

Han® PCB termination



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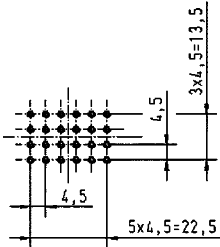
PCB

PCB adapter for Han DD[®]

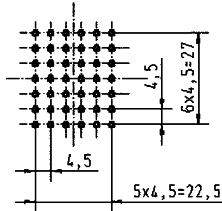


Layout of PCB

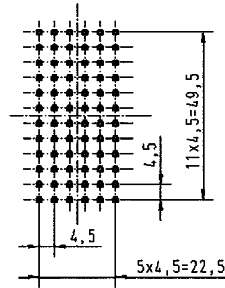
Han[®] 24 DD



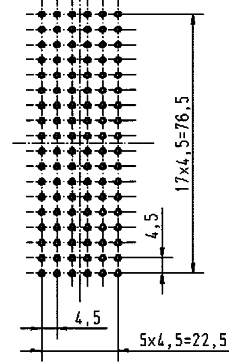
Han[®] 42 DD



Han[®] 72 DD

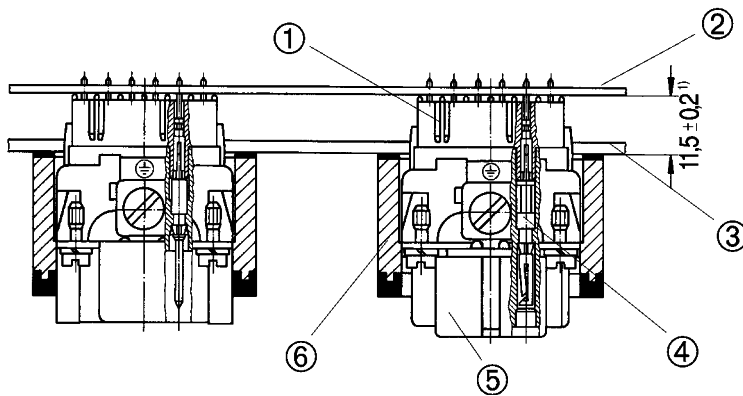


Han[®] 108 DD



Recommended hole diameter: 0.8 mm

Assembly situation



- ① PCB adapter
- ② Printed circuit board (PCB)
- ③ Switch board panel
- ④ Han DD[®] double contact
- ⑤ Han DD[®] insert
- ⑥ Han[®] B bulkhead mounted housing

1) for Han[®] B EMC housings spacing of 12.5 ± 0.2 mm is necessary as no flange seal is used

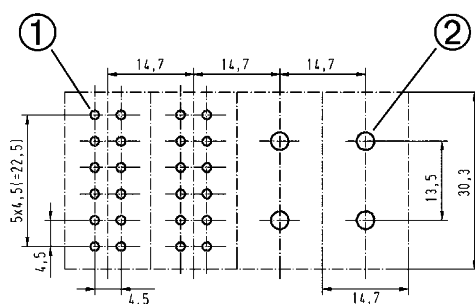
PCB

PCB adapter for Han-Modular®



Layout of PCB

Dimensions in mm

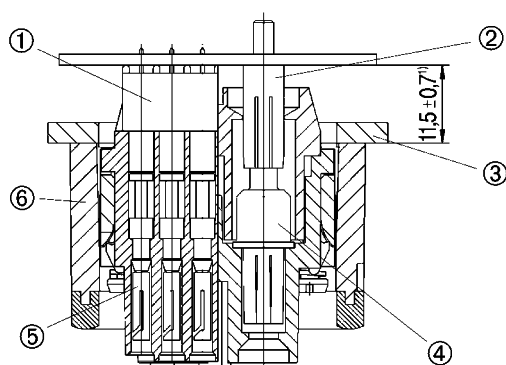


Han DD® module

Han® 40 A module

- ① Recommended hole diameter: 0.8 mm
- ② Recommended hole diameter: 3.2 mm

Assembly situation



- ① Han DD® PCB-adapter
- ② Han® C solder contact
- ③ Switch board panel
- ④ Module for connection to printed circuit board
- ⑤ Han D® double contact
- ⑥ Han® B bulkhead mounted housing

1) for Han® B EMC housings spacing of 12.5 ± 0.7 mm is necessary as no flange seal is used

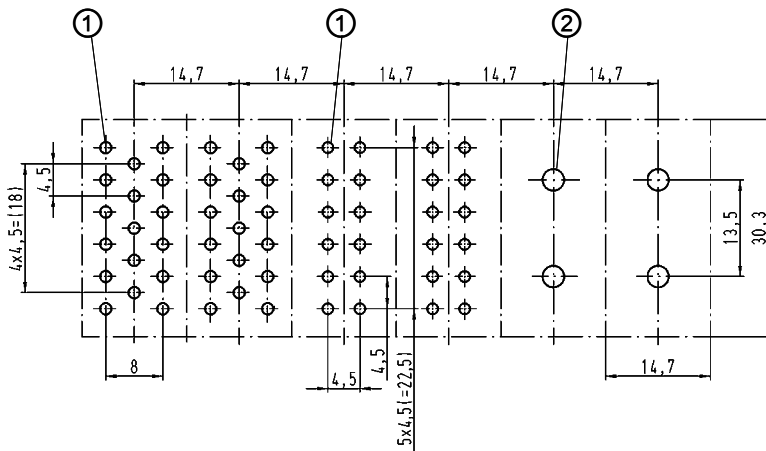
PCB

PCB adapter for Han® DDD module



Layout of PCB

Dimensions in mm

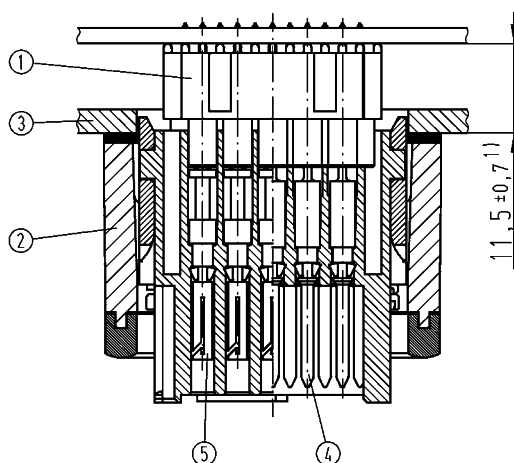


- ① Recommended hole diameter: 0.8 mm
- ② Recommended hole diameter: 3.2 mm

Han® DDD module Han® DD module Han® 70 A module

Assembly situation

Dimensions in mm



- ① Han DDD® PCB adapter 5 pins
- ② Han® B bulkhead mounted housing
- ③ Switch board panel
- ④ Han D® double male contact, 09 15 000 6197
- ⑤ Han D® double female contact, 09 15 000 6291

1) for Han® B EMV hood and housing spacing of 12.5 ± 0.7 mm is necessary as no flange seal is used.

