



# PRODUCT SPECIFICATION

## CCM04-MKIII with switch - LF

Ref. / PS-CCM04-MKIII-4

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ISSUE 1 – Rev. D: SEPTEMBER 2008

### Approvals:

<b>Laurent Kubat</b> Engineering Manager		Date 05/09/08
<b>Guillaume Pinon</b> Project Manager		
<b>Daniel Pequegnot</b> Laboratory Manager		
<b>Jerome Smolinski</b> Product Manager		
<b>Jérôme Brochot</b> Quality Director		

### Note

This specification, attached documents and attached drawings cannot be communicated to anybody without written agreement of C&K.



Revision record :

Revision	Date	Comments
Issue 1	Oct. 5 <sup>th</sup> , 2004	Creation
Issue 1 – rev. A	August 26 <sup>th</sup> , 2005	Updated : <ul style="list-style-type: none"><li>• Table page 4 :<ul style="list-style-type: none"><li>- Drawing numbers added</li><li>- 2 versions added</li></ul></li><li>• Mechanical data :<ul style="list-style-type: none"><li>- Card stop resistance</li></ul></li><li>• Process environment :<ul style="list-style-type: none"><li>- Soldering process</li><li>- Solder heat resistance</li><li>- Solderability</li></ul></li><li>• Recommendation for connector integration : Appendix 1 <i>(according to DCR N° D2000366)</i></li></ul>
Issue 1 – Rev. B	August 8 <sup>th</sup> , 2007	Update : <ul style="list-style-type: none"><li>• Solder heat resistance : 10s instead of 5s (LF version)</li><li>• Resistance to fluids : comment added <i>(according to ECR 1186)</i></li></ul>
Issue 1 – Rev. C	October 2 <sup>nd</sup> , 2007	Update : <ul style="list-style-type: none"><li>• Recommendations of use added (§ 2). <i>(according to ECR 1429)</i></li></ul>
Issue 1 – Rev. D	September 4 <sup>th</sup> , 2008	Update : <ul style="list-style-type: none"><li>• UL data suppressed <i>(according to ECR 2324)</i></li><li>• Reference of test specifications updated <i>(according to ECR 2446)</i></li></ul>

## **SUMMARY**

**Preliminary / versions covered by this specification**

- 1. Description**
- 2. Recommendations of use**
- 3. Physical data**
- 4. Using temperatures**
- 5. Electrical data**
- 6. Mechanical data**
- 7. Additional data : storage and handling environment**
- 8. Additional data : process environment**
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**Appendix 1 : Recommendation for connector integration**



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September 2008

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Issue 1-rev.D

Ref. / PS-CCM04-MKIII-4

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### VERSIONS COVERED BY THIS SPECIFICATION

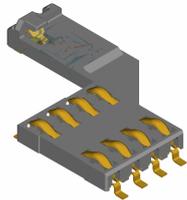
Reference	Drawing N°	Hook : with / without	Housing type	Packaging conditions
CCM04-4251 LFT	CU 030288Y4251	Without	Standard	CU 030282Y0017
CCM04-5201 LFT	CU 030288Y5201	Without	2 pegs	CU 030Y2820018
CCM04-5204 LFT	CU 030288Y5204	Without	Stand-offs	CU 030282Y0017
CCM04-4331 LFT	CU 030288Y4331	With	Standard	CU 030282Y0006 for standard orientation CU 030282Y0021 for inversed orientation
CCM04-4333 LFT	CU 030288Y4333	With	Standard	
CCM04-4351 LFT	CU 030288Y4351	With	Standard	CU 030282Y0007
CCM04-5202 LFT	CU 030288Y5202	With	Stand-offs	CU 030282Y0021
CCM04-5203 LFT	CU 030288Y5203	With	Stand-offs	CU 030282Y0007
CCM04-4248 LFT	CU 030288Y4248	Without	Standard	CU 030282Y0017
CCM04-4248 LFS	CU 030288Y4248	Without	Standard	CU 030282Y0017

Nota : Reference CCM04-XXXX-LFT : Lead Free Tin / CCM04-XXXX-LFS : Lead Free Silver

**1 - Description**



CCM04-MKIII without hook



CCM04-MKIII with hook

- Product group :** CCM04
- Product Sub Family :** Mk3
- Card type :** Full-sized card
- Contact type :** Friction / Vandal proof
- Contact plating :** According to drawing
- Contacts number :** 8
- Terminal type :** SMT
- Card end travel switch :**  
Normally Open switch  
Dust sealed switch
- Housing type :** see table page 4
- Cover type :** Without
- Locking mechanism :** Without
- Generic specification (C&K) :**  
Proc. essai 20

**2 – Recommendations of use**

According to C&K recommendations: RU-CCM-001 document

**3 – Physical data**

Mass	0.50 g ± 0.20
Dimensions & lay out	According to drawing : see table page 4

**4 – Using temperatures**

Operating temperatures	- 40 °C / + 85 °C
Storage temperatures	- 40 °C / + 85 °C
Soldering temperature	According to IEC 61760-1 :2006

