact Metcal technical support at Support@okinternational.com for system reset instructions

DATA COLLECTION

Download www.metcal.com/resources/CV_data

Install



Visit http://www.okinternational.com/CV-5210-Connection-Validation-Soldering-Station for more information

METCAL™

Documents / Resources

	METCAL CV-5210 Connection Validation [pdf] User Guide CV-5210 Connection Validation, CV-5210, Connection Validation, Validation

References

- Metcal - Advanced Manufacturing Solutions