Datamate

CONTENTS

INTRODUCTION 14
L-TEK (INCLUDING BRITISH STANDARD) 17
J-TEK (2-ROW) 35
J-TEK (3-ROW) 66
S-TEK 71
MIX-TEK (2-ROW) 75
TOOLING & INSTRUCTIONS 87

HARWIN

Performance without compromise

Datamate is a 2mm pitch, 3A per contact, high reliability, high performance connector system which is approved to British Standard 9525-F0033 and has a proven track record under the most extreme conditions.

This approval is made possible by Harwin's high reliability, low frequency four finger Beryllium Copper contact technology (3A max).

The contact features a four finger Beryllium Copper clip to ensure integrity of connection under the most severe conditions and makes Datamate ideally suited to applications that are subject to high loads of vibration and shock. Secure termination is achieved by latches (L-Tek), Jackscrews (J-Tek) or the new 101Lok fast mate hardware, which speeds and simplifies the mating process.

The range further benefits from mixed layout options (Mix-Tek) that afford the engineer complete flexibility of design. Contact options include high frequency (6GHz max) and high power (20A max).

Additional flexibility is available with: automated crimping versions (Trio-Tek) which reduces installed costs; fully shielded Datamate (S-Tek) for complete EMI/RFI screening; and Datamate BS with 100% in-process testing for peace of mind in safety-critical applications.

High reliability
4-Finger Beryllium
Copper contact

Features & benefits

- Miniature connector system with high performance contact reduce space and weight.
- Four finger Beryllium Copper contact ensures integrity of signal connection.
- Professional connector system at commercial prices.
- Rugged connectors for use in harsh environments & safety critical applications when failure is not an option.
- Proven history in: aerospace, industrial, military, oil & gas etc.
- Suited for use in harsh environments where high vibration, shock and extremes of temperature are a consideration.
- Global distribution network – stocked in depth.
- Approved to BS9525-F0033.
- Complies with CECC 75101-008.
- Live Help, 3D CAD models and evaluation samples at www.harwin.com/datamate.

Harwin operates an ongoing product development programme, visit www.harwin.com for the latest additions to the Datamate range.

Datamate Introduction – Product Families

Datamate L-Tek Datamate low frequency connectors with 3 flexible mating options: friction latch, locking latch and no latch.		Pages 17 – 34
Datamate J-Tek Datamate low frequency connectors with a variety of optional Jackscrews for increased security of connection. Includes 2-row and 3-row configurations.		2-Row: Pages 35 – 65 3-Row: Pages 66 – 70
Datamate S-Tek Datamate J-Tek with metal shells; shielded connectors for cable-to-panel and PCB applications where EMI and RFI screening is required. 360° braid attachment, tested to MIL-STD-1377.		Pages 71 – 74
Datamate Mix-Tek 3 connector styles in one. Includes low frequency signal, power (20A) and coax (6Ghz) options. Includes a stocked range of signal/power or power-only connectors, ideal for COTS requirements.		Pages 75 – 86
Datamate 101 Lok 101Lok hardware reduces assembly time by simplifying the mating process. The fast mate hardware requires 101-degree turn to securely mate and requires no special tooling.		Pages 39, 42, 47, 53, 55, 57, 59, 61
Datamate Trio-Tek Performing to the same high-reliability standards as conventional Datamate, the Trio-Tek open barrel crimp contact automates the crimp process to significantly save on assembly time and reduce process costs.		Pages 24 – 25, 50 – 51
Datamate BS Manufactured to British Standard 9525-F0033 for safety-critical applications. Datamate BS assures total security in the knowledge that the product is of the highest calibre.		Pages 18 – 19
Datamate -Plus Datamate with 100% in-process (A & B) testing. Similar to Datamate BS in nature but applicable to the whole range of Datamate.		Pages 18 – 19

DATAMATE

Datamate Specification

Datamate **L-Tek**

Materials

Mouldings:	Glass-filled thermoplastic UL94V-0
Female contacts:	Brass shell, with Beryllium Copper inner contact
Male contacts:	Copper alloy
Finish:	See individual pages