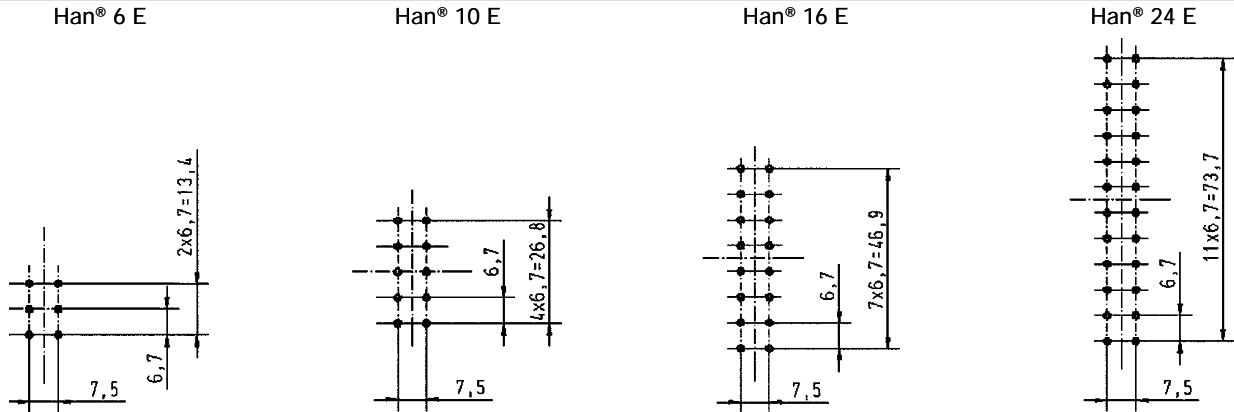
For further information and Han-Modular® frames please refer to chapter 06 (Han-Modular®)

PCB

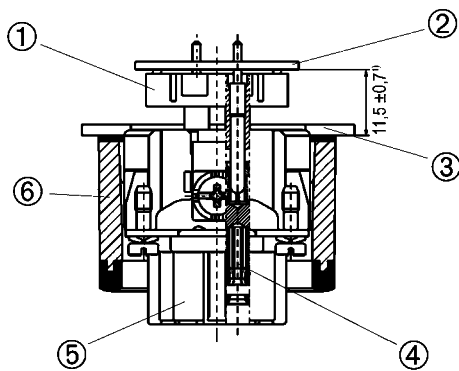
PCB adapter for Han E®



Layout of PCB



Assembly situation



- ① PCB adapter
- ② Printed circuit board (PCB)
- ③ Switch board panel
- ④ Han E® double contact
- ⑤ Han E® insert
- ⑥ Han® B bulkhead mounted housing

1) for Han® B EMC housings spacing of 12.5 ± 0.7 mm is necessary as no flange seal is used

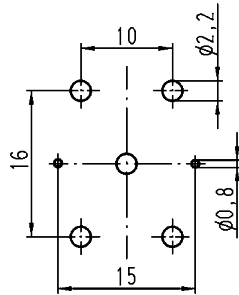
PCB

PCB adapter for Han® Q 4/2



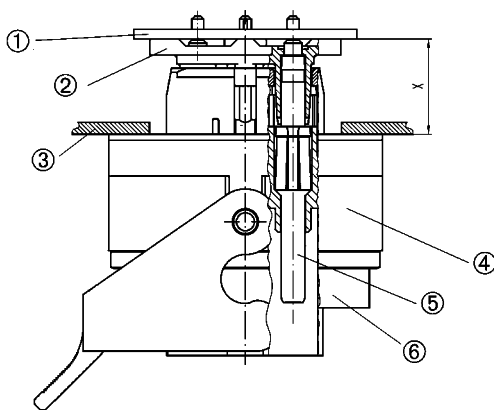
Layout of PCB

Dimensions in mm



Assembly situation

X = 16+1 with signal contact or 16+2 without signal contact



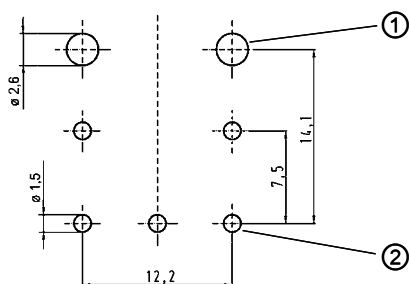
- ① Printed circuit board (PCB)
- ② PCB adapter
- ③ Switch board panel
- ④ Han-Compact® bulkhead mounted housing
- ⑤ Han® C double contact
- ⑥ Han® Q 4/2 insert

PCB

PCB adapter for Han® Q 5/0



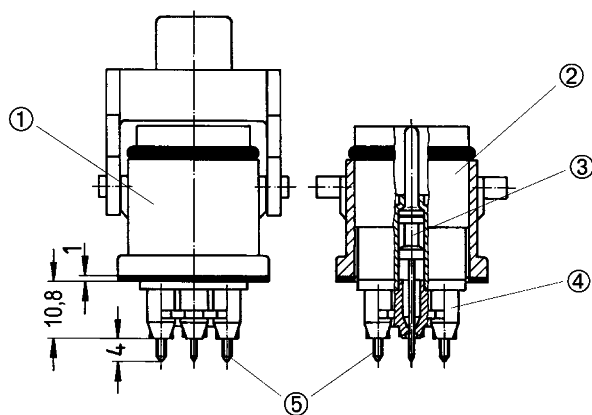
Layout of PCB



Dimensions in mm

- ① Recommended hole diameter: 2.6 mm
- ② Recommended hole diameter: 1.5 mm

Assembly situation



- ① Han® 3 A bulkhead mounting housing
- ② Han® Q 5/0
- ③ Solder contacts
- ④ PCB adapter
- ⑤ Connection to printed circuit board

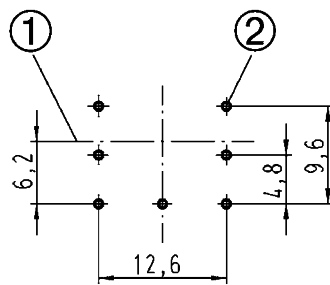
PCB

PCB adapter for Han® Q 7/0



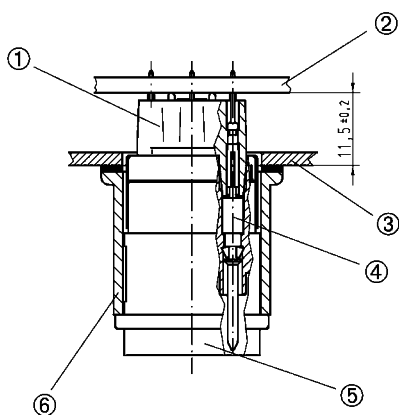
Layout of PCB

Dimensions in mm



- ① Median plane of the housing
- ② Recommended hole diameter: 0.8 mm

Assembly situation



- ① PCB adapter
- ② Printed circuit board (PCB)
- ③ Switch board panel
- ④ Han D® double contact
- ⑤ Han® Q 7/0 Insert
- ⑥ Han® 3 A bulkhead mounting housing

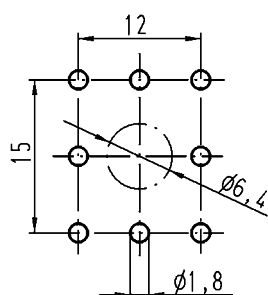
PCB

PCB adapter for Han® Q 8/0

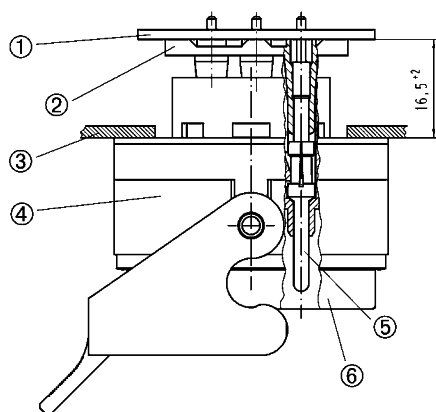


Layout of PCB

Dimensions in mm



Assembly situation



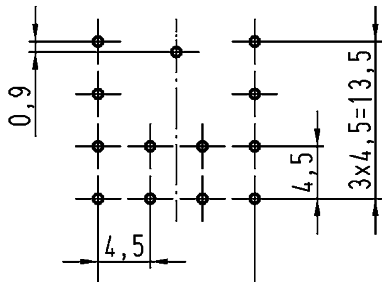
- ① Printed circuit board (PCB)
- ② PCB adapter
- ③ Switch board panel
- ④ Han-Compact® bulkhead mounted housing
- ⑤ Han E® double contact
- ⑥ Han® Q 8/0 Insert

PCB

PCB adapter for Han® Q 12/0



Layout of PCB



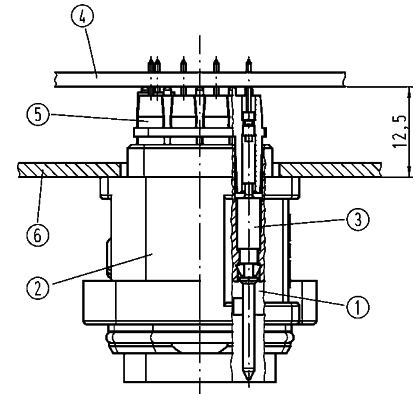
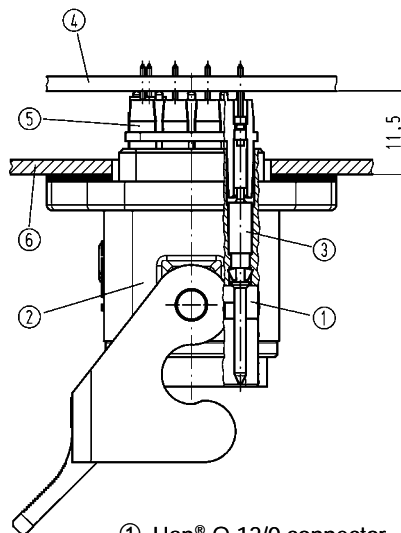
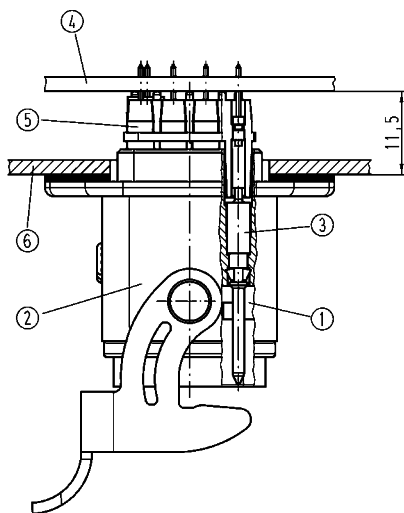
Dimensions in mm
Recommended hole diameter: 0.8 mm

Assembly situation

Han® 3 A Standard / EMC

Han® 3 A plastic

Han® 3 A HPR



- ① Han® Q 12/0 connector
- ② Han® 3 A housing bulkhead mounting
- ③ R15-double contact

- ④ Printed circuit board (PCB)
- ⑤ PCB adapter
- ⑥ Switch board panel

PCB

20
10

Han-Fast® Lock



Features

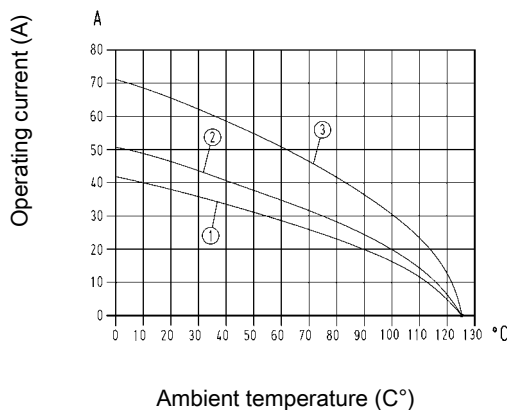
- Solder free PCB termination
- PCB contact with locking element
- Machine processing
- Flexible in terms of applications
- Practical and easy handling
- Fast assembly to PCB
- Contacts with pin: locking directly on the PCB
- Contacts without pin: fast positioning with plastic adapter

Derating

Current carrying capacity

The current carrying capacity of the connectors is limited by the thermal load capability of the contact element material including the connections and the insulating parts. The derating curve is therefore valid for currents which flow constantly (non-intermittent) through each contact element of the connector evenly, without exceeding the allowed maximum temperature.

