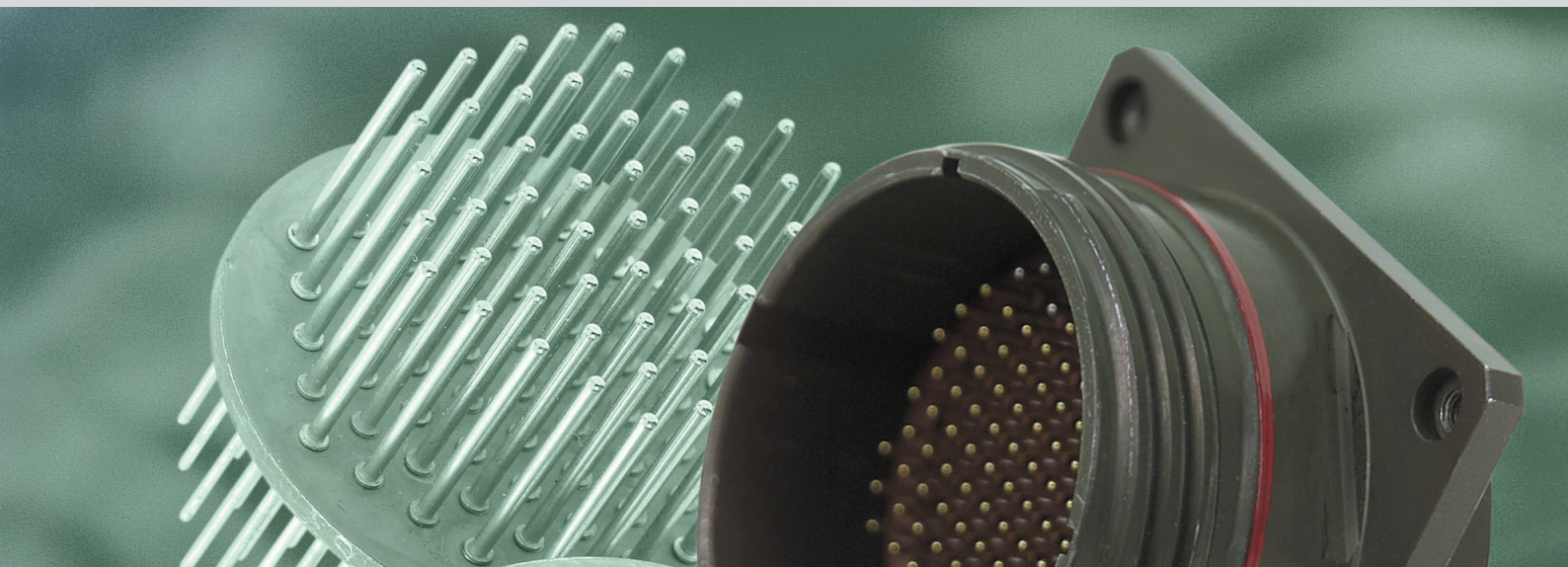


DATA

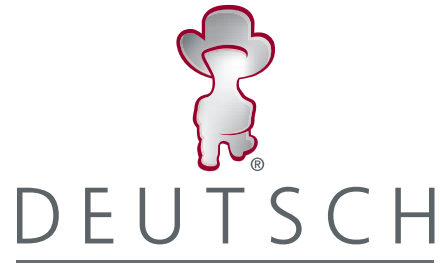


DEUTSCH



**EvoMax™**  
The Fastest MIL-DTL-38999 Series III Filter Connector

Innovative Interconnection Solutions



## **EvoMax™**

### The Fastest MIL-DTL-38999 Series III Filter Connector

The Deutsch EvoMax™ range is the next evolution of the MIL-DTL-38999 Series III filter connector. Deutsch have reviewed 20 years of experience in working on customer-specific applications to identify all the bespoke product features that have been utilised. We have then categorised

these and produced a standardised connector design that can accommodate all of the key options. By undertaking much of the design work upfront, and producing generic assembly tooling and jigs, we are able to pass a number of benefits onto the customer.