Electrical

Current (individual contacts in isolation):	3.3A max (at 25°C) 2.6A max (at 85°C)
All contacts simultaneously:	3.0A max (at 25°C) 2.2A max (at 85°C)
Working Voltage (at sea level 1013 mbar):	800V DC or ACrms
Voltage Proof (at sea level 1013 mbar):	1,200V DC or ACrms
Contact resistance (initial):	20 mΩ max
Contact resistance (after conditioning):	25 mΩ max
Insulation resistance (initial):	1,000 MΩ min
Insulation resistance (after conditioning):	100 MΩ min

Mechanical

Durability:	500 operations 400 operations (Trio-Tek)
Insertion force (max):	2.8N
Withdrawal force (min):	0.2N
Signal crimp accommodation:	22 AWG to 32 AWG BS 3G 210 Type A, MIL-W-16878

Environmental

Environmental classification:	55/125/56 days at 95% RH
Operational temperature:	-55ºC to +125ºC
*Vibration sensitivity:	10Hz to 2000Hz, 0.75mm, 98m/s^2 (10G), duration 6h
*Bump severity:	390m/s^2 (40G), 4000 ±10 bumps
*Shock severity:	981m/s^2 (100G) for 6ms
*Acceleration severity:	490m/s^2 (50G)

* Tested with latched connectors.

All preferred sizes of this range are held in stock.
Check www.harwin.com for availability.

Pin Numbering

Single Row

Double Row

Contact numbering is shown looking onto mating face of male connector.

British Standard 9525-F0033

Designed for performance critical applications where operation and safety are paramount, BS Datamate delivers the highest level of quality.

All BS Datamate parts are subject to in-process testing and individual inspection by qualified personnel. In addition, independent third-party test programmes are completed annually and all processes are audited by the British Standard Institute.

BS Datamate assures total security in the knowledge that the product is of the highest calibre.

Certificate No.: 1243/M

PART NUMBERING SYSTEM

B5XXX - X XX - X - X - X

STYLE NUMBER	
B5740	Female Connector Types C and D (Crimp)
B5741	Female Connector Types N and T (PC Tail)
B5743	Male Connector Types L and T (PC Tail)

NUMBER OF ROWS	
1	Single Row
2	Double Row

TOTAL NUMBER OF CONTACTS	
02 to 07, 17	Single Row
04, 06, 08, 10, 12, 14, 16, 18, 20, 26, 34	Double Row

GENDER	
F	Female (Socket)
M	Male (Plug)

VARIANT	
0	Unlatched connector, tin finish PC Tail (Male) or outer shell (Female)
1	Latched connector, tin finish PC Tail – Male only
2	Unlatched connector, gold finish PC Tail (Male) or outer shell (Female)
3	Latched connector, gold finish PC Tail – Male only
x	Variant

Note: all connectors are gold finish on the contact area.

TERMINATION STYLE	
C	Crimp 24-28 AWG (Small Bore) – Female only
D	Crimp 22 AWG (Large Bore) – Female only
L	Throughboard Solder 90° (PC Tail Horizontal) – Male only
N	Throughboard Solder Straight Short (PC Tail Vertical) – Female only
T	Throughboard Solder Straight (PC Tail Vertical)