Measuring and testing techniques acc. to IEC 60512-5-2



- ① Wire cross section 4 mm²
- ② Wire cross section 6 mm²
- ③ Wire cross section 10 mm²

Technical characteristics

Material (locking lever)	copper alloy, surface finish: passivation
Material (contact)	copper alloy

Details

Board thickness 1.6 ... 3.2 mm

Clearance and creepage distances have to be considered for the printed circuit board

Stripping length 7.5 mm

Finished hole d= 4.4 mm +0.05/-0.04

The new connection of wires to the PCB offers optimized PCB design, combined with outstanding contact qualities.

The Han-Fast® Lock is flexible and allows a fast and simple PCB connection. The PCB has one drilled hole and a pad.

The inner surface of the plated drilled hole serves as the interface. The Han-Fast® Lock is simply inserted into the plated through contact hole. The locking pin is pushed in and hence locks the contact into position.

The solder free connection technique is easy to handle and to operate. Maintenance has been made simple with the facility to detach the contact.

Han-Fast® Lock also supports SMD assembly of the PCB.

- Current up to 60 Amps
- Standard drilled hole with pad
- Position independent of connector
- Solder free PCB termination
- Easy locking solution
- Pull out force ≥ 340 N

Han-Fast® Lock



Identification	Wire cross section (mm²)	Part number	Drawing Dimensions in mm
Han-Fast® Lock, Single contact, without pin, silver plated contacts, contact resistance <2 mOhm	4-6 10	09 08 000 7923 09 08 000 7924	
Han-Fast® Lock, Contacts on a reel, without pin, silver plated contacts, contact resistance <2 mOhm	4-6 10	09 08 000 6923 09 08 000 6924	
Han-Fast® Lock, Single contact, with pin, silver plated contacts, contact resistance <2 mOhm	4-6 10	09 08 000 7123 09 08 000 7124	
PCB Han-Fast® Lock, Single contact, with angled pin, silver plated contacts, contact resistance <2 mOhm	1.5-2.5	09 08 000 7222	
Han-Fast® Lock, Contacts on a reel, with pin, silver plated contacts, contact resistance <2 mOhm	4-6 10	09 08 000 6123 09 08 000 6124	

PCB adapter for Han DD®



Features

- Robust design
- Suitable for standard and EMC housings
- Low wiring costs
- High density of contacts

Technical characteristics

Electrical data acc. to IEC 61984	7.5 A 250 V 4 kV 3
Rated current	7.5 A
Rated voltage	250 V
Rated impulse voltage	4 kV
Pollution degree	3
Material (insert)	polyamide
Material (contact)	copper alloy

Specifications and approvals

IEC 60664-1
IEC 61984

Details

Crimping tools see chapter 90


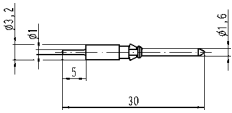
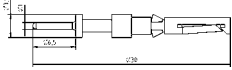

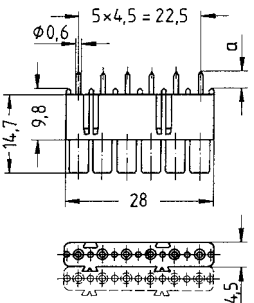

Modules see chapter 06

Han DD® crimp inserts see chapter 02

Han® B housings (bulkhead mounting) see chapter 31

PCB adapter for Han DD[®] crimp inserts


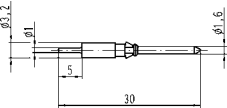
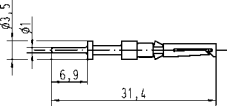

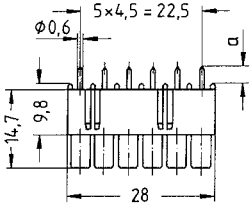
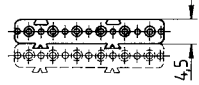



Identification	Part number		Drawing Dimensions in mm
	male	female	
<p>Han D[®], to connect the PCB adapter, Double contact, silver plated contacts, contact resistance ≤3 mOhm</p> 	09 15 000 6191	09 15 000 6291	 
<p>PCB adapter, for PCB's up to 1.6 mm, in the Han DD[®] crimp insert, in the Han DD[®] module, in the Han[®] DDD module (different electrical data: 7.5 A 160 V 2.5 kV 3)</p> 	09 16 000 9905	09 16 000 9905	 <p>09 16 000 9905 a= 2.6 09 16 000 9908 a= 3.4</p>
<p>PCB adapter, for PCB's up to 2.4 mm, in the Han DD[®] crimp insert, in the Han DD[®] module</p> 	09 16 000 9908	09 16 000 9908	

PCB

PCB adapter for Han DD® module



Identification	Part number		Drawing Dimensions in mm
	male	female	
<p>Han D®, to connect the PCB adapter, Double contact, silver plated contacts, contact resistance ≤3 mOhm</p> 	09 15 000 6191	09 15 000 6294	 
<p>PCB adapter, for PCB's up to 1.6 mm, in the Han DD® crimp insert, in the Han DD® module, in the Han® DDD module (different electrical data: 7.5 A 160 V 2.5 kV 3)</p> 	09 16 000 9905	09 16 000 9905	  <p>09 16 000 9905 a = 2.6 09 16 000 9908 a = 3.4</p>
<p>PCB adapter, for PCB's up to 2.4 mm, in the Han DD® crimp insert, in the Han DD® module</p> 	09 16 000 9908	09 16 000 9908	

PCB

PCB adapter for Han® DDD module



Features

- Robust design
- Suitable for standard and EMC housings
- Low wiring costs
- High density of contacts

Technical characteristics

Electrical data acc. to IEC 61984	7.5 A 160 V 2.5 kV 3
Rated current	7.5 A
Rated voltage	160 V, 250 V
Rated impulse voltage	2.5 kV, 4 kV
Pollution degree	3
Material (insert)	polyamide
Material (contact)	copper alloy

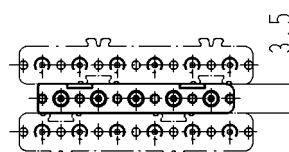
Specifications and approvals

IEC 60664-1
IEC 61984

Details

Crimping tools see chapter 90

Modules see chapter 06


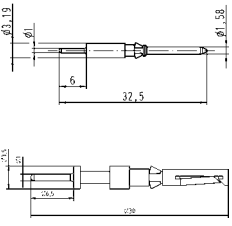
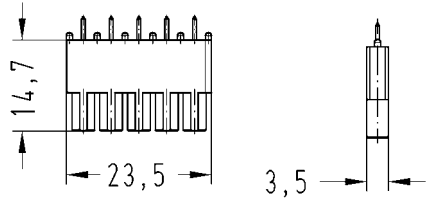

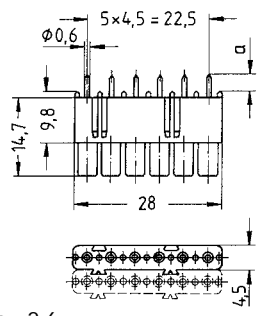


For a 17 pin PCB termination with the Han® DDD module two 6 pin and one 5 pin PCB adapters are necessary.
(electrical data: 7.5 A 160 V 2.5 kV 3)

PCB

PCB adapter for Han® DDD module



Identification	Part number		Drawing Dimensions in mm
	male	female	
<p>Han D®, to connect the PCB adapter, Double contact, silver plated contacts, contact resistance ≤3 mOhm</p> 	09 15 000 6197	09 15 000 6291	
<p>PCB adapter, 5 pins, for PCB's up to 1.6 mm, in the Han® DDD module</p>	09 16 000 9915	09 16 000 9915	
<p>PCB adapter, for PCB's up to 1.6 mm, in the Han DD® crimp insert, in the Han DD® module, in the Han® DDD module (different electrical data: 7.5 A 160 V 2.5 kV 3)</p> 	09 16 000 9905	09 16 000 9905	 <p>09 16 000 9905 a= 2.6 09 16 000 9908 a= 3.4</p>

PCB

PCB adapter for Han® 40 A Axial module



Features

- Modular assembly
- Robust design
- Suitable for standard and EMC housings
- Low wiring costs

Technical characteristics

Electrical data acc. to IEC 61984	40 A 500 V 6 kV 3
Rated current	40 A
Rated voltage	500 V
Rated impulse voltage	6 kV
Pollution degree	3
Material (insert)	polycarbonate
Material (contact)	copper alloy

Specifications and approvals

IEC 60664-1
IEC 61984


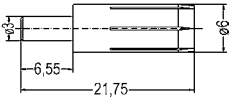

Details

Hinged frames see chapter 06

PCB

PCB adapter for Han® 40 A Axial module



Identification	Part number		Drawing Dimensions in mm
	male	female	
Han® C, Solder contact, contact resistance ≤3 mOhm 	09 32 000 6295		
PCB adapter, in the Han® 40 A Axial module 	09 14 002 2603	09 14 002 2703	

PCB

PCB adapter for Han E®



Features

- Robust design
- Suitable for standard and EMC housings
- Low wiring costs
- Counter connector available with screw, crimp or cage clamp termination

Technical characteristics

Electrical data acc. to IEC 61984	16 A 500 V 6 kV 3
Rated current	16 A
Rated voltage	500 V
Rated impulse voltage	6 kV
Pollution degree	3
Material (insert)	polycarbonate
Material (contact)	copper alloy

Specifications and approvals

IEC 60664-1
IEC 61984

Details

Crimping tools see chapter 90


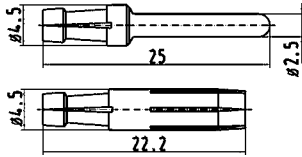

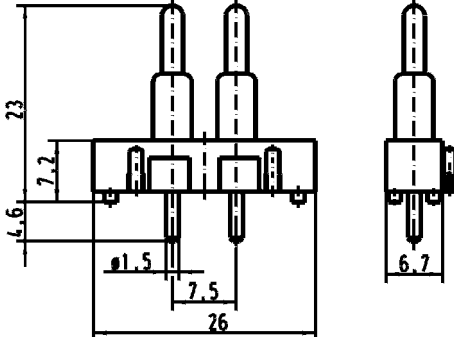
Han E® crimp inserts see chapter 03

Hoods/housings see chapter 31

PCB

PCB adapter for Han E®



Identification	Part number		Drawing Dimensions in mm
	male	female	
Han E®, to connect the PCB adapter, Double contact, contact resistance ≤3 Ohm 	09 33 000 6180	09 33 000 6280	
PCB adapter, in the Han E® crimp insert 	09 33 000 9996	09 33 000 9996	

PCB

PCB adapter for Han® Q 4/2



Features

- Robust design
- Low wiring costs
- High density of contacts
- Suitable for Han-Compact® hoods and housings

Technical characteristics

Electrical data acc. to IEC 61984	30 A 400/690 V 6 kV 2
Rated current	30 A
Rated voltage conductor - ground	400 V
Rated voltage conductor - conductor	690 V
Rated impulse voltage	6 kV
Pollution degree	2
Electrical data, signal	7.5 A 250 V 4 kV 2
Rated current	7.5 A
Rated voltage	250 V
Rated impulse voltage	4 kV
Limiting temperatures	-40 °C ... 125 °C
Flammability (hoods/housings) acc. to UL 94	V 0
Flammability (locking lever) acc. to UL 94	V 0
Protection class acc. to UL 50	NEMA type 4/4X/12
Degree of protection acc. to IEC 60529	IP65 / IP67
Material (insert)	LCP
Material (hoods/housings)	polycarbonate
Colour (hoods/housings)	RAL 9005 (black)
Material (locking lever)	polyamide
Colour (locking lever)	RAL 9005 (black)
Material (seal)	NBR
Material (contact)	copper alloy

Specifications and approvals

IEC 60664-1
IEC 61984



Details


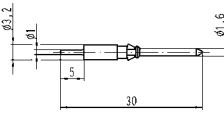
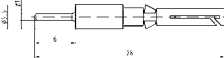

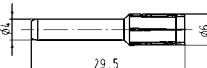
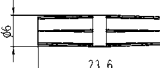

