Currently, the industry standard relies on a visual inspection of the solder joint. Metcal has developed a better way...

Introducing Connection Validation.

Introducing the CV-5200 Connection Validation™ Soldering Station

Metcal is raising the bar with a technology that will change hand soldering forever.

Metcal soldering stations have led the way with SmartHeat® technology for 35 years. SmartHeat senses the thermal load and instantly delivers Power on Demand directly to the joint. The embedded, self-regulating heater delivers the right amount of power based on the requirements of the solder joint. This provides a fast, safe and repeatable process with no calibration required.

Currently, the industry standard relies on a visual inspection of the solder joint. Metcal has developed a better way...

Introducing Connection Validation.
The intermetallic compound thickness is critical in the formation of a solder joint. Connection Validation (CV) evaluates the quality of the solder joint by calculating the intermetallic compound formation and provides closed loop feedback to the operator.

CV provides feedback to the operator via the LED light ring integrated in the hand-piece. It takes the risk associated with the variables involved in the soldering activity and removes the success and failure determination of a good solder joint out of the hands of the operator.

CV complements the skill of the operator to judge the quality of a solder joint by introducing an objective method of evaluating solder joint quality. This systemic and objective approach provides repeatability and a measureable standard to the soldering process.

**Features and Benefits**

- SmartHeat Power on Demand Technology
- Patented Connection Validation IMC Formation Technology
- 2.8” color touchscreen with bold graphics
- Communications Port for process traceability data and firmware graphics
- Integrated Net Power Meter and power graph
  - With optional precise tip temperature display
- Patented Chip-in-Cartridge technology
  - Closed loop bi-directional communication
  - Stores and records cartridge attributes
  - Provides traceability information
  - Protects power supply from non-conforming cartridges
  - Backwards compatible with MX series power supplies
- Password protection
- Wide variety of cartridges available for most applications
- Power supply protected by 5-year warranty, longest in the industry

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**CV System Configuration**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CV-5210</td>
<td>Solder System includes:</td>
</tr>
<tr>
<td>CV-PS5200</td>
<td>Power Supply*</td>
</tr>
<tr>
<td>CV-H1-AV</td>
<td>Advanced hand-piece for CV with LED light*</td>
</tr>
<tr>
<td>CV-CP1</td>
<td>Cartridge Removal Pad*</td>
</tr>
<tr>
<td>CV-W1AV</td>
<td>TipSaver Workstand*</td>
</tr>
<tr>
<td>Also Available</td>
<td>*Can be ordered separately</td>
</tr>
<tr>
<td>CV-UK1</td>
<td>Upgrade Kit; includes CV Advanced Hand-piece and Workstand</td>
</tr>
</tbody>
</table>

See our complete cartridge/tip selection at [www.Metcal.com](http://www.Metcal.com)

**Technical Specifications**

### CV-5200 Connection Validation Power Supply

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient Operating Temp.</td>
<td>10 to 40°C</td>
</tr>
<tr>
<td>Max. Enclosure Temp.</td>
<td>55°C</td>
</tr>
<tr>
<td>Input Line Voltage</td>
<td>100 – 240 VAC, grounded circuit</td>
</tr>
<tr>
<td>Input Line Frequency</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td>Rated Power Consumption</td>
<td>125W</td>
</tr>
<tr>
<td>Output Power</td>
<td>80W max.</td>
</tr>
<tr>
<td>Output Frequency</td>
<td>13.56 MHz</td>
</tr>
<tr>
<td>Heating Method</td>
<td>Induction</td>
</tr>
<tr>
<td>Display</td>
<td>2.8” Color TFT LCD Display</td>
</tr>
<tr>
<td>Resolution</td>
<td>320*240 RGB</td>
</tr>
<tr>
<td>Size</td>
<td>2.8” Diagonal</td>
</tr>
<tr>
<td>Active Area</td>
<td>43.20 x 57.60 mm</td>
</tr>
<tr>
<td>Connections</td>
<td>Single Port</td>
</tr>
<tr>
<td>Communications</td>
<td>USB</td>
</tr>
<tr>
<td>Power Supply Dim. w x d x h (mm)</td>
<td>121 x 130 x 235</td>
</tr>
<tr>
<td>Power Supply Weight (kg)</td>
<td>3.35</td>
</tr>
<tr>
<td>Certification / Marking</td>
<td>CE TUV</td>
</tr>
<tr>
<td>Tip-to- Ground Potential</td>
<td>&lt;2mV</td>
</tr>
<tr>
<td>Tip-to-Ground Resistance</td>
<td>&lt;2ohm</td>
</tr>
<tr>
<td>Idle Temperature Stability</td>
<td>1.1°C in still air</td>
</tr>
<tr>
<td>Tip Temperature Accuracy</td>
<td>Meets or exceeds IPC J-STD-001 Standard</td>
</tr>
<tr>
<td>Hand-piece cable length</td>
<td>L=183cm (72”), burn proof, ESD safe</td>
</tr>
<tr>
<td>Hand-piece connectors</td>
<td>F type power connector</td>
</tr>
<tr>
<td>RF Connector</td>
<td>6 pin DIN</td>
</tr>
<tr>
<td>LED Power Connector</td>
<td>2 single port or dynamic dual simultaneous</td>
</tr>
<tr>
<td>Operation</td>
<td>Via USB port and appropriate software with compatible computer and cables.</td>
</tr>
</tbody>
</table>
Connection Validation
Hand-pieces and Upgrade Kits

Metcal offers eight different hand-pieces and upgrade kits for the Connection Validation Soldering system. These ergonomic hand-pieces transform the CV system into a complete soldering solution for a wide variety of applications.