EXAMPLE REFERENCE NO: **B5740-216-F-C-2**

British Standard 9525-F0033

Datamate BS	Datamate BS CONTAINS Pb	Datamate -Plus	Datamate	Datamate CONTAINS Pb
B5740-1XX-F-C-0	n/a	n/a	M80-898XX01	n/a
B5740-1XX-F-C-2	n/a	n/a	M80-898XX05	n/a
B5740-1XX-F-D-0	n/a	n/a	M80-899XX01	n/a
B5740-1XX-F-D-2	n/a	n/a	M80-899XX05	n/a
B5740-2XX-F-C-0	n/a	n/a	M80-888XX01	n/a
B5740-2XX-F-C-2	n/a	n/a	M80-888XX05	n/a
B5740-2XX-F-D-0	n/a	n/a	M80-889XX01	n/a
B5740-2XX-F-D-2	n/a	n/a	M80-889XX05	n/a
n/a	B5741-1XX-F-N-0	B5741-614XX42	M80-614XX42	M80-894XX01
n/a	B5741-1XX-F-N-2	B5741-614XX45	M80-614XX45	M80-894XX05
n/a	B5741-1XX-F-T-0	B5741-840XX42	M80-840XX42	M80-897XX01
n/a	B5741-1XX-F-T-2	B5741-840XX45	M80-840XX45	M80-897XX05
n/a	B5741-2XX-F-N-0	B5741-615XX42	M80-615XX42	M80-891XX01
n/a	B5741-2XX-F-N-2	B5741-615XX45	M80-615XX45	M80-891XX05
n/a	B5741-2XX-F-T-0	B5741-850XX42	M80-850XX42	M80-887XX01
n/a	B5741-2XX-F-T-2	B5741-850XX45	M80-850XX45	M80-887XX05
n/a	B5743-1XX-M-L-0	B5743-843XX42	M80-843XX42	M80-878XX22
n/a	B5743-1XX-M-L-1	B5743-842XX42	M80-842XX42	M80-876XX22
n/a	B5743-1XX-M-L-2	B5743-843XX45	M80-843XX45	M80-878XX05
n/a	B5743-1XX-M-L-3	B5743-842XX45	M80-842XX45	M80-876XX05
n/a	B5743-1XX-M-T-0	B5743-852XX42	M80-852XX42	M80-879XX22
n/a	B5743-1XX-M-T-1	B5743-882XX42	M80-882XX42	M80-877XX22
n/a	B5743-1XX-M-T-2	B5743-852XX45	M80-852XX45	M80-879XX05
n/a	B5743-1XX-M-T-3	B5743-882XX45	M80-882XX45	M80-877XX05
n/a	B5743-2XX-M-L-0	B5743-841XX42	M80-841XX42	M80-868XX22
n/a	B5743-2XX-M-L-1	B5743-851XX42	M80-851XX42	M80-866XX22
n/a	B5743-2XX-M-L-2	B5743-841XX45	M80-841XX45	M80-868XX05
n/a	B5743-2XX-M-L-3	B5743-851XX45	M80-851XX45	M80-866XX05
n/a	B5743-2XX-M-T-0	B5743-854XX42	M80-854XX42	M80-869XX22
n/a	B5743-2XX-M-T-1	B5743-853XX42	M80-853XX42	M80-867XX22
n/a	B5743-2XX-M-T-2	B5743-854XX45	M80-854XX45	M80-869XX05
n/a	B5743-2XX-M-T-3	B5743-853XX45	M80-853XX45	M80-867XX05

Mating Profiles

Datamate **L-Tek**

MALE \ FEMALE	VERTICAL PC TAIL		VERTICAL SMT	CRIMP		CRIMP (Trio-Tek)	
	SIL	DIL	DIL	SIL	DIL	SIL	DIL
VERTICAL PC TAIL							
HORIZONTAL PC TAIL							
VERTICAL SMT							
HORIZONTAL SMT							
CRIMP							

All dimensions in mm.

Female Vertical PC Tail

- Polarised mouldings.
- For British Standard versions see pages 18 to 19.
- Dummy contacts for additional polarisation use **order code M80-023.**
- Mates with male connectors on pages 27 to 33.

SINGLE ROW

CALCULATION	
A	B + 5.15
B	(Total no. of contacts - 1) x 2

DOUBLE ROW

CALCULATION	
A	B + 5.15
B	Total no. of contacts - 2

HOW TO ORDER

M80 - XXX XX XX

SERIES CODE

RoHS	Non-RoHS	
840	897	Single Row (3mm tail)
850	887	Double Row (3mm tail)
790	790	Single Row (4.5mm tail)
770	770	Double Row (4.5mm tail)

TOTAL NO. OF CONTACTS	
02 to 07, 17, 22	Single Row
04, 06, 08, 10, 12, 14, 16, 18, 20, 26, 34, 44	Double Row

FINISH		
01	Gold + Tin/Lead	Pb
05	Gold	Pb
42	Gold + Tin	Pb
45	Gold	Pb

All dimensions in mm.

Female Vertical Surface Mount

- Optional pick and place pad.
- Contact **datamate@harwin.com** for tape & reel options.
- Mates with male connectors on pages 27 to 33.
- Gull wing SMT tails simplify inspection process.

DOUBLE ROW

Recommended PC Board Pattern

CALCULATION	
A	B + 5.15
B	Total no. of contacts - 2

HOW TO ORDER

M80 - 681 XX XX P

SERIES CODE

TOTAL NO. OF CONTACTS

04, 06, 08, 10, 12, 14, 16, 18, 20, 26, 34, 44

PICK AND PLACE CAP	
BLANK	No cap
P	Pick and place cap

FINISH		
01	Gold + Tin/Lead	Pb
42	Gold + Tin	Pb
45	Gold	Pb

All dimensions in mm.

Female Crimp

- Part numbers are for housings and the equivalent number of contacts.
- Contacts are rear insertable.
- For British Standard versions see pages 18 to 19.
- Mates with male connectors on pages 27 to 33.
- Spare contacts are available – see page 25.

SINGLE ROW

CALCULATION	
A	B + 5.15
B	(Total no. of contacts - 1) x 2

DOUBLE ROW

CALCULATION	
A	B + 5.15
B	Total no. of contacts - 2

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – T5747
Contact Insertion/Removal Tool – Z80-280

See pages 87 to 89

- Instruction sheets available at www.harwin.com/downloads/instructions

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - XXX XX XX

SERIES CODE

TYPE		
SINGLE	DOUBLE	
798	788	Extra Small Bore (28-32 AWG), Hi-Temp Plastic
845	844	Small Bore (24-28 AWG), Hi-Temp Plastic
611	613	Large Bore (22 AWG), Hi-Temp Plastic
898	888	Small Bore (24-28 AWG)
899	889	Large Bore (22 AWG)

FINISH	
01	Gold + Tin (M80-788/789/888/889/898/899)
05	Gold (M80-788/789/888/889/898/899)
42	Gold + Tin (M80-611/613/844/845)
45	Gold (M80-611/613/844/845)

TOTAL NO. OF CONTACTS	
02 to 07, 17	Single Row
04, 06, 08, 10, 12, 14, 16, 18, 20, 26, 34	Double Row

All dimensions in mm.

Female Crimp Trio-Tek

- Part numbers are for housings only, see page 25 for Trio-Tek contacts.
- Contacts are rear-insertable.
- Crimp inspection window in housing.
- Mates with male connectors on pages 27 to 33.
- Ideal for volume applications.

SINGLE ROW

CALCULATION	
A	B + 5.15
B	(Total no. of contacts - 1) x 2

DOUBLE ROW

CALCULATION	
A	B + 5.15
B	Total no. of contacts - 2

TOOLS

Recommended Hand Crimp Tool – Z80-255

See pages 87 to 89

- **Instruction sheets available at www.harwin.com/downloads/instructions**

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - 69 X XX 98

SERIES CODE

TYPE	
0	Single Row
1	Double Row

TOTAL NO. OF CONTACTS	
02 to 07, 17	Single Row
04, 06, 08, 10, 12, 14, 16, 18, 20, 26, 34, 44	Double Row

FINISH	
98	Housing

All dimensions in mm.

Female Crimp Contacts

- Trio-Tek contacts must be ordered separately, see page 24 for applicable housings.
- Barrel Crimp contacts are supplied with the connectors (page 23) – use the order codes below for extra crimps.
- For crimp and insertion tools, see pages 87 to 89.

TRIO-TEK

Reeled

Loose

Datamate Trio-Tek

Wire Stripping Details

BARREL CRIMP

Large Bore (22 AWG):

Small Bore (24 – 28 AWG):

Extra Small Bore (28 – 32 AWG):

Wire Stripping Details

HOW TO ORDER

M80 - XXX 00 XX

SERIES CODE

FINISH	
01	Gold + Tin (M80-01x)
05	Gold (M80-01x)
42	Gold + Tin (M80-2xx)
45	Gold (M80-2xx)

TYPE			
011	Barrel Crimp, Large Bore (22 AWG)	253	Trio-Tek Crimp 22-24 AWG, Reeled
013	Barrel Crimp, Small Bore (24-28 AWG)	254	Trio-Tek Crimp 26-28 AWG, Reeled
019	Barrel Crimp, Extra Small Bore (28-32 AWG)	283	Trio-Tek Crimp 22-24 AWG, Loose
		284	Trio-Tek Crimp 26-28 AWG, Loose

All dimensions in mm.

Female Crimp Hood

- Supplied as a kit of parts, including body, lid, cable clamp and 4 screws.
- For use with double row female crimp connectors shown on page 23.
- Mates with unlatched or friction latch male connectors.

HOOD

CALCULATION	
A	B + 8.30
B	Total no. of contacts - 2
C	B + 6.30

HOW TO ORDER

M80 - 880 XX 98

SERIES CODE

TOTAL NO. OF CONTACTS
10, 12, 14, 16, 18, 20, 26, 34

All dimensions in mm.

Male Single Row Vertical PC Tail

- Polarised mouldings.
- Fully shrouded contacts.
- Mates with female connectors shown on pages 21 to 24.
- For British Standard versions see pages 18 to 19.
- Can be used with Strain Relief straps: **order code M80-0030006**.

UNLATCHED

CALCULATION	
A	B + 5.60
B	(Total no. of contacts - 1) x 2

Recommended PC Board Pattern

LOCKING LATCH

FRICTION LATCH

HOW TO ORDER

M80 - XXX XX XX

SERIES CODE

RoHS	Non-RoHS	
852	879	Unlatched (3mm tail)
882	877	Locking Latch (3mm tail)
881	805	Friction Latch (3mm tail)
752	752	Unlatched (4.5mm tail)
782	782	Locking Latch (4.5mm tail)
781	781	Friction Latch (4.5mm tail)

FINISH	
05	Gold
22	Gold + Tin/Lead
42	Gold + Tin
45	Gold

TOTAL NO. OF CONTACTS
02 to 07, 17, 22

All dimensions in mm.

Male Double Row Vertical PC Tail

- Polarised mouldings.
- Fully shrouded contacts.
- Mates with female connectors shown on pages 21 to 24.
- For British Standard versions see pages 18 to 19.
- Can be used with Strain Relief straps: **order code M80-0030006**.

UNLATCHED

CALCULATION	
A	B + 5.60
B	Total no. of contacts - 2

Recommended PC Board Pattern

LOCKING LATCH

FRICTION LATCH

HOW TO ORDER

M80 - XXX XX XX

SERIES CODE

RoHS	Non-RoHS	
854	869	Unlatched (3mm tail)
853	867	Locking Latch (3mm tail)
863	815	Friction Latch (3mm tail)
754	754	Unlatched (4.5mm tail)
753	753	Locking Latch (4.5mm tail)
763	763	Friction Latch (4.5mm tail)

FINISH	
05	Gold
22	Gold + Tin/Lead
42	Gold + Tin
45	Gold

TOTAL NO. OF CONTACTS
04, 06, 08, 10, 12, 14, 16, 18, 20, 26, 34, 44

All dimensions in mm.

Male Single Row Horizontal PC Tail

- Mates with female connectors on pages 21 to 24.
- For British Standard versions see pages 18 to 19.
- Supplied with Strain Relief straps:
  Order code M80-0030006.

UNLATCHED

CALCULATION	
A	B + 5.60
B	(Total no. of contacts - 1) x 2

Recommended PC Board Pattern

View of Strain Relief strap in place

LOCKING LATCH

FRICTION LATCH

HOW TO ORDER

M80 - XXX XX XX

SERIES CODE

RoHS	Non-RoHS	
843	878	Unlatched (3mm tail)
842	876	Locking Latch (3mm tail)
846	804	Friction Latch (3mm tail)
793	793	Unlatched (4.5mm tail)
792	792	Locking Latch (4.5mm tail)
796	796	Friction Latch (4.5mm tail)

FINISH		
05	Gold	Pb
22	Gold + Tin/Lead	Pb
42	Gold + Tin	Pb
45	Gold	Pb

TOTAL NO. OF CONTACTS
02 to 07, 17, 22

All dimensions in mm.

Male Double Row Horizontal PC Tail

- Mates with female connectors on pages 21 to 24.
- For British Standard versions see pages 18 to 19.
- Supplied with Strain Relief straps:
  Order code M80-0030006.

UNLATCHED

CALCULATION	
A	B + 5.60
B	Total no. of contacts - 2

Recommended PC Board Pattern

View of Strain Relief strap in place

LOCKING LATCH

FRICTION LATCH

HOW TO ORDER

M80 - XXX XX XX

SERIES CODE

RoHS	Non-RoHS	
841	868	Unlatched (3mm tail)
851	866	Locking Latch (3mm tail)
839	814	Friction Latch (3mm tail)
791	791	Unlatched (4.5mm tail)
771	771	Locking Latch (4.5mm tail)
789	789	Friction Latch (4.5mm tail)

FINISH		
05	Gold	Pb
22	Gold + Tin/Lead	Pb
42	Gold + Tin	Pb
45	Gold	Pb

TOTAL NO. OF CONTACTS
04, 06, 08, 10, 12, 14, 16, 18, 20, 26, 34, 44

All dimensions in mm.

Male Vertical Surface Mount

- Contact **datamate@harwin.com** for tape & reel options.
- Optional pick and place cap.
- Mates with female connectors on pages 21 to 24.
- Gull wing SMT tails simplify inspection process.

SINGLE ROW

CALCULATION	
A	B + 5.60
B	(Total no. of contacts - 1) x 2

Latches (when fitted) add 0.5mm to overall length 'A'

Recommended PC Board Pattern

DOUBLE ROW

CALCULATION	
A	B + 5.60
B	Total no. of contacts - 2

Latches (when fitted) add 0.5mm to overall length 'A'

Recommended PC Board Pattern

HOW TO ORDER

M80 - X 2 X XX XX P

SERIES CODE

ROWS

9	Single Row
8	Double Row

TYPE

6	Unlatched
7	Friction Latch
8	Locking Latch

TOTAL NO. OF CONTACTS

02 to 07, 17, 22	Single Row
04, 06, 08, 10, 12, 14, 16, 18, 20, 26, 34, 44	Double Row

PICK AND PLACE CAP

BLANK	No cap
P	Pick and place cap

FINISH

22	Gold + Tin/Lead (Pb)
42	Gold + Tin (Pb)
45	Gold (Pb)

All dimensions in mm.

Male Horizontal Surface Mount

- Contact **datamate@harwin.com** for tape & reel options.
- Strain Relief straps M80-0030006 supplied with these connectors.
- Mates with female connectors shown on pages 21 to 24.
- Stamped contact ensures co-planarity.

UNLATCHED

CALCULATION	
A	B + 5.60
B	Total no. of contacts - 2

Latches (when fitted) add 0.5mm to overall length 'A'

Recommended PC Board Pattern

LOCKING LATCH

FRICTION LATCH

HOW TO ORDER

M80 - 66 X XX XX

SERIES CODE

TYPE	
5	Unlatched
6	Locking Latch
7	Friction Latch

TOTAL NO. OF CONTACTS
04, 06, 08, 10, 12, 14, 16, 18, 20, 26, 34, 44

FINISH	
22	Gold + Tin/Lead (Pb)
42	Gold + Tin (Pb)

Strain Relief straps are supplied with all horizontal connectors. There is no need to order separately. Straps locate at the end of each connector (see page 30).

All dimensions in mm.

Male Crimp

- Mates with female connectors shown on pages 21 to 24.
- Contacts are rear insertable.
- Part numbers are for housings and the equivalent number of contacts.
- Back potting & cable assembly service available, contact **datamate@harwin.com**.
- Spare contacts available, see page 34.