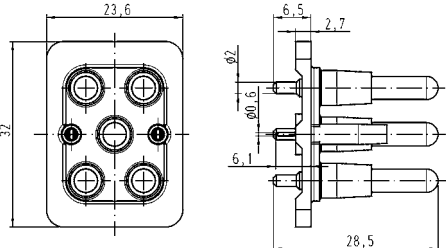
Han® Q inserts see chapter 13

Crimping tools see chapter 90

PCB

PCB adapter for Han® Q 4/2



Identification	Part number		Drawing Dimensions in mm
	male	female	
<p>Han D®, to connect the PCB adapter, Double contact, silver plated contacts, contact resistance ≤3 mOhm</p> 	09 15 000 6191	09 15 000 6293	 
<p>Han® C, to connect the PCB adapter, Double contact, contact resistance ≤3 mOhm</p> 	09 32 000 6180	09 32 000 6280	 
<p>PCB adapter, for PCB's up to 2.4 mm, in the Han® Q 4/2</p> 	09 12 006 9901	09 12 006 9901	

PCB

PCB adapter for Han® Q 4/2

Size Han-Compact®



Plastic hoods/housings for industrial applications
double locking lever

Identification

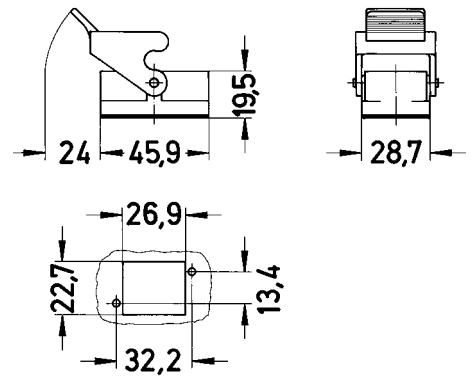
Han-Compact®,
Bulkhead mounted housings,
straight version



Part number

09 12 008 0327

**Drawing
Dimensions in mm**



PCB

20
·
24

PCB adapter for Han® Q 5/0



Features

- Robust design
- Suitable only for EMC housings size Han® 3 A
- Additional robust and secure PE-connection between housing and PCB

Technical characteristics

Electrical data acc. to IEC 61984	10 A 230/400 V 4 kV 3
Rated current	10 A
Rated voltage conductor - ground	230 V
Rated voltage conductor - conductor	400 V
Rated impulse voltage	4 kV
Pollution degree	3
Limiting temperatures	-40 °C ... 125 °C
Flammability (locking lever) acc. to UL 94	V 0
Protection class acc. to UL 50	NEMA type 4/4X/12
Degree of protection acc. to IEC 60529	IP44 / IP67 is achieved with seal screw 09 20 000 9918
Material (insert)	polycarbonate
Material (hoods/housings)	zinc die-cast
Surface (hoods/housings)	unpainted
Material (locking lever)	steel, zinc-plated
Material (seal)	NBR
Material (contact)	copper alloy

Specifications and approvals

IEC 60664-1
IEC 61984




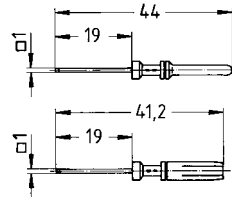

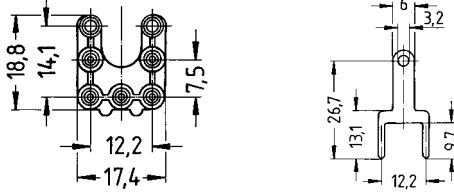
Details

Han® Q inserts see chapter 13

Crimping tools see chapter 90

PCB adapter for Han® Q 5/0



Identification	Part number		Drawing Dimensions in mm
	male	female	
Han E®, to connect the PCB adapter, Solder contact, silver plated contacts, contact resistance ≤3 Ohm 	09 33 000 6195	09 33 000 6295	
Han® Q, PCB adapter, 5 pins, in the Han® Q 5/0 	09 12 000 9905	09 12 000 9905	 <p>Adapter PE contact panel</p>

PCB

PCB adapter for Han® Q 5/0

Size 3 A



Hoods/Housings for higher EMC requirements
double locking lever

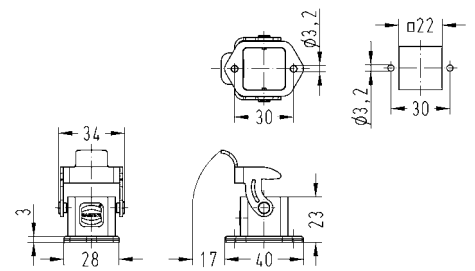
Identification

Part number

Drawing
Dimensions in mm

Han® EMV,
Bulkhead mounted housings

09 62 003 0304



PCB

PCB adapter for Han® Q 7/0



Features

- Robust design
- Suitable for standard and EMC housings
- High density of contacts

Technical characteristics

Electrical data acc. to IEC 61984	7.5 A 250 V 4 kV 3
Rated current	7.5 A
Rated voltage	250 V
Rated impulse voltage	4 kV
Pollution degree	3
Limiting temperatures	-40 °C ... 125 °C
Degree of protection acc. to IEC 60529	IP44 / IP67 is achieved with seal screw 09 20 000 9918
Material (insert)	polycarbonate
Material (hoods/housings)	zinc die-cast
Surface (hoods/housings)	powder-coated
Colour (hoods/housings)	RAL 7037 (grey)
Material (locking lever)	steel, zinc-plated
Material (seal)	NBR
Material (contact)	copper alloy

Specifications and approvals

IEC 60664-1
IEC 61984



Details


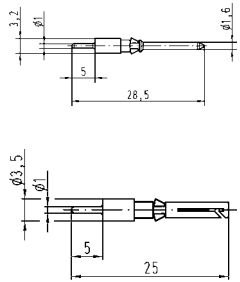

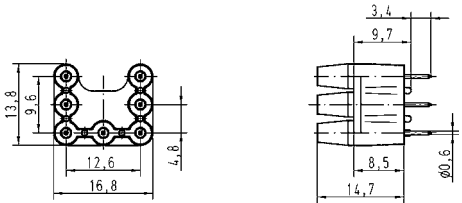
Han® Q inserts see chapter 13

Crimping tools see chapter 90

PCB

PCB adapter for Han® Q 7/0



Identification	Part number		Drawing Dimensions in mm
	male	female	
<p>Han D®, to connect the PCB adapter, Double contact, silver plated contacts, contact resistance ≤3 mOhm</p> 	09 15 000 6190	09 15 000 6290	
<p>PCB adapter, for PCB's up to 2.4 mm, in the Han® Q 7/0</p> 	09 12 000 9908	09 12 000 9908	

PCB

PCB adapter for Han® Q 7/0

Size 3 A



Metal hoods/housings for industrial applications
double locking lever

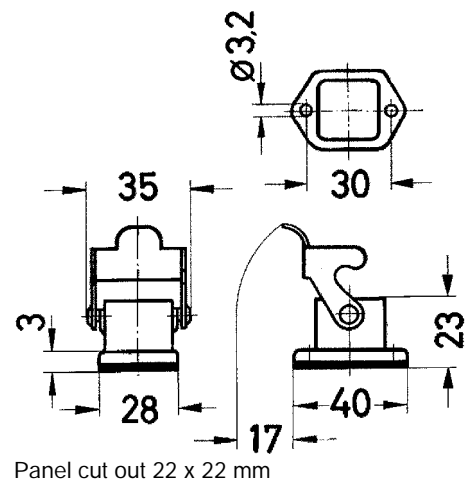
Identification

Part number

Drawing
Dimensions in mm

Han A®,
Bulkhead mounted housings,
straight

09 20 003 0301



PCB

20
30

PCB adapter for Han® Q 8/0



Features

- Robust design
- Suitable for Han-Compact® hoods and housings
- Low wiring costs
- High density of contacts

Technical characteristics

Electrical data acc. to IEC 61984	16 A 230/400 V 4 kV 2
Rated current	16 A
Rated voltage conductor - ground	230 V
Rated voltage conductor - conductor	400 V
Rated impulse voltage	4 kV
Pollution degree	2
Limiting temperatures	-40 °C ... 125 °C
Flammability (hoods/housings) acc. to UL 94	V 0
Flammability (locking lever) acc. to UL 94	V 0
Protection class acc. to UL 50	NEMA type 4/4X/12
Degree of protection acc. to IEC 60529	IP65 / IP67
Material (insert)	LCP
Material (hoods/housings)	polycarbonate
Colour (hoods/housings)	RAL 9005 (black)
Material (locking lever)	polyamide
Colour (locking lever)	RAL 9005 (black)
Material (seal)	NBR
Material (contact)	copper alloy

Specifications and approvals

IEC 60664-1
IEC 61984




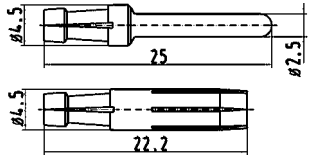

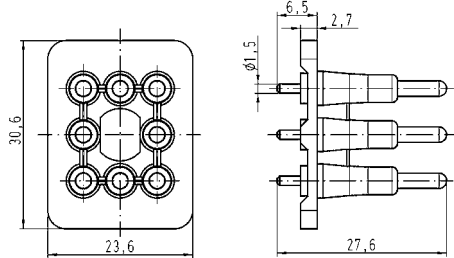
Details

Han® Q inserts see chapter 13

Crimping tools see chapter 90

PCB adapter for Han® Q 8/0



Identification	Part number		Drawing Dimensions in mm
	male	female	
Han E®, to connect the PCB adapter, Double contact, contact resistance ≤3 Ohm 	09 33 000 6180	09 33 000 6280	
Han® Q, PCB adapter, for PCB's up to 1.6 mm, in the Han® Q 8/0 	09 12 008 9901	09 12 008 9901	

PCB

PCB adapter for Han® Q 8/0

Size Han-Compact®



Plastic hoods/housings for industrial applications
double locking lever

Identification

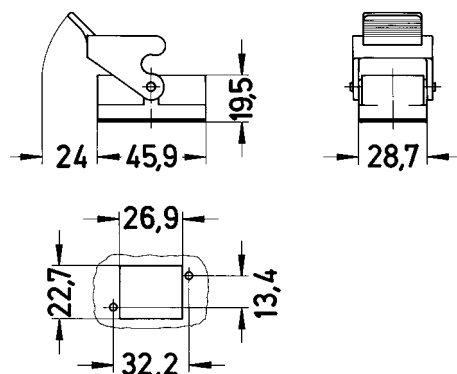
Han-Compact®,
Bulkhead mounted housings,
straight version



Part number

09 12 008 0327

**Drawing
Dimensions in mm**



PCB

PCB adapter for Han® Q 12/0



Features

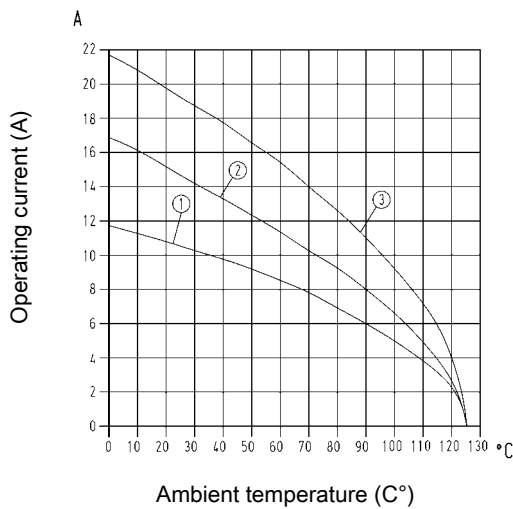
- Robust design
- Suitable for standard and EMC housings
- High density of contacts

Derating

Current carrying capacity

The current carrying capacity of the connectors is limited by the thermal load capability of the contact element material including the connections and the insulating parts. The derating curve is therefore valid for currents which flow constantly (non-intermittent) through each contact element of the connector evenly, without exceeding the allowed maximum temperature.

Measuring and testing techniques acc. to IEC 60512-5-2



- ① Wire cross section 0.75 mm²
- ② Wire cross section 1.5 mm²
- ③ Wire cross section 2.5 mm²

Technical characteristics

Contacts	12/0
Electrical data acc. to IEC 61984	7.5 A 250 V 4 kV 3
Rated current	7.5 A
Rated voltage	250 V
Rated impulse voltage	4 kV
Pollution degree	3
Insulation resistance	≥10 ¹⁰ Ohm
Limiting temperatures	-40 °C ... 125 °C
Flammability (insert) acc. to UL 94	V 0
Mating cycles	≥500
Flammability (seal) acc. to UL 94	V 0
Material (insert)	polycarbonate
Colour (insert)	RAL 7032 (light grey)
Material (contact)	copper alloy

