CV5000 Monitor Software

Interpreting the Code

CV5000 Monitor Software

Data Collection Software

Metcal's new Data Collection Software enables the real time collection of solder joint information when connected to the CV-5200 Soldering and Rework System and a personal computer.

Software Features:

- Cartridge Information
- CV Sequence Tracking
- Error Messages
- Save & Compare Power Curves

The CV5000 Monitor creates the data file details the activities that occur during a solder event.

CV5000 Monitor Software - Explained

The Cartridge Info section displays
- Part Number
- Serial Number
- Lot Code
- Joint Count
- Active Port (Green Dot)

The Operator Note section is optional and is appended to the data file.

System Status displays error codes as they occur

The System Activity graph displays Power and Temperature over time during the solder event.

The Pass/Fail Summary provides a summary of the number CV green and red lights for the current session.

The Solder Event Summary section provides a graphical representation of the Connection Validation process.

Data Files - Explained

A data file is generated at the start of each solder event.

The data file is divided into two sections; the header information and the solder event information.

The file name is generated using the system time and date, the pass/fail status of the joint (G/B) and the optional appendment to the file name..

```
PN1     CVC-7CH0025S
SN1     00000029
LC1     00007277
ST1     042
TE1     042
MF1     00000000
ET1     00000007
JC1     00027
PN2
SN2
LC2
ST2
TE2
MF2
ET2
JC2
```

Header Information

```
P01     00000001
P02     217
P31     740F
P29     0000000000
P02     225
P31     738F
P02     229
P31     737F
P02     231
P31     736F
P02     233
P31     735F
P02     234
P31     734F
P02     235
P31     733F
P29     0000000000
P02     234
P31     733F
P02     233
P31     733F
P02     231
P31     733F
P02     230
P31     734F
P02     229
P31     735F
P02     228
P31     735F
P29     0000000000
P02     226
P31     735F
P16     042
P06     000.00
P04     235
P10     002.56
P11     157
P12     205
P20     00028
P19     00000008
P01     00000010
OPN
```

Solder Event Information
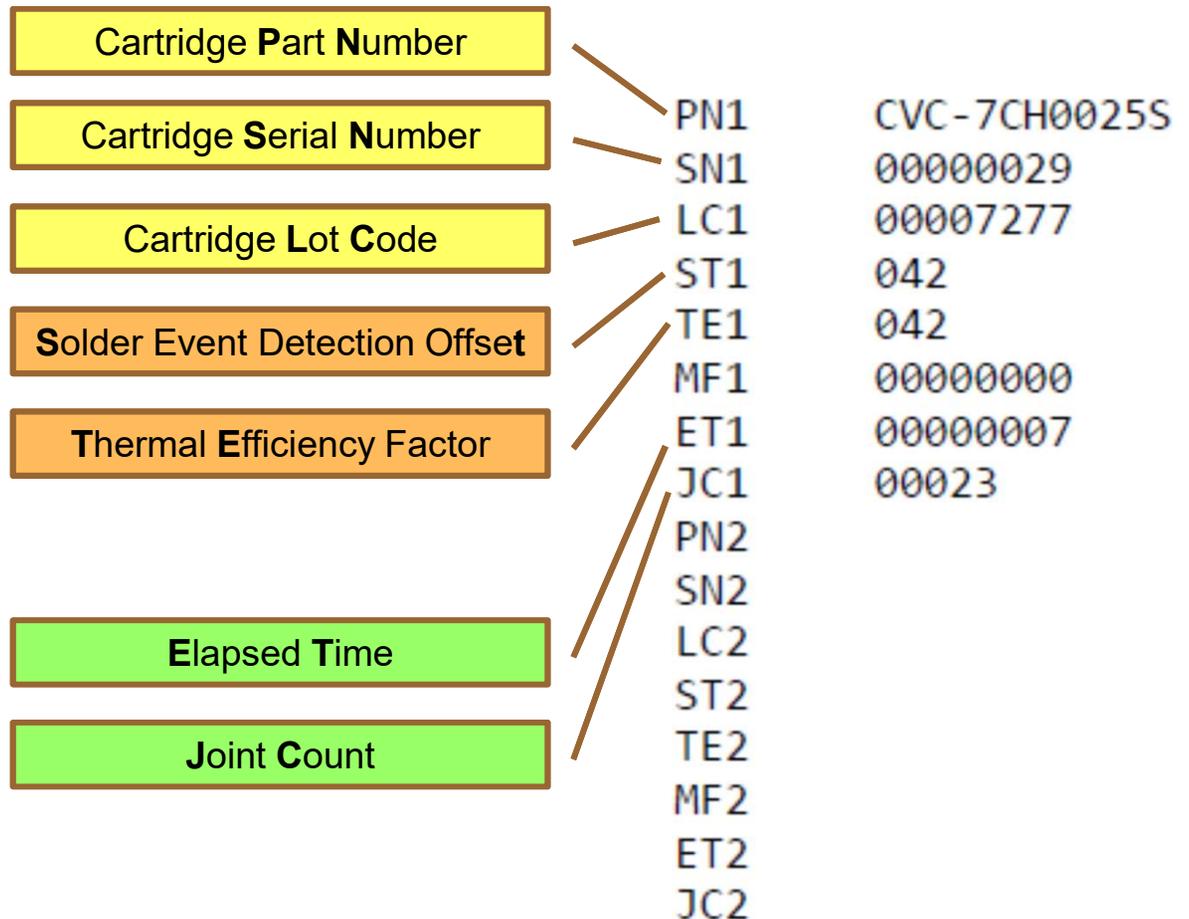
Data Files - Explained