#### **Features and Benefits**

---

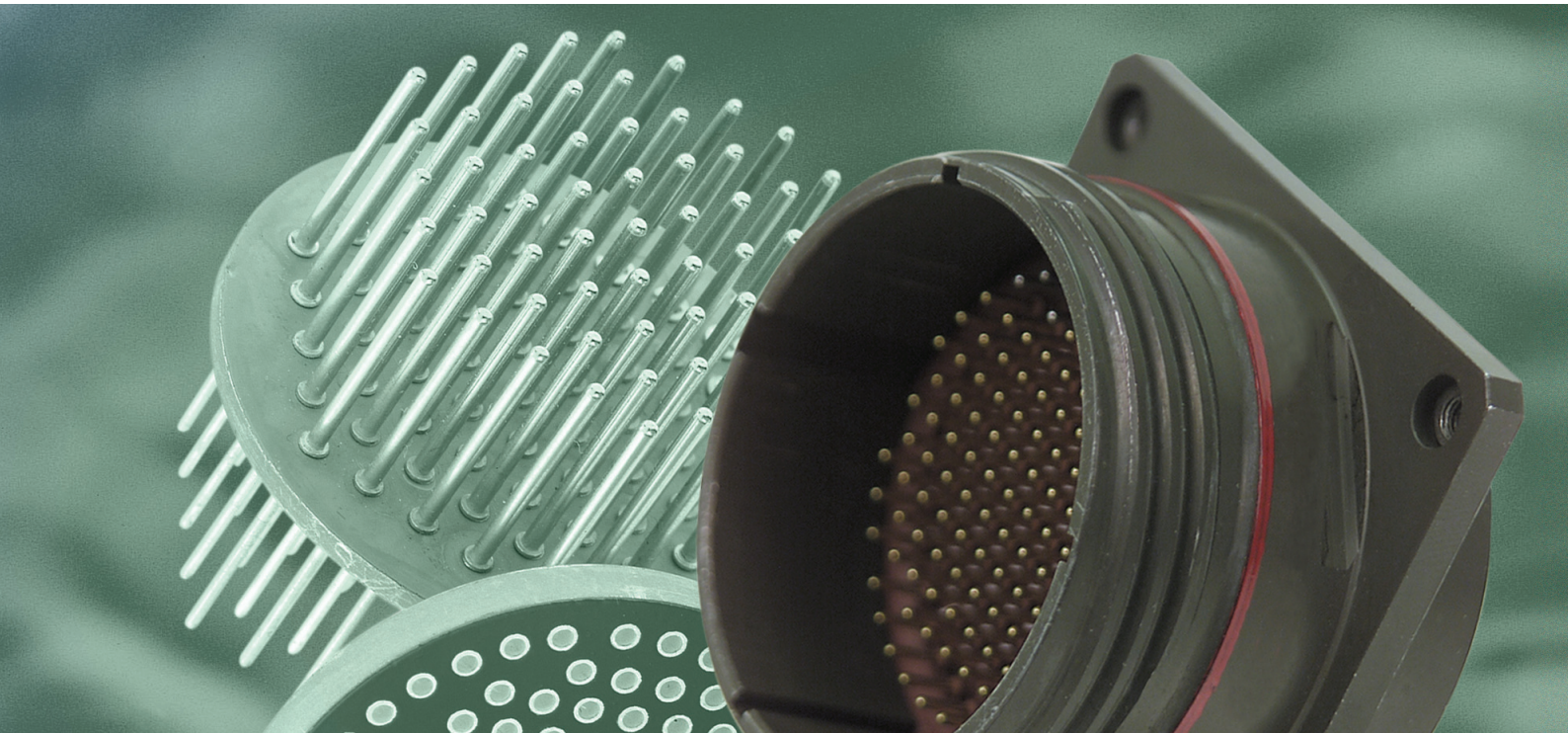
- Reduced leadtime
- Lower unit cost
- No tooling / NRE charges (subject to specific filter requirements)
- Faster service on quotation, envelope drawing, product specification and capabilities
- Can accommodate new Deutsch EvoPort™ termination technology
- Metal or Composite shell materials
- Transient protection options available (consult Deutsch for more details).

All of this is achieved without compromising flexibility in terms of filter configuration and performance.

#### **Product Specification**

---

The EvoMax™ connector generally meets the requirements of MIL-DTL-38999 Series III. However, some deviations from this standard are necessary due to the inclusion of filtering and other specific requirements, which are defined on the next page.