Specifications and approvals

IEC 60664-1
IEC 61984



Details

Crimping tools see chapter 90

PCB

PCB adapter for Han® Q 12/0


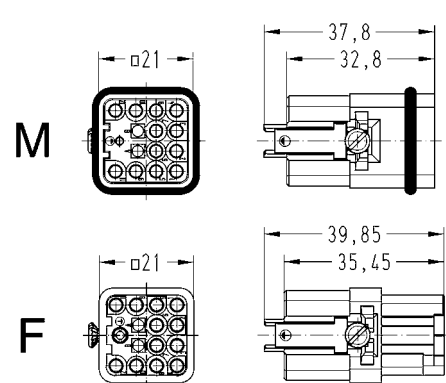

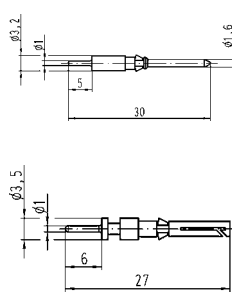
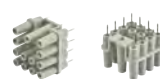
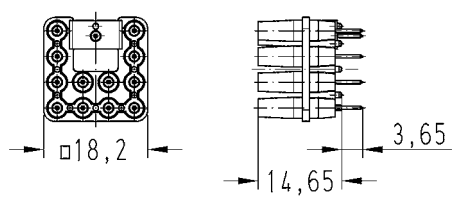
Size 3 A



Number of contacts

12/0+

250 V
7.5 A

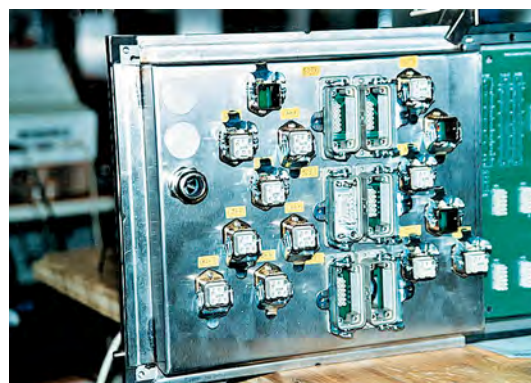
Identification	Part number		Drawing Dimensions in mm
	male	female	
Han® Q, Solder terminal, for PCB adapter  Please order contacts separately.	09 12 012 3002	09 12 012 3102	
Han D®, to connect the PCB adapter, Double contact, silver plated contacts, contact resistance ≤3 mOhm 	09 15 000 6191	09 15 000 6297	
PCB adapter, for PCB's up to 2.4 mm 	09 12 012 9901	09 12 012 9901	

PCB

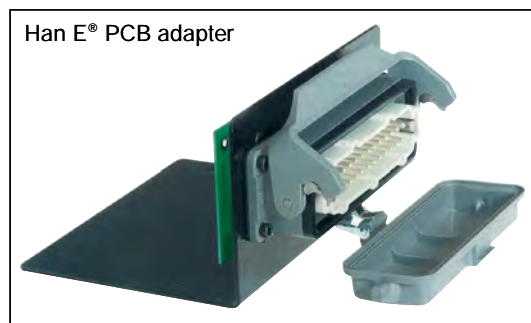
Application



- Secondary mating between industrial connector and printed circuit board.
- No higher force is applied on the soldering joint when mating the industrial connector due to an additional mating point.
- No wiring between printed circuit board and industrial connector necessary.
- This means no wiring faults ⇨ no testing, no costs
- Connecting times are minimized.
- Easy handling is time and cost saving.
- The production of mechanical and electrical / electronical components can be completely separated.
- Possibility to reach a higher degree of automation in the production (e.g. wave soldering of the PCBs).

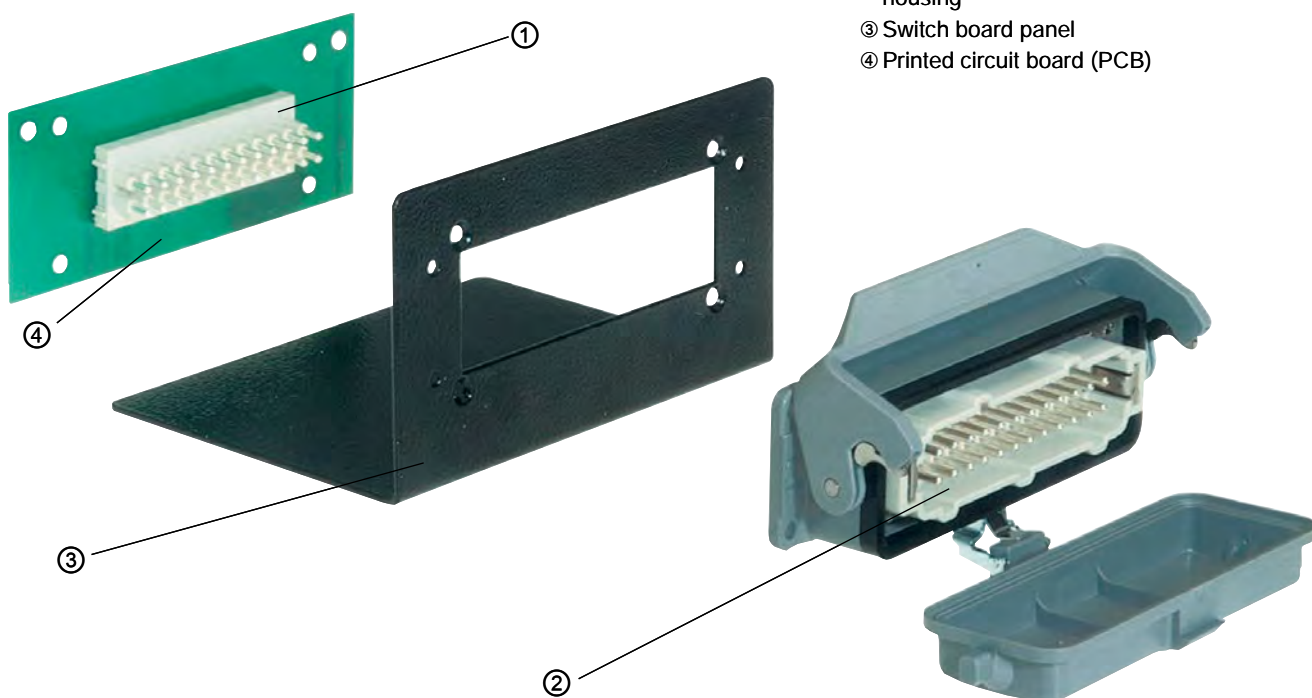


Han DD® and Han® Q 5/0 PCB adapter
Wilhelm Fette GmbH, Germany



Han E® PCB adapter

- ① PCB adapter for Han E®
- ② Han E® connector in a bulkhead mounted housing
- ③ Switch board panel
- ④ Printed circuit board (PCB)



PCB