Product change notification

PCN09-3-CCM

C&K components
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Document revision

Revision	Date	Description	Author
A	February 16, 2009	Creation	J. Smolinski
B	February 16, 2009	Modification in Annex 1 of CCM01-2270 description and equivalent in New version	J. Smolinski

Summary

1. Purpose

Following the development of new constraint and usage related to the smart card connector in its environment we've released a new generation of CCM01-MK2 (V2) to replace completely the existing products (V1)

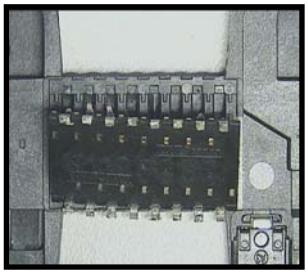
2. Change definition

The target of this new product is to improve the robustness of the product but also of its processing:

- Coplanarity
- Insulator resistance
  - Card guide wall resistance to extreme insertion
  - Card stop breakage
- Card detection switch dust sealing

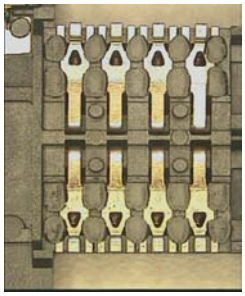
3. Change impact

3.1 Coplanarity



V1 version

Crimped PCF (inserted contacts into a plastic block being crimped on main insulator)



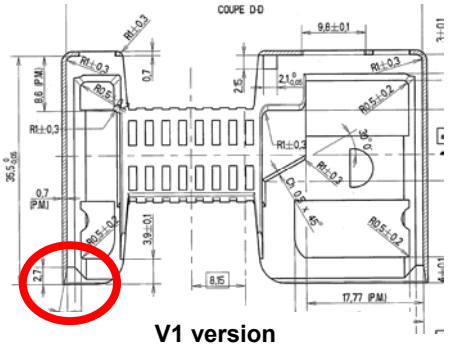
V2 version

Individual contact crimping

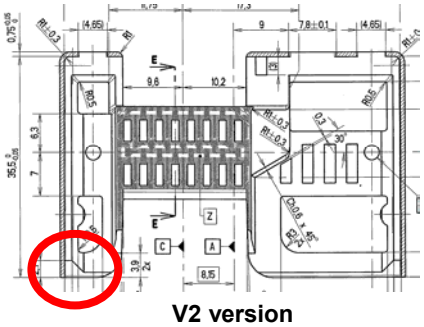
3.2 Insulator resistance

To limit insulator being cut at card entry

We removed the lateral chamfer (card guiding weak point): Thickness increase of the card entry wall



V1 version



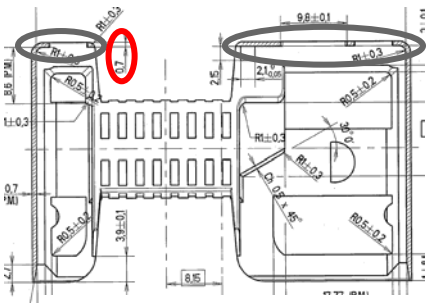
V2 version

Wall resistance moved up to 75N for card wrongly inserted and to 40N for lateral insertion

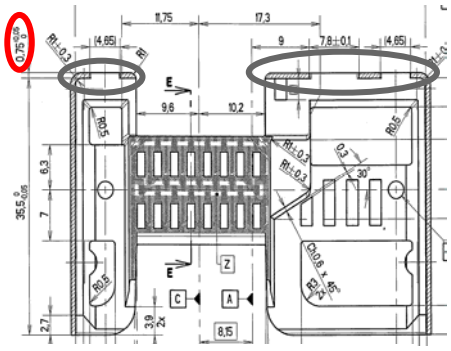
To limit card stop breakage

Card stop section improvement

- plastic wall thickness from 0.70 to 0.75mm
- support surface increase



V1 version

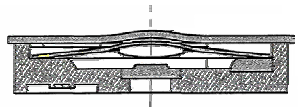


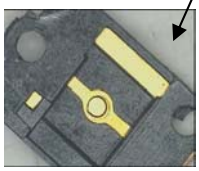
V2 version

Card stop resistance moved up 30% at 335N

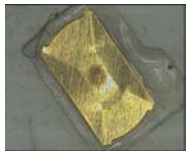
3.3 Card detect switch sealing to dust

Replacement of the existing KSC switch in V1 by a new SLP switch in V2, specifically developed for the application





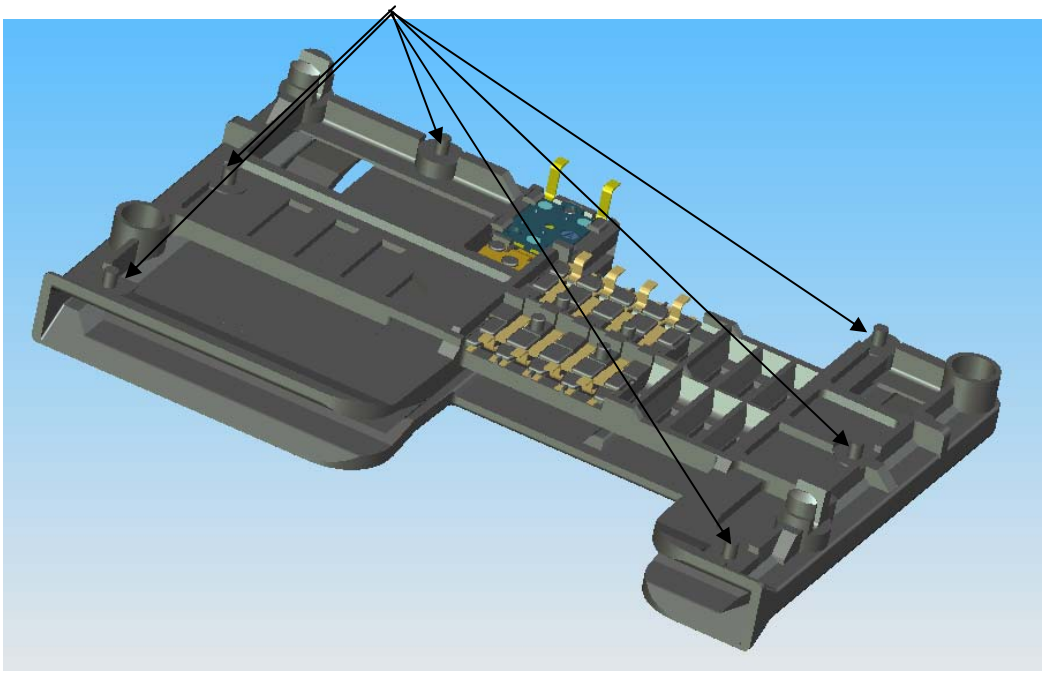
SLP Housing and dome after 200K cycles



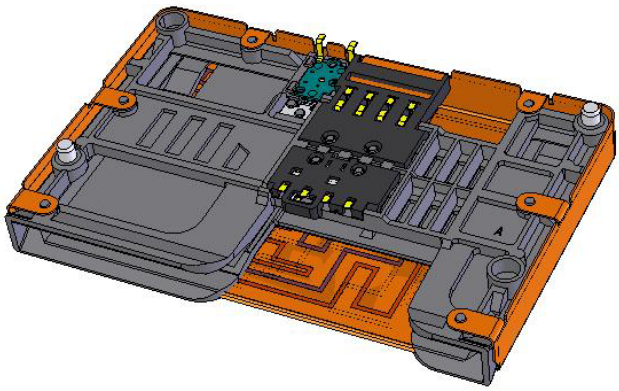
No dust in the switch after 100K cycles

3.4 Changes

No changes have been brought to this new generation of product in term of form factor, global volume, PCB layout, or available space below the connector for extra components. The only mechanical difference is the appearance of 6 little pegs below the insulator:



The pegs are necessary for the optional APS cover protection as shown on the figure below:



4. Application

4.1 Overview

Since products are fully compatible and respect the same specifications, the change over from one version to the new product can be easily done, finishing existing stock in the supply chain and replace it by the new version.

4.2 Product range affected

All CCM01 MK2 except version with 4 clips (see annex 1)

4.3 Date of application & time frame

- Samples availability: available
- Last time buy: June 15th 2009 with deliveries in the following two (2) month
- Discontinuation of old version and application date for new version: July 15th 2009

Note: C&K will apply the change on any P/N prior to the application date in the case of the entire necessary customer approval will be received. The corresponding information will be forwarded on time through our customer service network.

4.4 Ordering, pricing and stock handling policy

- Ordering: P/N codes as per table on annex 1.
- Pricing: any pricing and other sales conditions remain valid.
- Stock handling: no obsolescence and no specification modification is applied on any P/N.
- No return or scrap for obsolescence will be accepted.

4.5 Customer qualification

We recommend to our customers to carry on the necessary actions and qualifications they feel necessary to make sure that they will be ready at the date of application. We haven't modified the product features to minimize the customer impact and make easier the modification acceptation. **For any reason, if you evaluate that your acceptation will be released after the date of application, you have to notify C&K components at least 1 month before the application date, ie May 15th 2009.** Without this notification, the change will be applied on any purchased products affected by the modification.

As no material modification is done, the IMDS data remain unchanged.

5 Acknowledgement

We recommend acknowledging this PCN with your requirements in terms of samples & qualification files no later than March 15th 2009 at the following email address: fabrice.valcher@coactive-tech.com.

6 Support

For any question, please contact Fabrice Valcher at the above email address

ANNEX 1

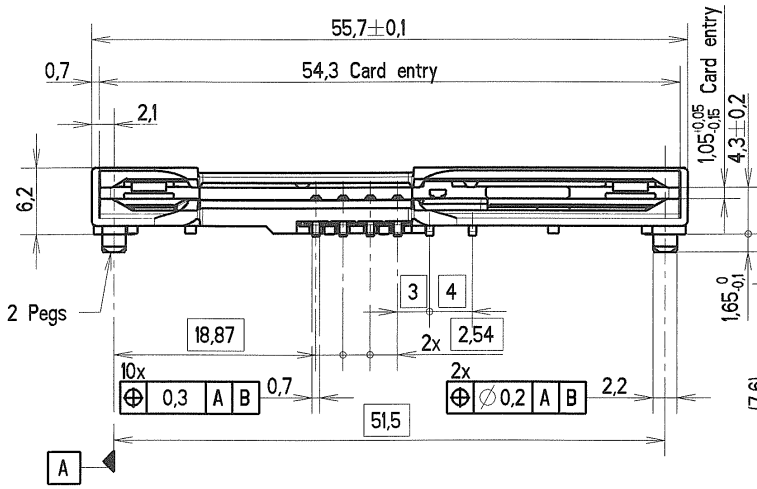
OLD VERSION	NEW VERSION
CCM01-2251 LFT T30/ 8 contacts SMT with 2 locating pegs	CCM01-2013AP LFT T30/
CCM01-2252 LFT T30/ 16 contacts SMT with 2 locating pegs	No replacement
CCM01-2253 LFT T30/ 8 contacts SMT with 2 locating pegs	CCM01-2013AP LFT T30/
CCM01-2254 LFT T30/ 16 contacts SMT with 2 locating pegs	No replacement
CCM01-2255 LFT T30/ 8 contacts through hole with 2 locating pegs	CCM01-2012AP LFT T30/
CCM01-2256 LFT T30/ 16 contacts through hole with 2 locating pegs	No replacement
CCM01-2270 LFT T30/ 8 contacts through hole no brake with 2 locating pegs	CCM01-2112AP LFT T30/ (drawing under revision)

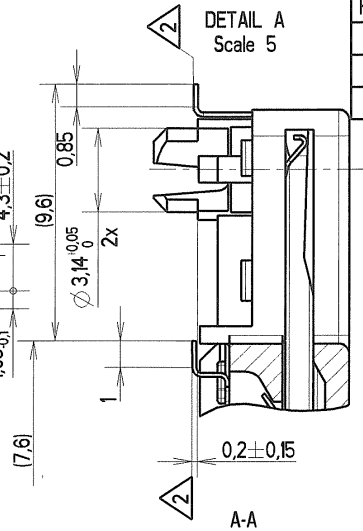
Please note that CCM01-2065 and CCM01-2069 are not discontinued yet.

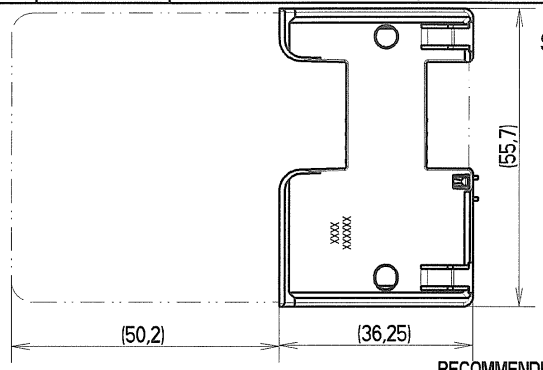
16 contacts version can be replaced by 8 contacts version.

Drawings and specifications of new version can be found on the next pages.

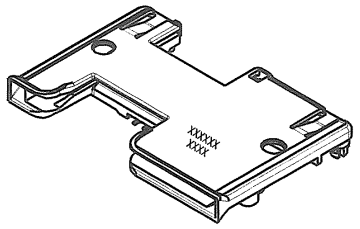
REV.	N° DCR	NATURE DE LA MODIFICATION	DATE	VISA
B	ECR-1406	References table added ; designation and marking updated	11/09/2007	V.P
C	ECR-1922	Part number Y1112-2013CPLFT added	25/02/2008	
D	ECR-2182	Designation updated	07/05/2008	CD



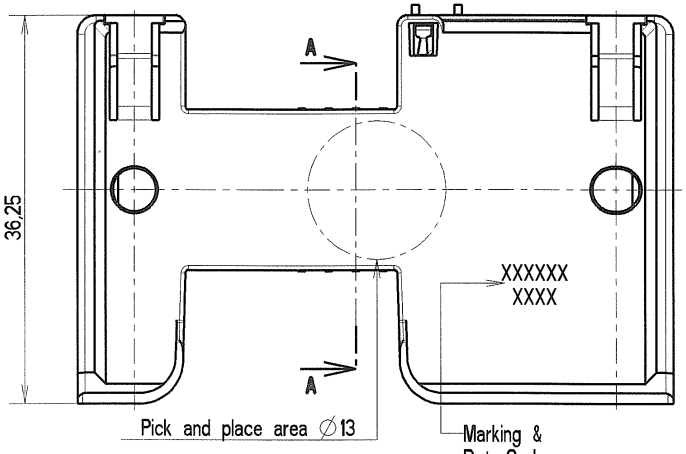


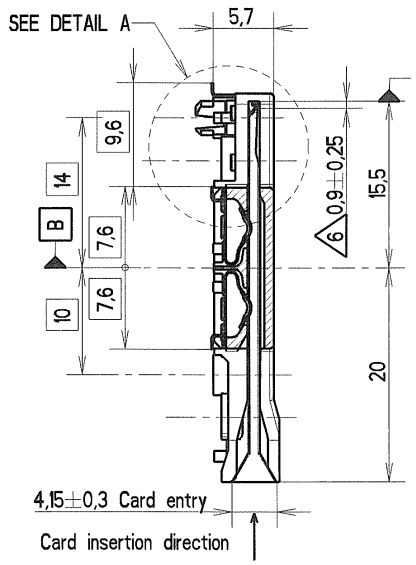


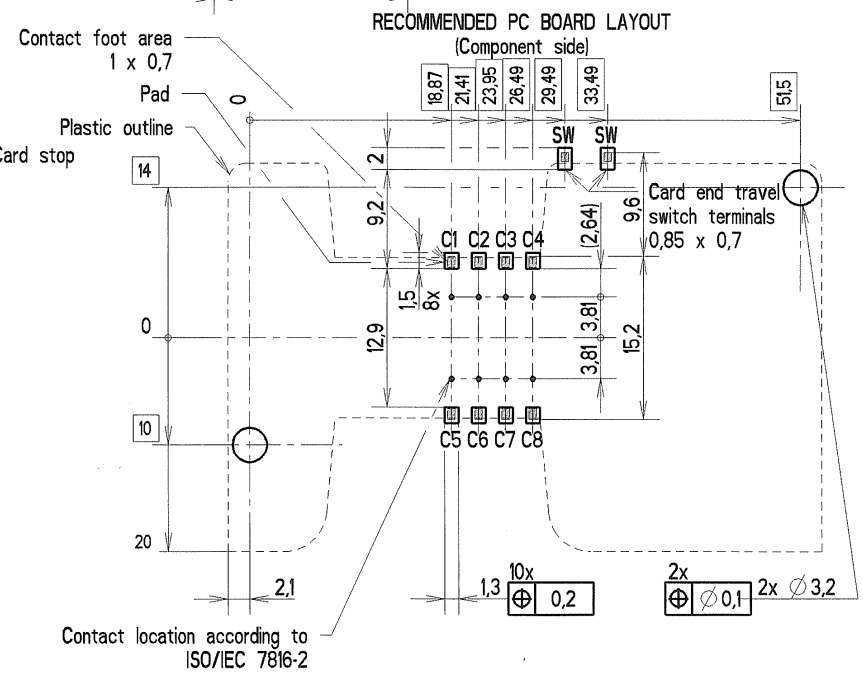
Scale 1



SYSTEM CONFIDENTIAL







Packaging	Packaging drawing	Marking	Designation	Part Number
Tray 30 parts	030278Y0043	2013TP	CCM01-2013AP LFT T30/	Y1112-2013APLFT
Tray 25 parts	030278Y0064		CCM01-2013CP LFT T25/	Y1112-2013CPLFT
Reel	030278Y0059		CCM01-2013BP LFT R201	Y1112-2013BPLFT

Notes :
- 1 - Termination to PCB : SMT reflow soldering Temperature/time profile according to : C&K PS-LF-001 specification. Since there are no boardlocks , the connector must be held in place on the PCB accross the top face of the cover.
- 2 - Level of each contact tail compared to the nearest plastic stand-off. Coplanarity of metal soldering surfaces : 0,15 mm
- 3 - Recommendation for solder paste thickness ⩾ 0,2 mm.
- 4 - 2,5 microns min tin plating on contact terminal areas. 0,1 microns min gold plating on switch terminal areas.
- 5 - Contact forces : - max 0,5 N per contact with max. card thickness. - min 0,2 N per contact with min. card thickness.
- 6 - Card end travel switch NO activates when the sliding card is 0,9 mm from the card stop.
- 7 - In case of customer accessories integration requesting an interface with CCM, please ask C&K for a 3D model.