**5 - Electrical data**

Voltage / ct	≤ 5 Vdc
Current / ct	≤ 10 mA
Contact resistance	≤ 100 mΩ
Voltage proof	≥ 750 Vrms

Insulation resistance	Initial measurement ≥ 1000 MΩ (100 VDC)
	After damp heat ≥ 1 MΩ recovery time : 4 hours
	After damp heat ≥ 200 MΩ recovery time : 24 hours

Card end travel switch characteristics :

- Max power	0.2 VA
- Max voltage	30 Vdc
- Min/Max current	50 µA min / 10 mA max
- Bounces	≤ 0.5 ms
- Voltage proof	≥ 750Vrms between signal contact / switch contacts ≥ 250Vrms between open contacts of the switch
- Insulation resistance	Initial measurement ≥ 1000 MΩ (100 VDC) After damp heat ≥ 1 MΩ recovery time : 4 hours After damp heat ≥ 200 MΩ recovery time : 24 hours between signal contact / switch contacts & between open contacts of the switch
- Contact resistance	≤ 100 mΩ

Card end travel switch sequence According to drawing : see table page 4

**6 – Mechanical data**

Contact force (per signal contact)	According to drawing : see table page 4
Contact force (end travel switch)	0.8 N max to activate the switch 1.8 N max for complete actuator depression
Card stop resistance	CCM without hook : 30 N mini CCM with hook : 50 N mini

**7 - Additional data : storage and handling environment**

Marking & Traceability	Date code : according to drawing
Packaging conditions	According to drawing : see table page 4
Transport conditions	Sea-air-land / World wide / High ≤ 5 m 30°C / 85% HR According to H00-060

**8 - Additional data : process environment**

Soldering process	According to IEC 61760-1:2006 Recommendation for solder paste thickness : > 0.20 mm
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Solder heat resistance	3 cycles at max profile according to IEC 61760-1:2006 According to IEC 60068-2-58
Static load (transverse) (CCM / PCB)	10N / 1 mn / 4 directions According to IEC 512-5 test 8a/8b
Terminal robustness	1 bend / 45° / forward & back According to IEC 60068-2-21 test Ub method 1
Contact retention in insert	2 N / 10sec./ displacement < 0.3 mm According to IEC 512-8 test 15a
Solderability (wetting balance)	245°C According to IEC 60068-2-69
Dust sealed test (only for switch)	Dust test / IP5x According to IEC 60529:1989/A1:1999
Resistance to fluids	The product is not compatible with washing process.

**9 – Additional data : operating environment**

Operating life	≥ 5 000 cycles (at a force of 10 N max)
Vibration	10-500 Hz / 50 m/s <sup>2</sup> / 3 axis / 2 hours per axis No discontinuity > 1 μs According to IEC 60068-2-6.
Mechanical shock	500 m/s <sup>2</sup> / ½ sinusoidal / 11 ms 3 shocks in the 2 directions of the 3 axis No discontinuity > 1 μs According to IEC 60068-2-27.
Rapid change of temperature	100 cycles / - 40°C / + 85°C According to IEC60068-2-14, test Nb
Climatic sequence	Dry heat : 85°C / 16 hours Damp heat : 1 cycle 24 hours 55°C & 93% HR Cold : - 40°C / 2 hours Damp heat : 1 cycle 24 hours 55°C & 93% HR According to IEC 60068-2-61, test Z/ABDM
Dry heat storage	85°C / 250 hours According to IEC 60068-2-2 , test Bb.
Damp heat storage	40°C / 93% HR / 10 days According to IEC 60068-2-78 test Cab
Corrosion	96 hours / salt spray According to IEC 60068-2-11, test Ka.

The environmental tests can be cumulative according to the qualification file

**10 - Additional data : applicable norms**

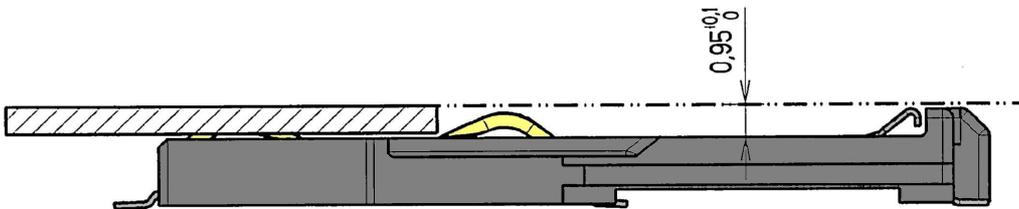
Legal norm (EHS)	C&K procedure
Warranty period	1 year

**11 – Qualification Plan**

According to Proc-20

## Appendix 1

## Recommendation for connector integration



Card guiding height recommendation: 0.95 to 1.05 mm between the surface of the housing and the upper surface of the card.

For increasing the mechanical resistance of the card stop:

