

CCM02 MK I



CCM02 MK I is a connector with landing contacts.

Though most applications only require a connector with 8 contacts, there are still limited requirements for a connector with 16 contacts to read AFNOR cards, as well as ISO cards.

Features

- Available with 8 & 16 through hole contacts.
- 100,000 card insertion cycles.
- The contacts don't touch the card until it is almost fully inserted - a minimal wiping action removes any non-conductive material.
- The connector has been designed to give a positive feel as the card is fully inserted.
- For added reliability, the integrated card end-travel switch (which is normally open) is sealed against dust and grit.

Construction

Contacts	Copper alloy
Plating	Contact area : Gold over Nickel Terminals : Tin lead (2μ min)
Moldings	Thermoplastic UL 94V-0 rated

Mechanical data

Number of Contacts	8 or 16
Mechanical life	100,000 cycles min
Card insertion force	10 N max
Card extraction force	1 N min / 10 N max
Contact force	0.15 N min / 0.35 N max
Vibration	Frequency 10 to 500 Hz. Acceleration 50m/s ² Duration 6 hours - amplitude 0.35 mm Max electrical discontinuity 1μs
Shock	Peak value 500 m/s ² – Duration 11 ms 3 shocks in each direction of each axis Max electrical discontinuity 1 μs

Electrical data

Insulation resistance	1,000 MΩ min
Contact resistance max	100 mΩ max
Switching current	10 μA min / 1 A max
Dielectric strength	750 Vrms min
Card detection switch	Normally open
Rc card detection switch	100 mΩ max
Dielectric strength card detection switch	250 Vrms min
Switch current rating	1 mA min / 10 mA max
Maximum switch power	0.2 VA

Environmental data

Operating temperature	-40°C to +85°C
Soldering temperature	Wave: 260°C / 5 sec
Damp heat	IEC 512 test number 11c (10 days)
Salt mist	IEC 512 test number 11f (96 hours)
Card detection switch	Sealed IP 54

Ordering code

Part Number	N° of Contacts	Packaging Multiple
CCM02-1N0-3	8	300
CCM02-2N0-3	16	300
CCM02-1N0-32	8	300
CCM02-2N0-32	16	300
CCM02-2N0-43*	16 (SMT)	300
CCM02-1N0-35	8 with extended cover	200
CCM02-2N0-35	16 with extended cover	200

* Suitable for hand soldering, but not for infrared or convection processes.

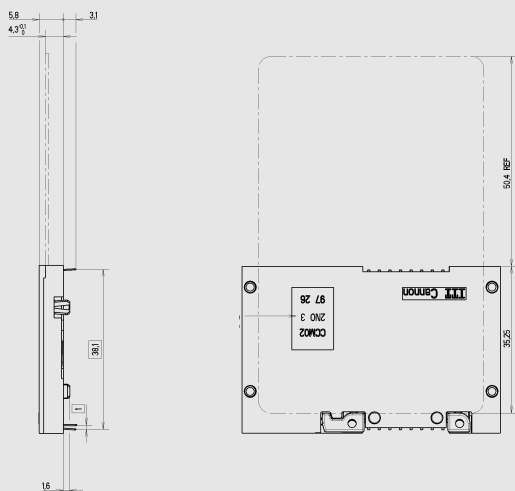
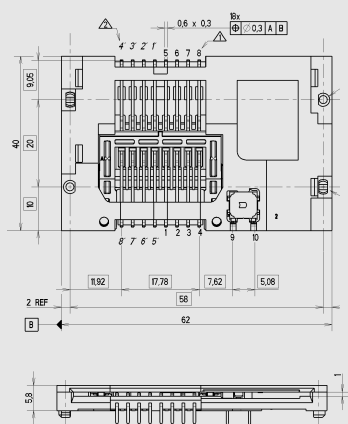
Packaging

30 per tray, 10 trays per box. Order multiple 300

CCM02 MK I

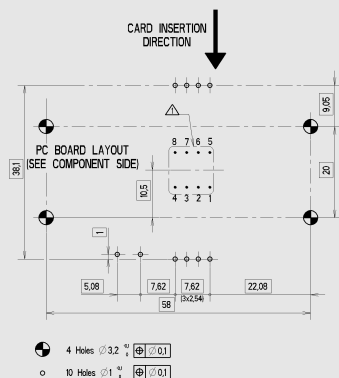
Dimensional Drawings

**CCM02-2NO-3 (16 contacts through hole)
CCM02-1NO-3 (8 contacts not shown)**

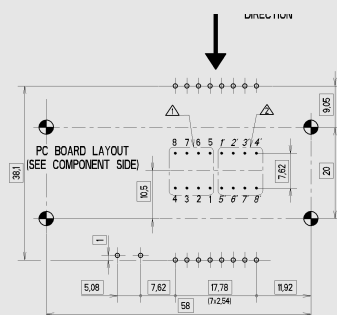


PCB Layout

CCM02-1NO-3 (8 contacts through hole)



CCM02-2NO-3 (16 contacts through hole)

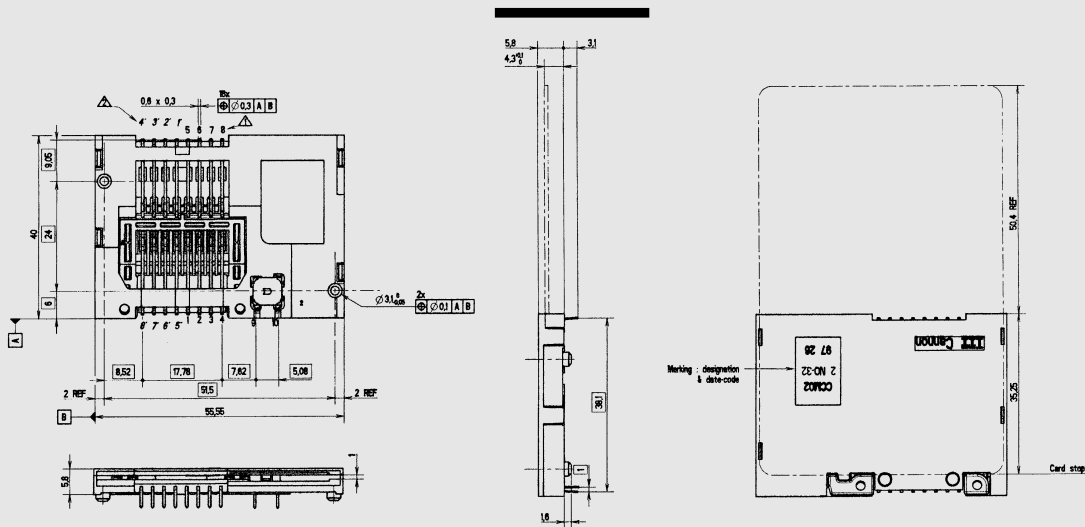


Unless otherwise stated,
tolerances are ± 0.10 mm

CCM02 MK I

Dimensional Drawings

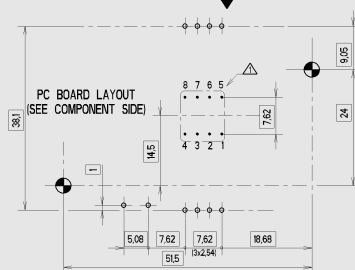
CCM02-2NO-32 (16 contacts through hole)
CCM02-1NO-32 (8 contacts through hole not shown)



PCB Layout

CCM02-1NO-32
(8 contacts through hole)

CARD INSERTION
DIRECTION

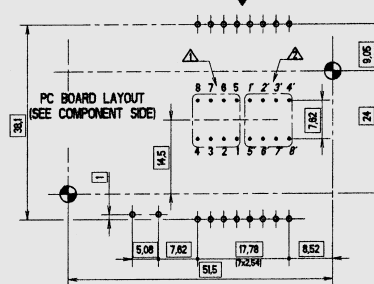


2 Holes $\varnothing 3.2$ $\begin{matrix} \oplus \\ \ominus \end{matrix}$ $\varnothing 0.1$

10 Holes $\varnothing 1$ $\begin{matrix} \oplus \\ \ominus \end{matrix}$ $\varnothing 0.1$

CCM02-2NO-32 |
(16 contacts through hole)

**CARD INSERTION
DIRECTION**



Unless otherwise stated, tolerances are $\pm 0.10\text{mm}$



Cannon

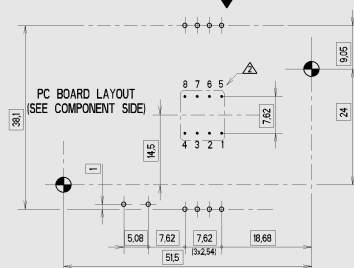
Dimensions are shown in mm
Dimensions subject to change

www.ittcannon.com/ccm

CCM02-2NO-35 (16 contacts through hole)
CCM02-1NO-35 (8 contacts through hole not shown)

The technical drawing illustrates the CCM02-2NO-35 relay in three views: top, side, and front. The top view shows a rectangular package with dimensions 28.5 mm by 18.5 mm. It features 16 through-hole contacts (8 on each side) with a pitch of 2.54 mm. Key dimensions include a mounting hole diameter of 2.2 mm, a contact pitch of 0.8 mm, and a total width of 18.5 mm. The side view shows a height of 9.8 mm and a mounting hole diameter of 1.5 mm. The front view shows a width of 18.5 mm and a height of 15.5 mm. Markings on the front view include the designation 'CCM02 2 NO-35' and the date code '87 20'. A card stop is also indicated.

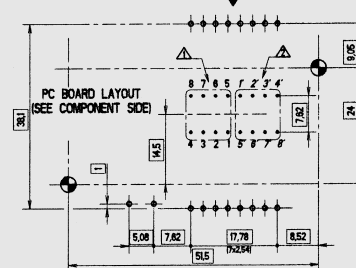
CARD INSERTION
DIRECTION



2 Holes $\phi 3.2$ $\begin{matrix} \oplus \\ \ominus \end{matrix}$ $\phi 0.1$

10 Holes $\phi 1$ $\begin{matrix} \oplus \\ \ominus \end{matrix}$ $\phi 0.1$

CARD INSERTION
DIRECTION



Unless otherwise stated, tolerances are ± 0.10 mm

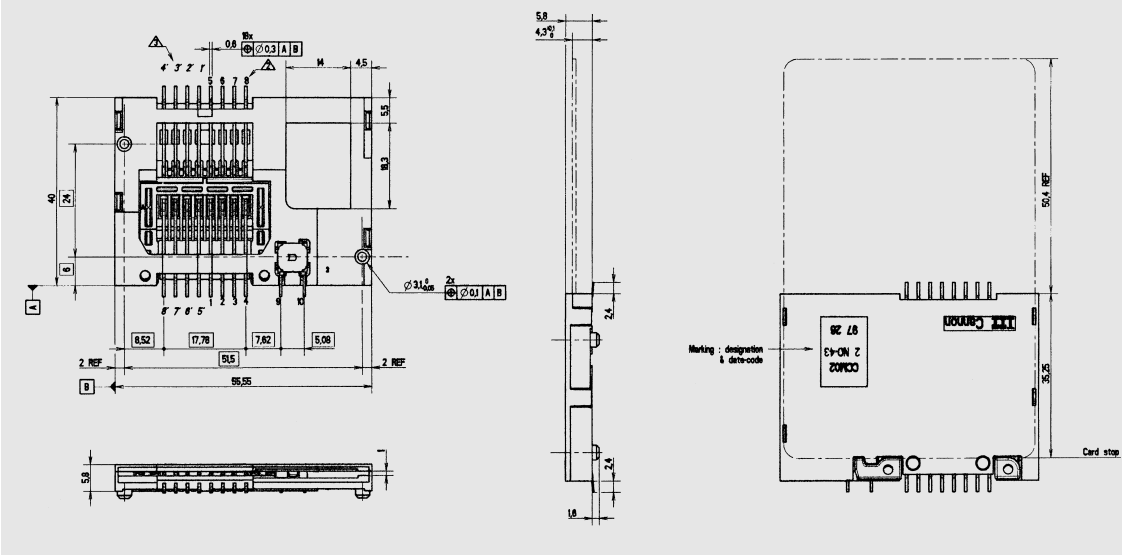


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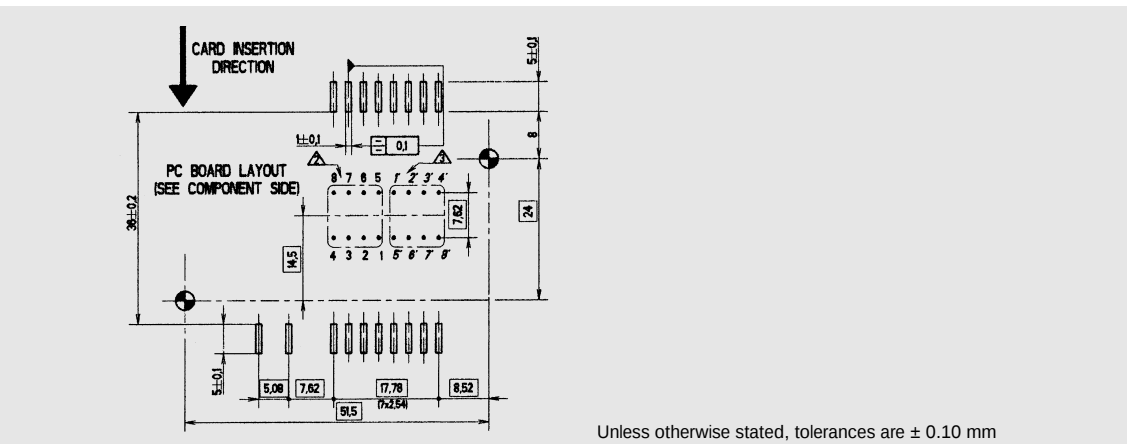
CCM02 MK I

Dimensional Drawings

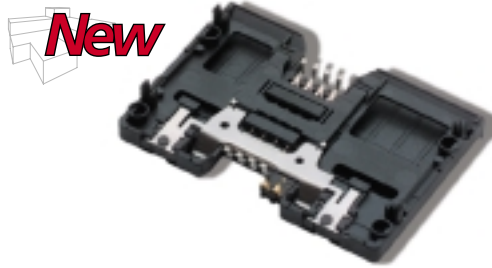
CCM02-2NO-43 (16 contacts SMT)



PCB Layout



CCM02 MK II



The CCM02 MK II connectors with landing contacts are dedicated for applications where the reader usage is high and the life span of the card is a key consideration, a connector with contacts which land on the card, rather than slide over it, should be specified so as to minimize card wear. The CCM02 has been redesigned to give an even higher performance in a compact, affordable package.

Features

- 500,000 card insertion cycles.
- The contacts don't touch the card until it is almost fully inserted – a minimal wiping action removes any non-conductive material.
- The connector has been designed to give a positive indication once the card has been fully inserted.
- The reduced size of the contact base saves PCB space, makes the connector more stable during surface mounting, and creates an air gap between the contacts and card entry slot, so reducing the risk of an electrostatic transfer to the PCB.
- For added reliability, the integrated card end-travel switch (which is normally open) is sealed against dust and grit.
- By using an inlay finish in the contact area, the life of the precious metal is extended by more than 10 times that of standard gold plating.
- The contact area is spooned to reduce the risk of accidental (or deliberate) damage and to optimize the electrical connection with the card.
- Snap-locks underneath the molding position and hold the connector on the PCB, and give additional support to the contact terminals.
- The plastic moldings are made from a high temperature thermoplastic suited for infrared and convection soldering processes.
- Available with through hole or surface mount terminals, this connector can be pick & placed automatically.

Construction	
Contacts	Copper alloy
Plating	Contact area : Gold alloy inlay Terminals : Tin lead (2μ min)
Moldings	High temp. thermoplastic UL 94V-0 rated
Spring	Stainless steel
Card detection switch actuator	Stainless steel

Mechanical data	
Number of Contacts	8
Mechanical life	500,000 cycles min
Card insertion force	10 N max
Card extraction force	1 N min / 10 N max
Contact force	0.25 N min / 0.5 N max
Card detection switch actuation force	0.8 N max for actuation (end travel switch actuates when card is 1.0 mm (0.039) from card stop) 1.8 N max for complete depression
Vibration	Frequency 10 to 500 Hz. Acceleration 50m/s ² Duration 6 hours - amplitude 0.35 mm Max electrical discontinuity 1μs
Shock	Peak value 500 m/s ² – Duration 11 ms 3 shocks in each direction of each axis Max electrical discontinuity 1 μs

Electrical data	
Insulation resistance	1,000 MΩ min
Contact resistance max	100 mΩ max
Switching current	10 μA min / 1 A max
Dielectric strength	750 Vrms min
Card detection switch	Normally open
Rc card detection switch	100 mΩ max
Dielectric strength card detection switch	250 Vrms min
Switch current rating	1 mA min / 10 mA max
Maximum switch power	0.2 VA

Environmental data	
Operating temperature	-40°C to +85°C
Soldering temperature	Temperature/time profile acc. to CECC00802 para. 6.1, Fig. 3 with peak temperature 250°C
Damp heat	IEC 512 test number 11c (10 days)
Salt mist	IEC 512 test number 11f (96 hours)
Card detection switch	Sealed IP 54

Ordering code				
Part Number	N° of Contacts	Termination Tails Design	PCB Locating	Packaging Multiple
CCM02-2503	8	Through Hole	4 Board Lock (PCB 1.6 mm thick)	300
CCM02-2504	8	SMT	4 Board Lock (PCB 1.6 mm thick)	300
CCM02-2508	8	SMT	2 Pegs	300
CCM02-2511	8	Through Hole	4 Pegs	300
CCM02-2512	8	SMT	4 Pegs	300
CCM02-2758	8	SMT	2 Pegs (without cover)	300
CCM02-2763	8	SMT	4 Board Lock + 2 pegs	300
CCM02-2765	8	Through Hole	4 Board Lock (PCB 1mm thick)	300
CCM02-2766	8	SMT	4 Board Lock (PCB 1mm thick)	300

Packaging

30 per tray, 10 trays per box.

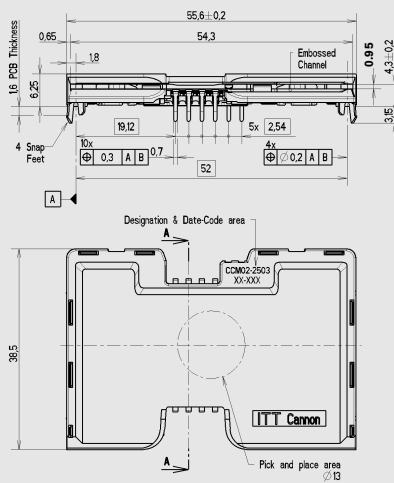
Order multiple 300

Note 1: Inlay (precious metal) rating is based on a very abrasive card being used and is intended to represent worst case.

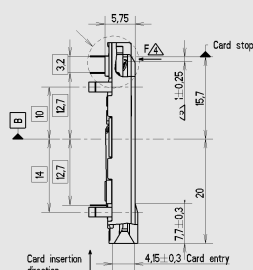
CCM02 MK II

Dimensional Drawings

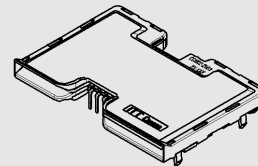
CCM02-2503 (8 contacts through hole - 4 board lock)



Section on A-A



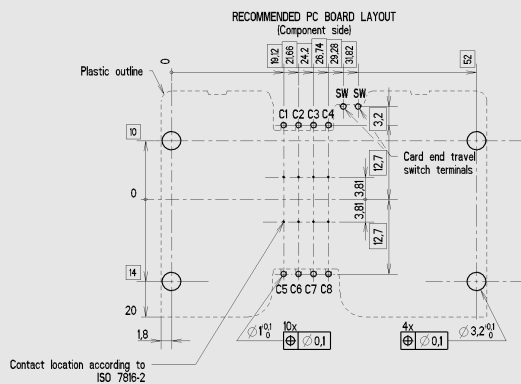
Scale 1



1. End travel switch actuates when the card is 1.0mm from the card stop
2. Level of contact tail compared to the plastic stand-off

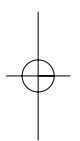
PCB Layout

CCM02-2503 (8 contacts through hole - 4 board lock)



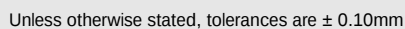
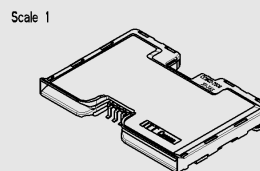
Unless otherwise stated, tolerances are $\pm 0.10\text{mm}$

CCM02-2504 (8 contacts SMT - 4 board lock)



GCM02-2504 (8 contacts SMT - 4 board lock)

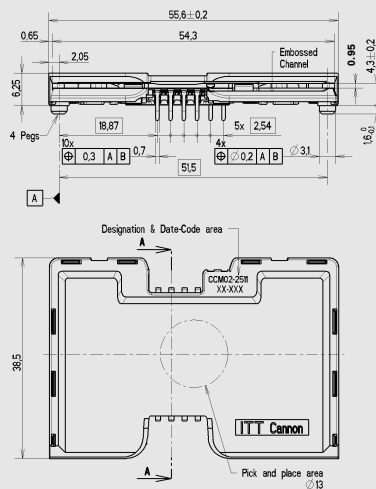




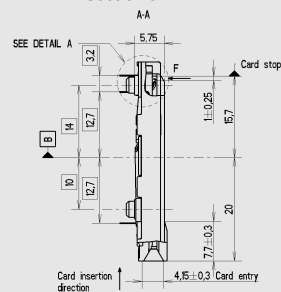
CCM02 MK II

Dimensional Drawings

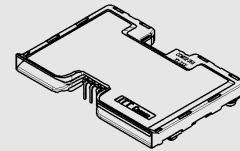
CCM02-2511 (8 contacts Through hole - 4 locating pegs)



Section on A-A



Scale 1

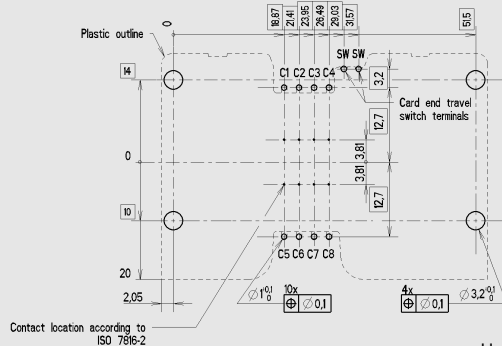


1. End travel switch actuates when the card is 1.0 mm from the card stop
2. Level of contact tail compared to the plastic stand-off

PCB Layout

CCM02-2511 (8 contacts Through hole - 4 locating pegs)

RECOMMENDED PC BOARD LAYOUT
(Component side)

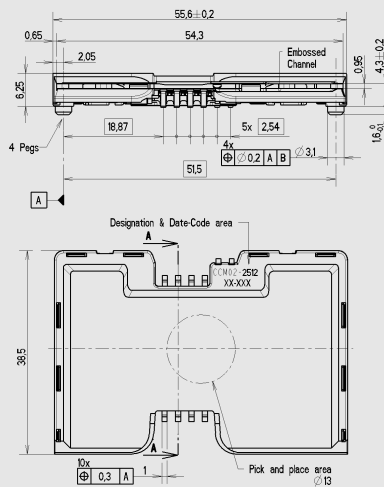


Unless otherwise stated, tolerances are ± 0.10 mm

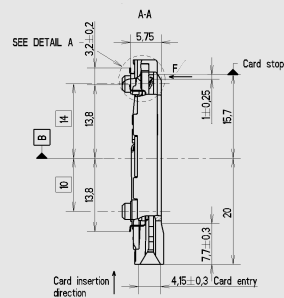
CCM02 MK II

Dimensional Drawings

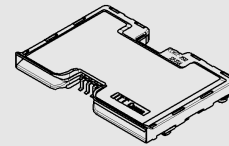
CCM02-2512 (8 contacts SMT - 4 locating pegs)



Section on A-A



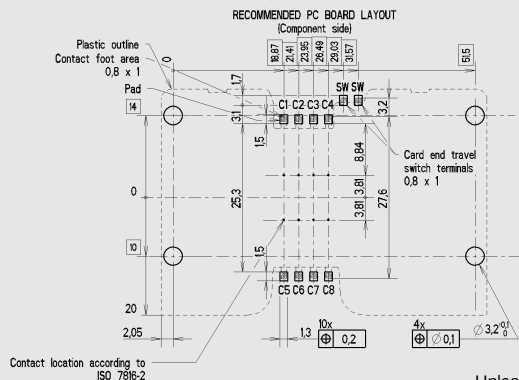
Scale 1



1. End travel switch actuates when the card is 1.0 mm from the card stop
2. Level of contact tail compared to the plastic stand-off

PCB Layout

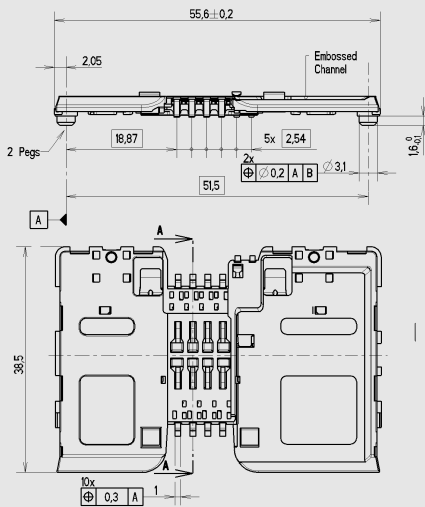
CCM02-2512 (8 contacts SMT - 4 locating pegs)

Unless otherwise stated, tolerances are ± 0.10 mm

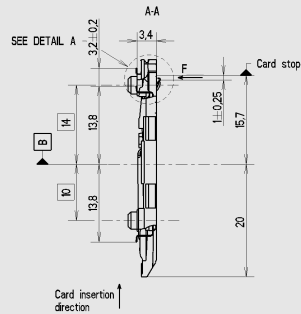
CCM02 MK II

Dimensional Drawings

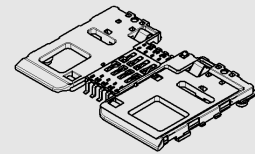
CCM02-2758 (8 contacts SMT - 2 locating pegs - without cover)



Section on A-A



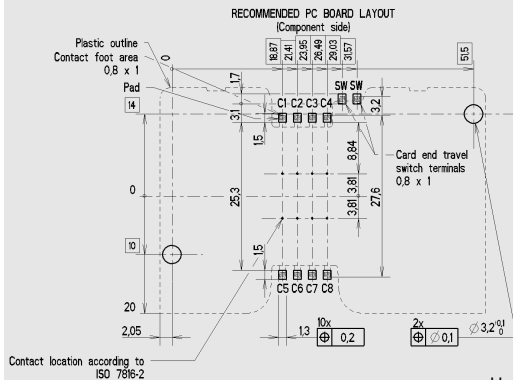
Scale 1



1. End travel switch actuates when the card is 1.0 mm from the card stop
2. Level of contact tail compared to the plastic stand-off

PCB Layout

CCM02-2758 (8 contacts SMT - 2 locating pegs - without cover)

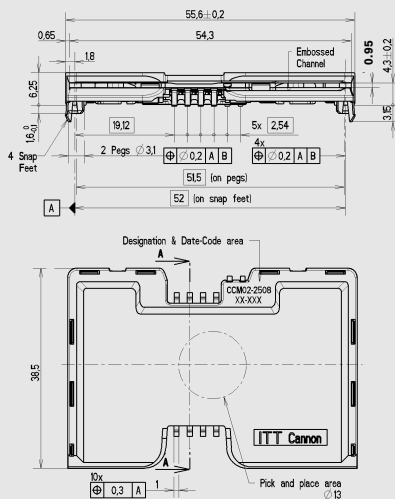


Unless otherwise stated, tolerances are ± 0.10 mm

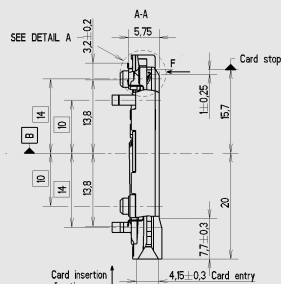
CCM02 MK II

Dimensional Drawings

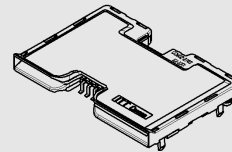
CCM02-2763 (8 contacts SMT - 4 board lock - 2 locating pegs)



Section on A-A



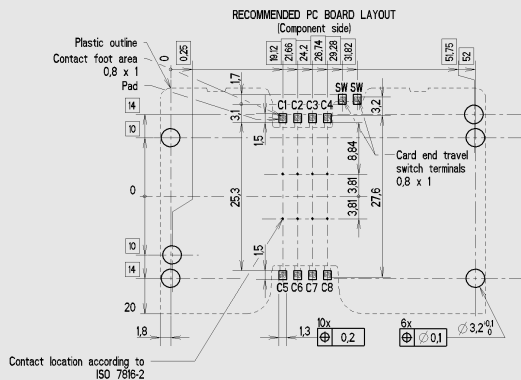
Scale 1



1. End travel switch actuates when the card is 1.0mm from the card stop
2. Level of contact tail compared to the plastic stand-off

PCB Layout

CCM02-2763 (8 contacts SMT - 4 board lock - 2 locating pegs)

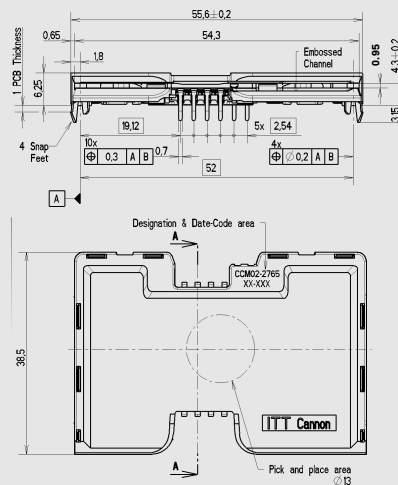


Unless otherwise stated, tolerances are $\pm 0.10\text{mm}$

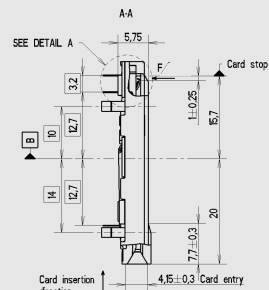
CCM02 MK II

Dimensional Drawings

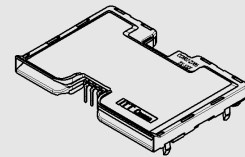
CCM02-2765 (8 contacts through hole - 4 board lock - PCB 1mm thick)



Section on A-A



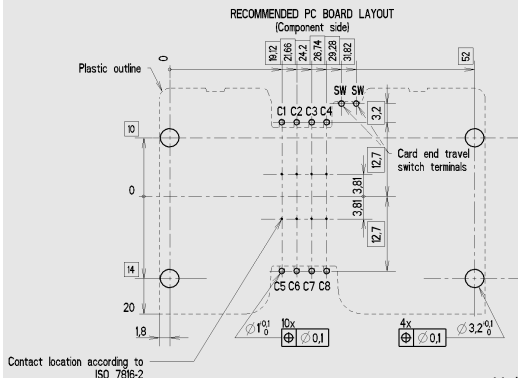
Scale 1



1. End travel switch actuates when the card is 1.0 mm from the card stop
2. Level of contact tail compared to the plastic stand-off

PCB Layout

CCM02-2765 (8 contacts through hole - 4 board lock - PCB 1mm thick)

Unless otherwise stated, tolerances are ± 0.10 mm

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