

Purpose built
for **Performance**

Meet the
Connection Validation™
Soldering Systems

Metcal has raised the bar with a technology that will change hand soldering forever.

Metcal innovation has led the industry for decades, beginning with SmartHeat® technology that senses the thermal load and instantly delivers power on demand to the solder 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™

Connection Validation™

[Soldering Systems]

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

Metcal offers two unique Connection Validation™ Soldering Systems. The CV-5200 series features the patented Connection Validation™ IMC formation technology along with SmartHeat® power on demand technology built-in. A 2.8" color touchscreen with bold graphics makes programming easy. The integrated net power meter gives a visual representation of the power on demand technology.

The CV-500 series packs all of the Connection Validation™ technology into a compact, economical housing. It is also ideal for SMD touch-up and small component rework using the Ultrafine hand-piece and Ultrafine tweezer hand-piece (both sold separately).

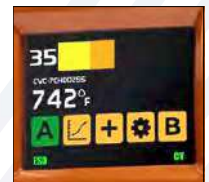


CV System Configuration

| Part Number | Description |
|-----------------------------|--|
| CV-5210 | Soldering System with CV-PS5200 Power Supply |
| CV-510 | Soldering System with CV-PS500 Power Supply |
| Both Systems include | |
| CV-H1-AV | Advanced hand-piece for CV with LED light |
| CV-W1AV | TipSaver Work stand |
| CV-CP1 | Cartridge Removal Pad |



LED equipped hand piece signals to operator when a good solder joint is formed.



Tip temperature displayed on large color screen.

Technical Specifications

| | CV-PS5200 Power Supply | CV-PS500 Power Supply |
|----------------------------------|--|---|
| Input Line Voltage | 100 - 240 VAC, grounded circuit, 50/60 Hz | |
| Rated Power Consumption | 125 W | |
| Output Power | Variable, 80 W max.* | Variable, 40 W max.* |
| Output Frequency | 13.56 MHz | |
| Heating Method | Induction, SmartHeat® | |
| Display | 2.8" Color TFT Touch Display | |
| Connections | 2 connectors, single mode 80 Watt. Dual mode power is shared dynamically | Dual port, switchable |
| Power Supply Dim. W x D x H | 4.7 x 5.1 x 9.2 inch (121 x 130 x 235 mm) | 4.7 x 4.7 x 8.7 inch (121 x 121 x 220 mm) |
| Power Supply Weight | 7.4 lbs (3.35 kg) | 5.8 lbs (2.65 kg) |
| Certification / Marking | cTUVus, CE | |
| Tip-to- Ground Potential | < 2 mV | |
| Tip-to-Ground Resistance | < 2 Ohm | |
| Idle Temperature Stability | 1.1 °C (2 °F) in still air | |
| Tip Temperature Accuracy | Meets or exceeds IPC J-STD-001 Standard | |
| Communication / Firmware upgrade | Via USB port and appropriate software with compatible computer and cables. | |
| Surface Resistivity | 10 ⁵ - 10 ⁹ Ohm, ESD safe | |
| Ground Detection | Permanent | |
| Warranty | 5 Years | 4 Years |

Key Features & 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
- Power supply protected by 5-year warranty, longest in the industry

Connection Validation™ Hand-Pieces

[Connection Validation™ Hand-pieces and Upgrade Kits]

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 systems into a complete soldering solution for a wide variety of applications.

Advanced Hand-piece

The Advanced Hand-piece for Connection Validation incorporates an LED light ring that removes the risk associated with determining a good solder joint. It complements the skill of the operator to judge the quality of a solder joint.



- Compatible with CVC and SMC cartridges in 500, 600, 700, 800 and 900 series temperatures.
- See pages 14-16, 18-19 for popular cartridges

| Part Number | Description |
|-------------|---|
| CV-H1-AV | Advanced Hand-piece for CV with LED Light |
| CV-UK1 | Upgrade Kit, Advanced Hand-piece and Work-stand |

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.



- Improved temperature control: Metcal's SmartHeat® inside means lower risk of overshooting delicate components
- Designed for use under a microscope
- The UltraFine hand-piece is compatible with 600 and 700 series temperature UFC cartridges
- The UltraFine Tweezer hand-piece is compatible with 600 and 700 series temperature UFT cartridges

See page 21 for popular cartridges

| Part Number | Description |
|-------------|--|
| CV-H2-UF | UltraFine Hand-piece for CV System |
| CV-UK2 | 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 |

Precision Tweezer Hand-piece

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

- Adjustable tip alignment for both height and rotation ensures co-planarity of the tip cartridges
- Dual position pitch-switch enables adjustment of pincer-action, adjusting to the component width, improving operator ergonomics
- Quick change tip cartridges with keyway to prevent misalignment
- For use with PTC Tweezer Cartridges

See page 22 for popular cartridges



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

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.

- Designed for plated-through hole component desoldering
- The hand-piece requires shop air for operation
- Compatible with DSC cartridges available in 700, 800, and 900 series temperatures

See page 23 for popular cartridges



| Part Number | Description |
|-------------|--|
| CV-H5-DS | Desolder Hand-piece for CV System with Airline Kit and Accessories |
| CV-H5-DSHP | Desolder Hand-piece only |
| CV-UK5 | Upgrade Kit, Desolder Hand-piece and Work-stand |

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.

- Compatible with HCV cartridges and available in 700, 800, and 900 series temperatures
- Not recommended for use with CV-500 system

See page 17 for popular cartridges

| Part Number | Description |
|-------------|--|
| CV-H6-HTD | High Thermal Demand Hand-piece for CV System |
| CV-UK6 | Upgrade Kit, High Thermal Demand Hand-piece and Work-stand |



Connection Validation™ Hand-Pieces

[Connection Validation™ Hand-pieces and Monitoring Software]

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 0.3 mm to 1.27 mm
- 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.

| 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 |

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 the following information:

- Power demand
- Tip temperature
- Solder time
- Intermetallic Compound Formation (IMC Formation)*

Download the free software to get started.
www.Metcal.com