MATIERE	TRAITEMENT	PROTECTION
SAUF INDIQUE : -COTES DONNEES AVANT PROTECTION -BAVURES ET ARETES VIVES SUPPRIMEES	TOL. LINEAIRE ± 0,1 / TOL. ANGULAIRE ± 2 ° / ETAT DE SURFACE Ra µ	DIMENSIONS CRITIQUES ▼ / DIMENSIONS SPC ▼

DESSINE	PAILLE V.	DATE 03/07/2007	ANALYSE Y	TAB. FAM. Y	PRO/E Y	LANGAGE E
VERIFIE	PINON G.	DATE 07/05/2008				
APPROUVE	KUBAT L.	DATE 07/05/2008	REMPLACE			

C&K Components

BP 359 - 39105 Dole - FRANCE -

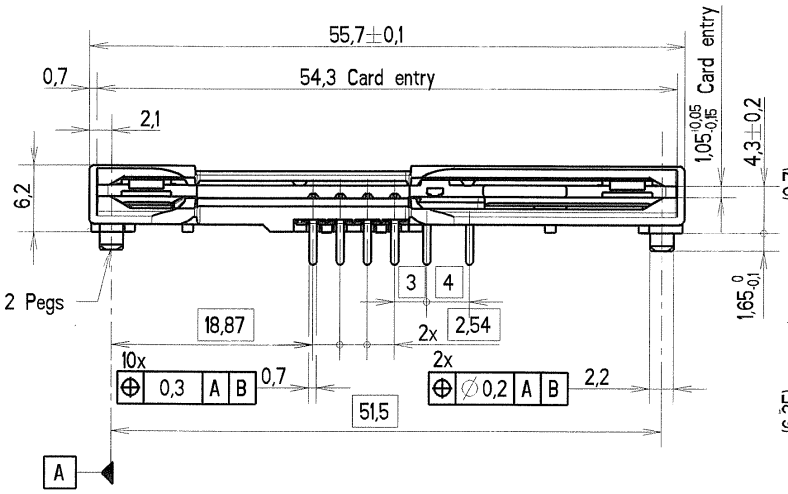
PROJECTION 1-ER DIEDRE

ECHELLE 2

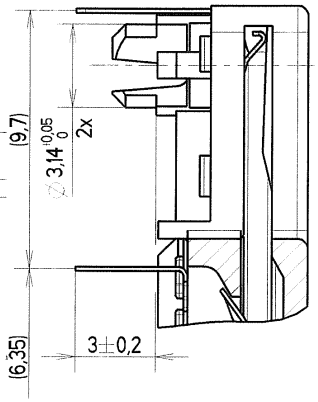
DESIGNATION: CCM01-2013xPLFT 2 pegs 3,14 mm

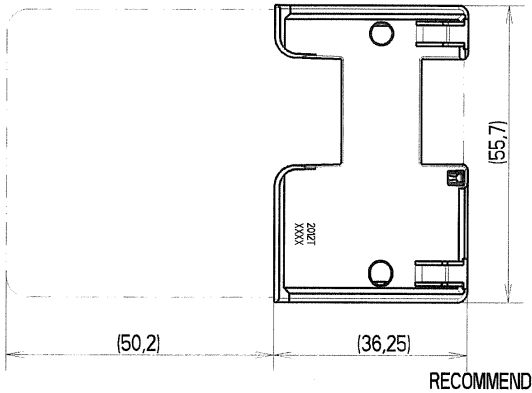
TAILLE	FEUILLE	NUMERO	REV
A3	1 / 1	CU 1112M1Y2013	D

REV.	N° DCR	NATURE DE LA MODIFICATION	DATE	VISA
C	ECR-1237	3,25 ▷ 3,14	03/07/2007	V.P
D	ECR-1410	Marking suppressed	03/10/2007	

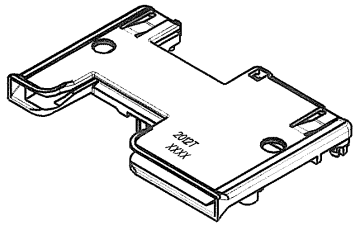


DETAIL A
Scale 5

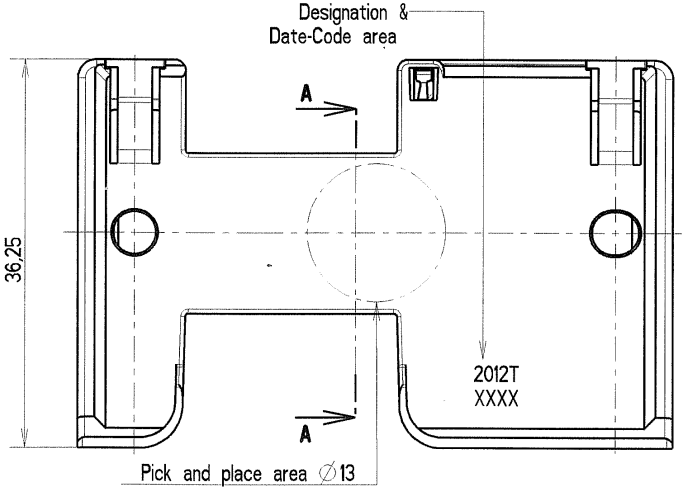


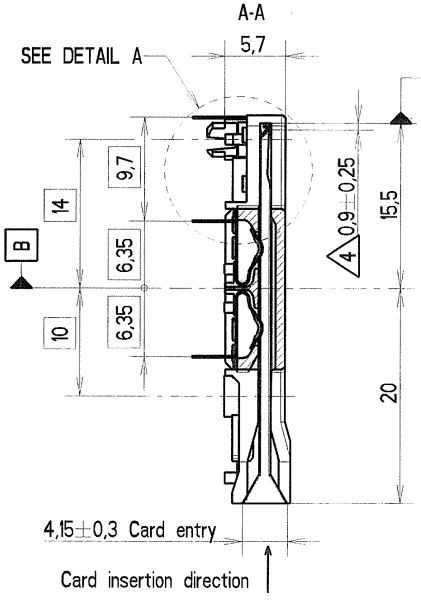


Scale 1

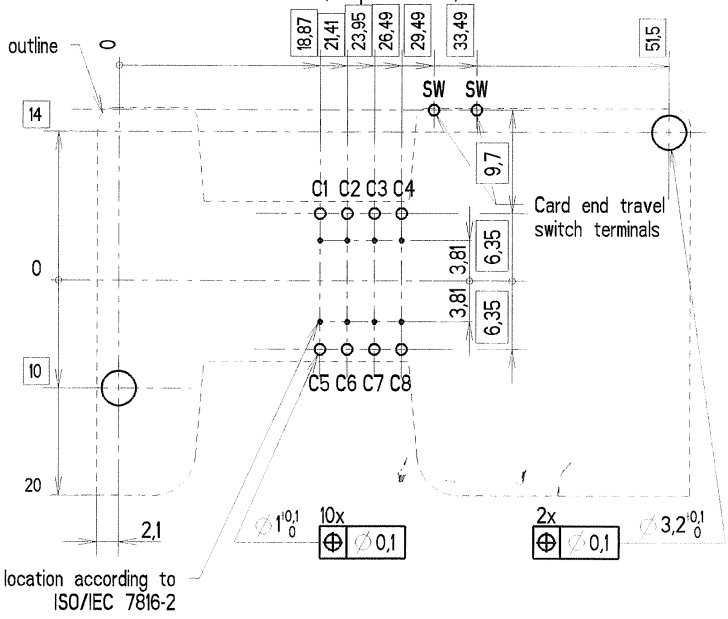


SYSTEM CONFIDENTIAL





RECOMMENDED PC BOARD LAYOUT
(Component side)



Notes :
- 1 - Termination to PCB : Thru-hole tails
  Temperature/time profile according to :
  C&K PS-LF-002 specification.
  Since there are no boardlocks , the connector must be held in place on the PCB accross the top face of the cover.
- 2 - 2,5 microns min tin plating on contact terminal areas.
  0,1 microns min gold plating on switch terminal areas.
- 3 - Contact forces :
  - max 0,5 N per contact with max. card thickness.
  - min 0,2 N per contact with min. card thickness.
- 4 - Card end travel switch NO activates when the sliding card is 0,9 mm from the card stop.
- 5 - For packaging on tray, see document : cu 030278Y0043.
- 6 - In case of customer accessories integration requesting an interface with CCM, please ask C&K for a 3D model.

MATIERE	TRAITEMENT	PROTECTION
SAUF INDIQUE : -COTES DONNEES AVANT PROTECTION -BAVURES ET ARETES VIVES SUPPRIMEES	TOL. LINEAIRE ± 0,1 — TOL. ANGULAIRE ± 2 ° — ETAT DE SURFACE Ra	DIMENSIONS CRITIQUES ▼ — DIMENSIONS SPC ▼
DESSINE P.DAUBIGNEY DATE 20-05-05	ANALYSE Y — TAB. FAM. Y — PRO/E Y	LANGAGE E
VERIFIE G.PINON DATE 04/10/2007		
APPROUVE L.KUBAT DATE 04/10/2007	REMPLACE	
C&K Components	PROJECTION 1-ER DIEDRE — ECHELLE 2	DESIGNATION CCM01-2012LFT 2x4 contacts thru-hole switch NO 2 pegs
BP 359 - 39105 Dole - FRANCE -	TAILLE A3 — FEUILLE 1 / 1	NUMERO CU 030288Y2012 — REV D

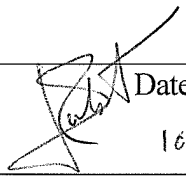
PRODUCT SPECIFICATION

CCM01-MKII V2 - LFT

Ref. / PS-CCM01-MKII- 2

ISSUE 1 – Rev. G: SEPTEMBER 2008

Approvals:

Laurent Kubat Engineering Manager		Date 16/09/08
Guillaume Pinon Project Manager		
Daniel Pequegnot Laboratory Manager		
Jerome Smolinski Product Manager		
Jérome Brochot 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	April 25th , 2005	Creation
Issue 1 – Rev. A	Sept. 29th , 2005	Update : • Card end travel switch : dust sealed • Soldering processes : recommendation for solder thickness • Marking resistance *(According to DCR N°D2000398)*
Issue 1 – Rev. B	March 28th , 2006	Update : • Tab page 4 : Versions covered by this spec. • Option : I/O Protect diagram added (page 4) • §10 "Additional data" added *(According to ECR -327)*
Issue 1 – Rev. C	June 19th , 2006	Update : • Tab page 4 : Reinforced versions added • Static load test updated - § 7 • Metallic peg retention test added - § 7 • Operating Life test updated - § 8 *(According to ECR -515)*
Issue 1 – Rev. D	January 12th , 2007	Update : • Operating environment : Operating life – Recommendation updated • Additional data : Automatic assembly – Pick & Place note added. *(According to ECR -742)*
Issue 1 – Rev. E	August 8th , 2007	Update : • Solder heat resistance : 10s instead of 5s (LF version) • Resistance to fluids : comment added *(according to ECR 1186)*
Issue 1 – Rev. F	October 2nd , 2007	Update : • Recommendations of use added (§ 2). *(according to ECR 1429)*
Issue 1 – Rev. G	September 8th , 2008	Update : • UL data suppressed *(according to ECR 2324)* • Reference of test specifications updated *(according to ECR 2446)*

SUMMARY

VERSIONS COVERED BY THIS SPECIFICATION

Reference	Drawing N°	Version type	Terminal Type	Housing type
CCM01-2012LFT	CU 030288Y2012	Standard version	Thru-hole	2 Pegs
CCM01-2013LFT	CU 030288Y2013	Standard version	SMT	2 Pegs
CCM01-2019LFT	CU 030288Y2019	I/O Protect version (see below diagram 1)	SMT	2 Pegs
CCM01-2027LFT	CU 030288Y2027	Reinforced version	SMT	4 metallic Pegs
CCM01-2031LFT	CU 030288Y2031	Reinforced version	SMT	2 metallic Pegs in diagonal

Note: Reference CCM01-XXXX**LFT**: Lead Free Tin

Option: I/O Protect

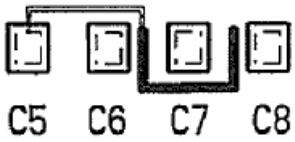


Diagram 1

1 - Description

Product group : CCM01

Product Sub Family : Mk2

Card type : Full-sized card

Contact type : Friction

Contact plating : Precious metal inlay

Contacts number : 8

Terminal type : SMT or thru-hole see table page 4

Card end travel switch :
Switch NO: Normally Open
Dust sealed switch

Housing type : see table page 4

Generic specification (C&K) :
Proc. essai 20

2 – Recommendations of use	
According to C&K recommendations: RU-CCM-001 document	
3 – Physical data	
Mass	5.0 g ± 1.0
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	≤ 3 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	
Card insertion force	10 N max
Card withdrawal force	1 N min / 10 N max
Contact force (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
Snap-in force (version with clips)	10 N min / 50 N max
Snap-off force (version with clips)	10 N min
7 - Storage and handling environment	
Marking & Traceability	Designation : 20xxT (for CCM01-20xxLFT) Date code : year / week / day
Packaging conditions	According to drawing : CU 030278Y0043
Transport conditions	Sea-air-land / World wide / High ≤ 5 m 30°C / 85% HR According to H00-060