**Base Connector Specification:**

- Square flange style connectors: MIL-DTL-38999/20
- Jam nut style connectors: MIL-DTL-38999/24

**Insulation Resistance:** typ 5G $\Omega$  minimum - subject to capacitance

**Capacitor dielectric material:** X7R or equivalent

**Capacitor Tolerance:**  $\pm 20\%$

**Filtering / electrical footprint:** As detailed on Product Configuration Sheet

**Contact type:** Non-removable contacts

**Ground path resistance to shell:** 15m $\Omega$  typ

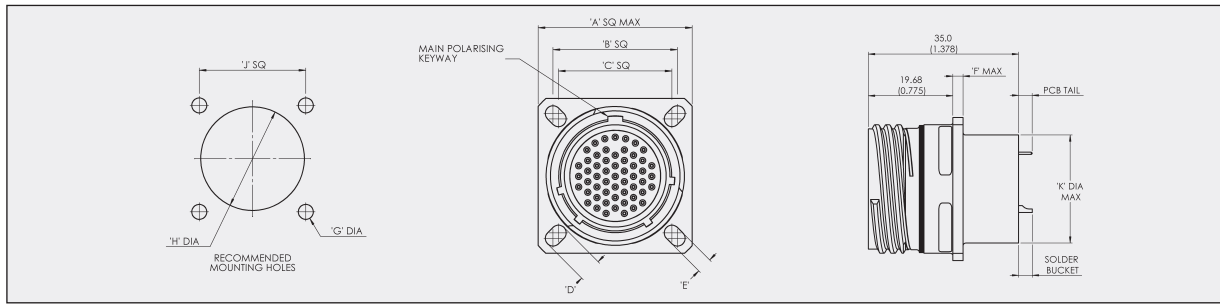
**Operating temperature range:** -55°C to +125°C

Other deviations from the MIL spec are as defined by Configuration Sheet and drawing. Connectors are supplied in protective packaging. Please advise us of any special requirements.

**Every EvoMax™ connector is released from Deutsch against the following documentation:**

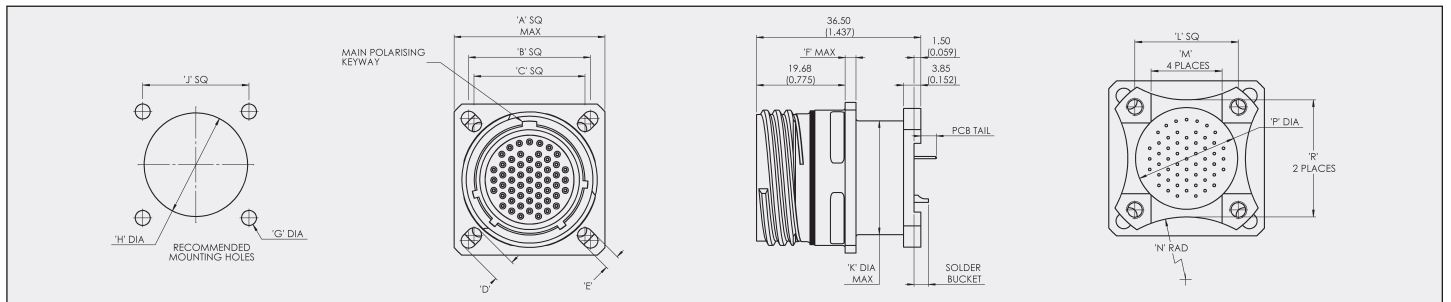
- Product envelope drawing - A generic envelope drawing will be supplied with the quotation for each connector.
- Configuration sheet - The completed configuration sheet defines the specific requirements of the connector and is the controlling document.
- Declaration of design and performance (DDP) - A comprehensive DDP will be supplied upon request. This details the environmental performance levels that are applicable to the EvoMax™.

# Square Flange with Mounting Slots



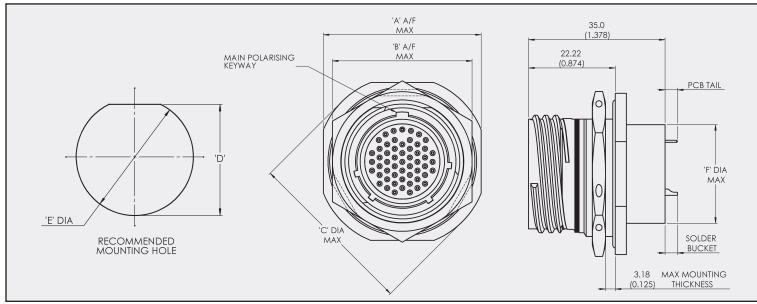
Shell Size	'A' SQ Max	'B' SQ	'C' SQ	'D'	'E'	'F' Max	'G' Dia	'H' Dia (min) Rear Mounting	'H' Dia (min) Front Mounting	'J' SQ	'K' Dia Max	PCB Tail ±0.50mm (±0.020)	Solder Bucket ±0.80mm (±0.031)
09	24.10 (0.949)	18.26 (0.719)	15.09 (0.594)	5.49 (0.216)	3.25 (0.128)	2.50 (0.098)	3.25 (0.128)	16.66 (0.656)	15.88 (0.625)	16.70 (0.657)	15.67 (0.617)	2.50 (0.098)	3.20 (0.126)
11	26.50 (1.043)	20.62 (0.812)	18.26 (0.719)	4.93 (0.194)	3.25 (0.128)	2.50 (0.098)	3.25 (0.128)	20.22 (0.796)	15.88 (0.625)	19.40 (0.764)	15.67 (0.617)		
13	28.90 (1.138)	23.01 (0.906)	20.62 (0.812)	4.93 (0.194)	3.25 (0.128)	2.50 (0.098)	3.25 (0.128)	23.42 (0.922)	19.05 (0.750)	21.80 (0.858)	18.85 (0.742)	3.18 (0.125)	
15	31.30 (1.232)	24.61 (0.969)	23.01 (0.906)	4.93 (0.194)	3.25 (0.128)	2.50 (0.098)	3.25 (0.128)	26.59 (1.047)	23.01 (0.906)	23.80 (0.937)	22.22 (0.875)	5.0 (0.197)	
17	32.60 (1.283)	26.97 (1.062)	24.61 (0.969)	4.93 (0.194)	3.25 (0.128)	2.50 (0.098)	3.25 (0.128)	30.96 (1.219)	25.81 (1.016)	25.80 (1.016)	25.45 (1.002)	or	
19	36.80 (1.449)	29.36 (1.156)	26.97 (1.062)	4.93 (0.194)	3.25 (0.128)	2.50 (0.098)	3.25 (0.128)	32.94 (1.297)	28.98 (1.141)	28.20 (1.110)	28.57 (1.125)	5.0 (0.197)	
21	40.00 (1.575)	31.75 (1.250)	29.36 (1.156)	4.93 (0.194)	3.25 (0.128)	3.20 (0.126)	3.25 (0.128)	36.92 (1.454)	32.16 (1.266)	30.60 (1.205)	31.75 (1.250)	5.0 (0.197)	
23	43.20 (1.701)	34.93 (1.375)	31.75 (1.250)	6.15 (0.242)	3.91 (0.154)	3.20 (0.126)	3.91 (0.154)	39.29 (1.547)	34.93 (1.375)	33.30 (1.311)	34.72 (1.367)		
25	46.30 (1.823)	38.10 (1.500)	34.93 (1.375)	6.15 (0.242)	3.91 (0.154)	3.20 (0.126)	3.91 (0.154)	42.47 (1.672)	37.69 (1.484)	36.50 (1.437)	37.50 (1.476)		

# Square Flange Mounting with Additional Rear Flange



Shell Size	'A' SQ Max	'B' SQ	'C' SQ	'D'	'E'	'F' Max	'G' Dia	'H' Dia (min) Rear mounting	'J' SQ	'K' Dia Max	'L' SQ	'M'	'N' Rad	'P' Dia	'R'	PCB Tail ±0.50mm (±0.020)
09	24.10 (0.949)	18.26 (0.719)	15.09 (0.594)	5.49 (0.216)	3.25 (0.128)	2.50 (0.098)	3.25 (0.128)	16.66 (0.656)	16.70 (0.657)	15.67 (0.617)	14.00 (0.551)	8.00 (0.315)	9.00 (0.354)	12.39 (0.488)	15.50 (0.610)	2.50 (0.098)
11	26.50 (1.043)	20.62 (0.812)	18.26 (0.719)	4.93 (0.194)	3.25 (0.128)	2.50 (0.098)	3.25 (0.128)	20.22 (0.796)	19.40 (0.764)	15.67 (0.617)	14.00 (0.551)	8.00 (0.315)	9.00 (0.354)	12.39 (0.488)	15.50 (0.610)	
13	28.90 (1.138)	23.01 (0.906)	20.62 (0.812)	4.93 (0.194)	3.25 (0.128)	2.50 (0.098)	3.25 (0.128)	23.42 (0.922)	21.80 (0.858)	18.85 (0.742)	17.00 (0.669)	8.00 (0.315)	12.00 (0.472)	15.47 (0.609)	18.65 (0.734)	2.50 (0.098)
15	31.30 (1.232)	24.61 (0.969)	23.01 (0.906)	4.93 (0.194)	3.25 (0.128)	2.50 (0.098)	3.25 (0.128)	26.59 (1.047)	23.80 (0.937)	22.22 (0.875)	19.00 (0.748)	12.00 (0.472)	18.00 (0.709)	18.77 (0.739)	22.00 (0.866)	3.18 (0.125)
17	32.60 (1.283)	26.97 (1.062)	24.61 (0.969)	4.93 (0.194)	3.25 (0.128)	2.50 (0.098)	3.25 (0.128)	30.96 (1.219)	25.80 (1.016)	25.45 (1.002)	22.00 (0.866)	12.00 (0.472)	20.00 (0.787)	21.94 (0.864)	25.25 (0.994)	or
19	36.80 (1.449)	29.36 (1.156)	26.97 (1.062)	4.93 (0.194)	3.25 (0.128)	2.50 (0.098)	3.25 (0.128)	32.94 (1.297)	28.20 (1.110)	28.57 (1.125)	25.00 (0.984)	16.00 (0.630)	22.00 (0.866)	24.48 (0.964)	28.40 (1.118)	5.0 (0.197)
21	40.00 (1.575)	31.75 (1.250)	29.36 (1.156)	4.93 (0.194)	3.25 (0.128)	3.20 (0.126)	3.25 (0.128)	36.92 (1.454)	30.60 (1.205)	31.75 (1.250)	27.00 (1.063)	16.00 (0.630)	22.00 (0.866)	27.63 (1.088)	31.55 (1.242)	5.0 (0.197)
23	43.20 (1.701)	34.93 (1.375)	31.75 (1.250)	6.15 (0.242)	3.91 (0.154)	3.20 (0.126)	3.91 (0.154)	39.29 (1.547)	33.30 (1.311)	34.72 (1.367)	29.00 (1.142)	16.00 (0.630)	22.00 (0.866)	30.81 (1.213)	34.50 (1.358)	
25	46.30 (1.823)	38.10 (1.500)	34.93 (1.375)	6.15 (0.242)	3.91 (0.154)	3.20 (0.126)	3.91 (0.154)	42.47 (1.672)	36.50 (1.437)	37.50 (1.476)	31.00 (1.220)	16.00 (0.630)	24.00 (0.945)	33.88 (1.334)	37.30 (1.469)	

# Jam Nut



Jam Nut Connectors are available with a conductive or non-conductive 'O' ring. Please specify your requirements in the additional notes section, on the tear off product configurator sheet, at the back of this datasheet.

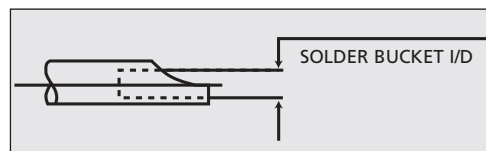
Shell Size	'A' A/F Max	'B' A/F Max	'B' Dia Max	'D' +0.00 -0.25 (-0.010)	'E' +0.25 (+0.010) -0.00	'F' Dia Max	PCB Tail ±0.50mm (±0.020)	Solder Bucket ±0.80mm (±0.031)
09	27.20 (1.071)	24.00 (0.945)	30.40 (1.197)	17.02 (0.670)	17.78 (0.700)	15.67 (0.617)	2.50 (0.098) 3.18 (0.125) or 5.0 (0.197)	3.20 (0.126)
11	32.00 (1.260)	27.00 (1.063)	35.10 (1.382)	19.59 (0.771)	20.96 (0.825)	15.67 (0.617)		
13	35.10 (1.382)	32.00 (1.260)	38.30 (1.508)	24.26 (0.955)	25.65 (1.010)	18.85 (0.742)		
15	38.30 (1.508)	36.00 (1.417)	41.50 (1.634)	27.56 (1.085)	28.83 (1.135)	22.22 (0.875)		
17	41.50 (1.634)	37.00 (1.457)	44.70 (1.760)	30.73 (1.210)	32.01 (1.260)	25.45 (1.002)		
19	46.20 (1.819)	41.00 (1.614)	49.40 (1.945)	33.91 (1.335)	35.18 (1.385)	28.57 (1.125)		
21	49.40 (1.945)	46.00 (1.811)	52.60 (2.071)	37.08 (1.460)	38.35 (1.510)	31.75 (1.250)		
23	52.60 (2.071)	50.00 (1.969)	55.80 (2.197)	40.26 (1.585)	41.53 (1.635)	34.72 (1.367)		
25	55.80 (2.197)	51.23 (2.017)	58.90 (2.319)	43.43 (1.710)	44.70 (1.760)	37.50 (1.476)		

Full drawings for all variants of EvoMax™ connectors are available to download from [www.deutsch.net/filters](http://www.deutsch.net/filters)

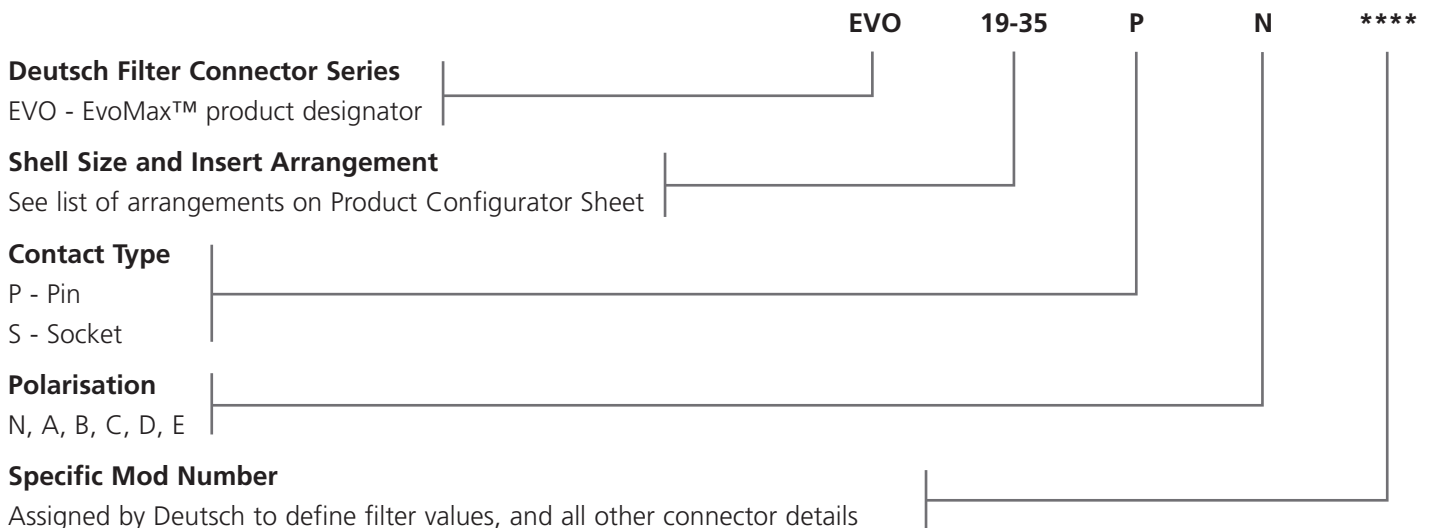
## Rear Termination Dimensions

Contact Size	Solder Bucket I/D (min)	PCB tail Dia max
22	0.90 (0.035)	0.56 (0.022)
20	1.06 (0.042)	0.81 (0.032)
16	1.75 (0.069)	1.02 (0.040)

Dimensions are in mm (inches)



## EvoMax™ Part Numbers



# Product Configurator Sheet

Please use one sheet per connector. Mark your selection with an 'X', ensuring that at least one box is checked under each sub-category. Some configurations may not be available - Deutsch will advise by return should an option be selected which cannot be provided. Please fax the completed form to **+44 (0) 1424 851726** or save a copy and email to **salesuk@deutsch.net**

## Your reference for this connector

### Shell mounting style

- Square flange with mounting slots
- Square flange with M3 threaded inserts
- Square flange with 4-40UNC threaded inserts
- Jam nut

### Optional PCB mounting feature

- None
- Additional rear flange with wash out slots and M3 helicoils
- Additional rear flange with wash out slots and 4-40UNC helicoils
- EvoPort™ ready - M3 helicoils
- EvoPort™ ready - 4-40UNC helicoils

### Rear termination

- 2.5mm (0.098") PC tails
- 3.18mm (0.125") PC tails
- 5.0mm (0.197") PC tails
- 3.20mm (0.126") Solder buckets
- EvoPort™ ready pins

### Rear termination finish (leave blank for EvoPort™ ready pins)

- Clean (Tails or buckets)     Tin Dipped (PC Tails)

### Shell material / finish

- Aluminium alloy / cadmium with olive drab finish
- Aluminium alloy / electroless nickel
- Stainless steel / passivated
- Composite / cadmium with olive drab finish
- Composite / electroless nickel

### Interface

- Pins                       Sockets

### Orientation / keyway

- N     A     B     C     D     E

### Insert arrangement / planform

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> 09-98 (3#20)       | <input type="checkbox"/> 17-08 (8#16)        | <input type="checkbox"/> 25-19 (19#12)        |
| <input type="checkbox"/> 09-35 (6#22)       | <input type="checkbox"/> 17-26 (26#20)       | <input type="checkbox"/> 25-29 (29#16)        |
| <input type="checkbox"/> 11-02 (2#16)       | <input type="checkbox"/> 17-35 (55#22)       | <input type="checkbox"/> 25-61 (61#20)        |
| <input type="checkbox"/> 11-05 (5#20)       | <input type="checkbox"/> 17-99 (2#16, 21#20) | <input type="checkbox"/> 25-35 (128#22)       |
| <input type="checkbox"/> 11-98 (6#20)       | <input type="checkbox"/> 19-11 (11#16)       | <input type="checkbox"/> 25-24 (12#12, 12#16) |
| <input type="checkbox"/> 11-35 (13#22)      | <input type="checkbox"/> 19-32 (32#20)       | <input type="checkbox"/> 25-04 (8#16, 48#20)  |
| <input type="checkbox"/> 13-04 (4#16)       | <input type="checkbox"/> 19-35 (66#22)       |   |
| <input type="checkbox"/> 13-98 (10#20)      | <input type="checkbox"/> 21-11 (11#12)       |   |
| <input type="checkbox"/> 13-35 (22#22)      | <input type="checkbox"/> 21-16 (16#16)       |   |
| <input type="checkbox"/> 15-05 (5#16)       | <input type="checkbox"/> 21-41 (41#20)       |   |
| <input type="checkbox"/> 15-18 (18#20)      | <input type="checkbox"/> 21-35 (79#22)       |   |
| <input type="checkbox"/> 15-19 (19#20)      | <input type="checkbox"/> 21-39 (2#16, 37#20) |   |
| <input type="checkbox"/> 15-35 (37#22)      | <input type="checkbox"/> 23-21 (21#16)       |   |
| <input type="checkbox"/> 15-97 (4#16, 8#20) | <input type="checkbox"/> 23-55 (55#20)       |   |
| <input type="checkbox"/> 17-06 (6#12)       | <input type="checkbox"/> 23-35 (100#22)      |   |

## Maximum working voltage AC / DC

### Tick all that apply

- |   |                                 |
|---|---------------------------------|
| <input type="checkbox"/> 50VDC                        | <input type="checkbox"/> 50VAC  |
| <input type="checkbox"/> 100VDC                       | <input type="checkbox"/> 100VAC |
| <input type="checkbox"/> 200VDC                       | <input type="checkbox"/> 200VAC |
| <input type="checkbox"/> 500VDC                       | <input type="checkbox"/> 500VAC |
| <input type="checkbox"/> 1000VDC                      | <input type="checkbox"/> 1000AC |
| <input type="checkbox"/> Other (please specify) _____ |                                 |

## Dielectric withstand voltage

### Tick all that apply

- |   |                                  |
|---|----------------------------------|
| <input type="checkbox"/> 125VDC                       | <input type="checkbox"/> 125VAC  |
| <input type="checkbox"/> 250VDC                       | <input type="checkbox"/> 250VAC  |
| <input type="checkbox"/> 500VDC                       | <input type="checkbox"/> 500VAC  |
| <input type="checkbox"/> 750VDC                       | <input type="checkbox"/> 750VAC  |
| <input type="checkbox"/> 1000VDC                      | <input type="checkbox"/> 1000VAC |
| <input type="checkbox"/> 1500VDC                      | <input type="checkbox"/> 1500VAC |
| <input type="checkbox"/> Other (please specify) _____ |                                  |

## Filter topology (Specify transient protection on additional sheet)

### Tick all that apply

If mixed filtering is required on the connector, please identify the requirements below, or on the next page.

- |                               |                               |
|-------------------------------|-------------------------------|
| <input type="checkbox"/> 'C'  | <input type="checkbox"/> 'LC' |
| <input type="checkbox"/> 'CL' | <input type="checkbox"/> 'PI' |

## Filter value (total capacitance per contact)

### Tick all that apply

If mixed filter values, grounded or feedthrough lines or Varistor devices are required, please identify the requirements for each contact below, or on the next page.

- |   |   |
|---|---|
| <input type="checkbox"/> 0.5nF                        | <input type="checkbox"/> 15nF                     |
| <input type="checkbox"/> 1nF                          | <input type="checkbox"/> 20nF                     |
| <input type="checkbox"/> 2.5nF                        | <input type="checkbox"/> Grounded                 |
| <input type="checkbox"/> 5nF                          | <input type="checkbox"/> Feedthrough (unfiltered) |
| <input type="checkbox"/> 10nF                         |   |
| <input type="checkbox"/> Other (please specify) _____ |   |

### Additional notes:

Deutsch will release this connector against the controlled documents listed below at the latest issue.

FOR DEUTSCH USE ONLY:	Document no. / Deutsch part no. ....	Issue .....	Date .....
	Deutsch DDP number .....	Issue .....	Date .....
	Deutsch envelope drawing .....	Issue .....	Date .....

## Specific Requirements Per Contact

Your reference for this connector \_\_\_\_\_

If necessary, please indicate your individual pin filter requirements against the relevant contact number (or letter) below. For details of available filter values, consult Deutsch "standard filter values" datasheet.

Contact reference (s)	Filter value, topology, etc	Contact reference (s)	Filter value, topology, etc	Contact reference (s)	Filter value, topology, etc
1 (A)		44 (r)		87	
2 (B)		45 (s)		88	
3 (C)		46 (t)		89	
4 (D)		47 (u)		90	
5 (E)		48 (v)		91	
6 (F)		49 (w)		92	
7 (G)		50 (x)		93	
8 (H)		51 (y)		94	
9 (I)		52 (z)		95	
10 (J)		53 (AA)		96	
11 (K)		54 (BB)		97	
12 (L)		55 (CC)		98	
13 (M)		56 (DD)		99	
14 (N)		57 (EE)		100	
15 (O)		58 (FF)		101	
16 (P)		59 (GG)		102	
17 (Q)		60 (HH)		103	
18 (R)		61 (II)		104	
19 (S)		62 (JJ)		105	
20 (T)		63 (KK)		106	
21 (U)		64 (LL)		107	
22 (V)		65 (MM)		108	
23 (W)		66 (NN)		109	
24 (X)		67 (OO)		110	
25 (Y)		68 (PP)		111	
26 (Z)		69		112	
27 (a)		70		113	
28 (b)		71		114	
29 (c)		72		115	
30 (d)		73		116	
31 (e)		74		117	
32 (f)		75		118	
33 (g)		76		119	
34 (h)		77		120	
35 (i)		78		121	
36 (j)		79		122	
37 (k)		80		123	
38 (l)		81		124	
39 (m)		82		125	
40 (n)		83		126	
41 (o)		84		127	
42 (p)		85		128	
43 (q)		86			

Deutsch will release this connector against the controlled documents listed below at the latest issue.

Page 2 of 2

FOR DEUTSCH USE ONLY: Document no. / Deutsch part no. .... Issue ..... Date .....  
 Deutsch DDP number ..... Issue ..... Date .....  
 ©Deutsch Deutsch envelope drawing ..... Issue ..... Date .....



DEUTSCH

For your nearest Sales Office visit [www.deutsch.net](http://www.deutsch.net)

For more information, technical  
assistance or custom solutions:  
email [filters@deutsch.net](mailto:filters@deutsch.net)  
[www.deutsch.net](http://www.deutsch.net)

Deutsch© 2010. Information contained within this brochure is subject to change without prior notification.

Literature Code EvoMax 01/10