UltraFine Hand-piece & UltraFine Tweezer Hand-piece
Metcal’s UltraFine hand-pieces add a specialty tool for soldering and rework of very small components, restricted access or high density component packaging on a PCB.

Key Features & Benefits:
- Improved temperature control: Metcal’s SmartHeat® inside means lower risk of overshooting delicate components
- Very fast heat-up speed means you can get to your next task even faster
- Ergonomic, lightweight hand-piece keeps you comfortable even on large industrial jobs
- Designed for use under a microscope
- Compatible with UFC cartridges and available in 600 and 700 series temperatures for the UltraFine hand-piece. Compatible with UFT cartridges and available in 600 and 700 series for the UltraFine Tweezers hand-piece

Desolder Hand-piece
Transform the Connection Validation Soldering Systems into a rework system for applications requiring the removal of solder such as through hole components.

Key Features & Benefits:
- Designed for plated-through hole component desoldering
- Ergonomic easy-to-grip handle
- The hand-piece requires shop air for operation
- Compatible with DSC cartridges available in 700, 800, and 900 series temperatures

High Thermal Demand Hand-piece
Metcal’s High Thermal Demand hand-pieces and tips transform the CV-5200 Soldering System into a powerhouse. Metcal’s HTD solution provides a boost in performance by more effectively delivering thermal energy to the most demanding loads.

Key Features & Benefits:
- Improved temperature control: Metcal’s SmartHeat® inside means lower risk of overshooting delicate components
- Very fast heat-up speed means you can get to your next task even faster
- Ergonomic lightweight hand-piece keeps you comfortable even on large industrial jobs
- Compatible with HCV cartridges and available in 700, 800, and 900 series temperatures

Precision Tweezer Hand-piece
Transform the Connection Validation Soldering Systems into a rework system for applications requiring the removal of surface mount components from 1mm x 1mm on up.

Key Features & Benefits:
- Adjustable tip alignment for both height and rotation ensures co-planarity of the tip cartridges

Part Number Description
CV-H4-PTZ Precision Tweezer Hand-piece for CV System
CV-UK4 Upgrade Kit, Tweezer Hand-piece and Work-stand

Part Number Description
CV-H5-DS Desolder Hand-piece for CV System
CV-UK5 Upgrade Kit, Desolder Hand-piece and Work-stand

Part Number Description
CV-H4-UF UltraFine Hand-piece for CV System
CV-UK4 Upgrade Kit, UltraFine Hand-piece and Work-stand
CV-H4-UFT UltraFine Tweezer Hand-piece for CV System
CV-UK4-UFT Upgrade Kit, UltraFine Tweezer Hand-piece and Work-stand

Part Number Description
CV-HG-HTD High Thermal Demand Hand-piece for CV System
CV-UK6 Upgrade Kit, High Thermal Demand Hand-piece and Work-stand
**Solder Wire Feeder Hand-pieces**

Metcal’s Solder Wire Feeder System adds control and convenience to your soldering process. The digital controls, high performance, and its ability to handle multiple solder wire diameters provide repeatability and functionality to your process. Two hand-pieces available, for standard CV applications and high thermal demand applications.

**Key Features & Benefits:**
- Improved temperature control: Metcal’s SmartHeat® inside means lower risk of overshooting delicate components
- Very fast heat-up speed means you can get to your next task even faster
- Compatible with solder diameters from 0.3mm to 1.27mm
- Compatible with CVC and SMC series cartridges for standard applications and HCV series cartridges for high thermal demand applications. Available in 700, 800, and 900 series temperatures.

*CV-H7-HTD Not Recommend for use with the CV-500 Connection Validation System.

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**Introducing the All-New CV Monitoring Software**

Improve your solder process traceability and create a performance baseline using CV’s intelligent cartridges plus CV-5000 Monitor software. Using our Connection Validation patented technology, CV Monitor software allows you to capture solder process information over time for each joint when attached to the communication port.

Now that you have a baseline, you can quickly analyze your soldering performance, identify changes in your solder conditions, and make changes to your process. Download the free CV-5000 Monitor software and start monitoring your process.

**You’ll get:**
- Power demand
- Tip temperature
- Solder time
- Intermetallic Compound Formation (IMC Formation)*

*Metcal Exclusive

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**Part Number** | **Description**
---|---
CV-H7-AV | Solder Wire Feeder Advanced Hand-piece for CV System
CV-UK7 | Upgrade Kit, Solder Wire Feeder Advanced Hand-piece, Work-stand and Solder Wire Feeder Unit
CV-H7-HTD | High Thermal Demand Hand-piece for CV Solder Wire Feeder System
CV-UK7-HTD | Upgrade Kit, Solder Wire Feeder HTD Hand-piece, Work-stand and Solder Wire Feeder Unit

Download the free software to get started. [www.Metcal.com](http://www.Metcal.com)