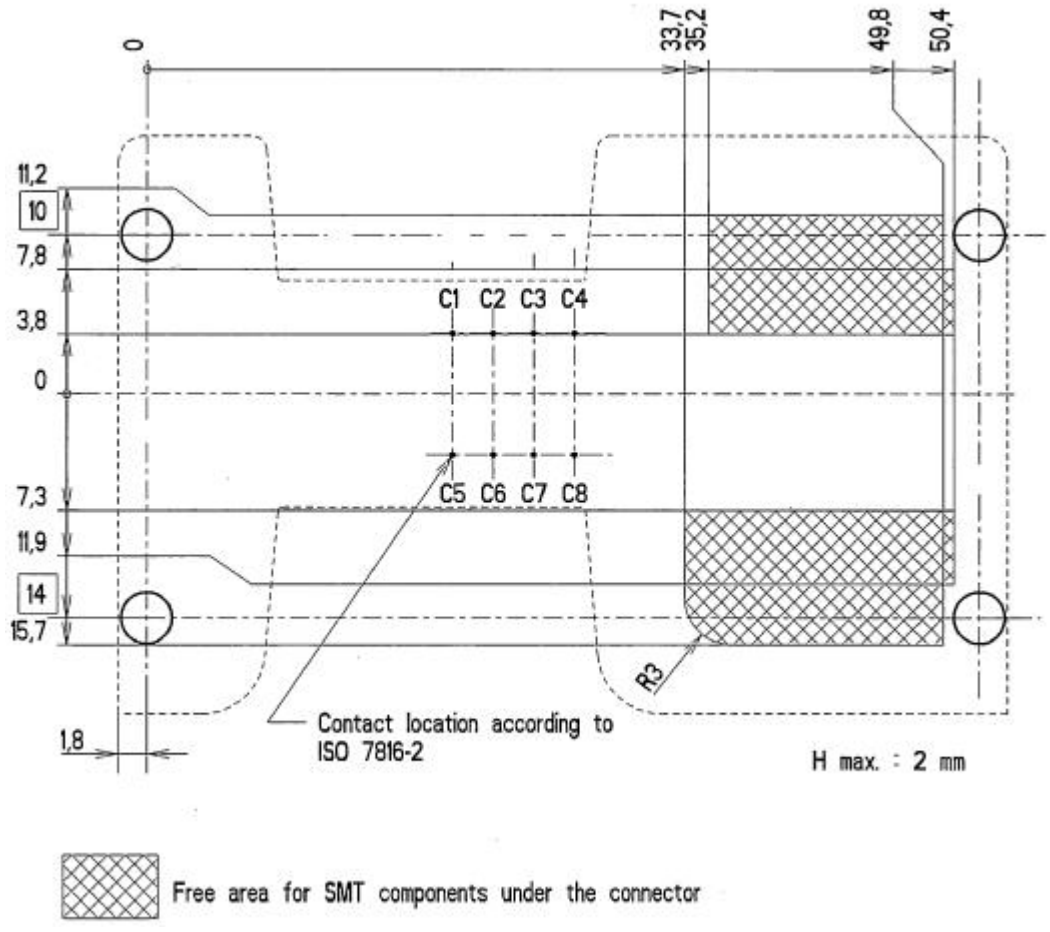
8 - Process environment	
Soldering processes : • Lead free reflow soldering process *(SMT terminals)* • Lead Free single or double wave soldering process *(through Hole Terminals)*	• According to IEC 61760-1:2006 *Recommendation for solder paste thickness : ≥ 0.20 mm* • According to IEC 61760-1:2006
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)	10 N / 1 mn / 4 directions (standard version) 40 N / 1 mn / 4 directions (reinforced version) 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
Metallic peg retention in housing *Reinforced version*	≥ 30 N (lateral & axial directions)
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 – Operating environment	
Operating life	≥ 100 000 cycles • at 10 N force for standard version • at 40 N force for reinforced version *Recommendation: 4 metal pegs.* *Other configurations are possible, according to customer integration.*
Vibration	10-500 Hz / 50 m/s² / 3 axis / 2 hours per axis No discontinuity > 1 µs According to IEC 60068-2-6.
Mechanical shock	500 m/s² / 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 - Applicable norms	
Legal norm (EHS)	C&K procedure
Warranty period	1 year
11- Additional data	
Free space under CCM	According to appendix 1
Automatic assembly - Pick & Place	Increase the diameter of holes on PCB to 3.4 mm ± 0.05 to use standard version (plastic pegs). *However this assembly is not recommended. The best global life test performance will be achieved by using reinforced version (metal pegs), as mentioned above, see § 8,Operating life – recommendation (40 N insertion).*
12- Qualification Plan	
According to Proc-20	

Appendix 1


0
33,7
35,2
49,8
50,4
11,2
10
7,8
3,8
0
7,3
11,9
14
15,7
C1 C2 C3 C4
C5 C6 C7 C8
R3
1,8
Contact location according to
ISO 7816-2
H max. : 2 mm
Free area for SMT components under the connector