Header Information

The header information represents the information unique to the cartridge and data required by Connection Validation to calculate the intermetallic compound (IMC).

The system collects data when in the single channel mode. In this example, the cartridge via the hand-piece is plugged into Port A of the system. When Port B is active, the header information starts at PN2.

The information in yellow and orange are programmed into the cartridge during manufacture and do not change. The information in orange is unique to the tip geometry and is required for CV operation.

The information in green will increment during operation. Elapsed Time will increment when power is applied to the system and the port is active. The Joint Count will increment regardless of CV active status. This information is stored within the cartridge.

| Cartridge **P**art **N**umber |
| Cartridge **S**erial **N**umber |
| Cartridge **L**ot **C**ode |
| **S**older Event Detection Offse**t** |
| **T**hermal **E**fficiency Factor |

| **E**lapsed **T**ime |
| **J**oint **C**ount |

PN1	CVC-7CH0025S
SN1	00000029
LC1	00007277
ST1	042
TE1	042
MF1	00000000
ET1	00000007
JC1	00023
PN2	
SN2	
LC2	
ST2	
TE2	
MF2	
ET2	
JC2	

Data Files - Explained

Solder Event Information

The solder event information is generated during the soldering event and is divided into five sections.

Event Start/Stop – Orange

The event start/stop signals the start and stop of the event and signals the result of Connection Validation.

System Activity – Purple

During the solder event, the system will send out power (P02) and temperature (P31) information every 100ms. Temperature unit of measure is selected via the power supply. Power is displayed as three digits for higher resolution. To accurately reflect the power displayed on the meter during operation multiply P02 by 0.1. Power is in Watts.

System Status – Red

Every 600ms the system provides an update regarding any potential changes in system e.g. Open Error, NCC, etc.

Event Start - 00000001

```
P01      00000001
P02        217
P31        740F
P29      0000000000
```

System Activity

```
P02        225
P31        738F
```

```
P02        229
P31        737F
P02        231
P31        736F
P02        233
P31        735F
P02        234
P31        734F
P02        235
P31        733F
```

System Status –
0100000000 – Standby
0010000000 – Open Error
0001000000 – Ground Fault/ESD (Port A)
0000100000 – Over Temp (Port A)
0000010000 – Non-Conforming Cartridge (Port A)
0000001000 – Load Error (Port A)
0000000100 – Over Temp (Port B)
0000000010 – Non-Conforming Cartridge (Port B)
0000000001 – Load Error (Port B)
0000000000 – Ready

```
P29      0000000000
```

```
P16        042
P06        000.00
P04        235
P10        002.56
P11        157
P12        205
P20        00028
P19        00000008
P01      00000010
OPN
```

Event Stop –
00000010 – CV Green
00000110 – CV Red (Abort)
00001010 – CV Red (Preliminary Validation)
00010010 – CV Red (timeout)

Data Files - Explained

Solder Event Information –continued.

System Event Summary – Blue

The System event summary provides a snapshot of the activities that occurred during the soldering event. These values are registered simultaneously with the Event Stop but are displayed first.

This information is specific to the port currently in use, Port A/Port B. P16/P24 is the thermal efficiency factor used in the CV calculation. P06 are the Preliminary Validation results. P04 is highest power recorded during the soldering event (P02). P11 is the lowest recorded power during the event. P12, the trigger point, is the recorded power at the start of the event. P20/P28 is the new joint count. Finally, P19/P27 is the new elapsed time for the cartridge.

Operator Program Note – Pink

Optional notes entered by the user within the CV5000 software.

Codes not mentioned are used for internal debugging purposes only.

```
P01        00000001
P02          217
P31          740F
P29        0000000000
P02          225
P31          738F
P02          229
P31          737F
P02          231
P31          736F
P02          233
P31          735F
P02          234
P31          734F
P02          235
P31          733F
P29        0000000000
```

Solder Event Summary

```
P16          042
P06          000.00
P04          235
P10          002.56
P11          157
P12          205
P20          00028
P19        00000008
```

Operator Program Note

```
P01        00000010
OPN
```

Summary

- The collection currently requires the connection of the CV power supply to a users computer.

- The information displayed within the CV5000 Monitor software provides a larger graphical view of the data generated during a solder event.

- The data file collects the numbers behind the graphics and can be used for further analysis by the customer.