SINGLE ROW

CALCULATION	
A	B + 5.60
B	(Total no. of contacts - 1) x 2

Latches (when fitted) add 0.5mm to overall length 'A'

DOUBLE ROW

CALCULATION	
A	B + 5.60
B	Total no. of contacts - 2

Latches (when fitted) add 0.5mm to overall length 'A'

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – T5747
Contact Insertion/Removal Tool – Z80-280
See pages 87 to 89

- Instruction sheets available at www.harwin.com/downloads/instructions

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - XXX XX XX

SERIES CODE

TYPE		
Single	Double	
806	**810**	Small Bore, Unlatched
807	**811**	Large Bore, Unlatched
808	**812**	Small Bore, Locking Latch
809	**813**	Large Bore, Locking Latch
883	**816**	Small Bore, Friction Latch
884	**817**	Large Bore, Friction Latch

FINISH	
05	Gold

TOTAL NO. OF CONTACTS	
02, 03, 04, 05, 06, 07	Single Row
04, 06, 08, 10, 12	Double Row

All dimensions in mm.

Male Crimp Contacts

- Crimp contacts are supplied with the connectors (page 30) – use the order codes below for extra crimp contacts.
- For crimp and insertion tools, see pages 87 to 89.

SPARE CRIMP CONTACT

Large Bore (22 AWG):

Wire Stripping Details

Small Bore (24 – 28 AWG):

HOW TO ORDER

M80 - 04 X 00 05

SERIES CODE

TYPE	
0	Large Bore
1	Small Bore

FINISH	
05	Gold

All dimensions in mm.

Datamate Specification

Datamate J-Tek

Materials

Mouldings:	Glass-filled thermoplastic UL94V-0
Female contacts:	Brass shell, with Beryllium Copper inner contact
Male contacts:	Copper alloy
Finish:	See individual pages

Electrical

Current (individual contacts in isolation):	3.3A max (at 25°C) 2.6A max (at 85°C)
All contacts simultaneously:	3.0A max (at 25°C) 2.2A max (at 85°C)
Working Voltage (at sea level 1013 mbar):	800V DC or ACrms
Voltage Proof (at sea level 1013 mbar):	1,200V DC or ACrms
Contact resistance (initial):	20 mΩ max
Contact resistance (after conditioning):	25 mΩ max
Insulation resistance (initial):	1,000 MΩ min
Insulation resistance (after conditioning):	100 MΩ min

Mechanical

Durability:	500 operations 400 operations (Trio-Tek)
Insertion force (max):	2.8N
Withdrawal force (min):	0.2N
Signal crimp accommodation:	22 AWG to 32 AWG BS 3G 210 Type A, MIL-W-16878

Environmental

Environmental classification:	55/125/56 days at 95% RH
Operational temperature:	-55ºC to +125ºC
*Vibration sensitivity:	10Hz to 2000Hz, 0.75mm, 98m/s^2 (10G), duration 6h
*Bump severity:	390m/s^2 (40G), 4000 ±10 bumps
*Shock severity:	981m/s^2 (100G) for 6ms
*Acceleration severity:	490m/s^2 (50G)

* Tested with connectors with Jackscrews.

All preferred sizes of this range are held in stock.
Check www.harwin.com for availability.

Pin Numbering

Double Row

Contact numbering is shown looking onto mating face of male connector.

Mating Profiles

Datamate J-Tek

FEMALE / MALE	VERTICAL PC TAIL	VERTICAL SMT	CRIMP
VERTICAL PC TAIL			
HORIZONTAL PC TAIL			
VERTICAL SMT			
HORIZONTAL SMT			
CRIMP			
CRIMP 1mm EXTENDED WALL			
CRIMP 5mm EXTENDED WALL			

All dimensions in mm.

Mating Profiles

FEMALE / MALE	CRIMP 1mm EXTENDED WALL	CRIMP 5mm EXTENDED WALL	CRIMP TRIO-TEK
VERTICAL PC TAIL			
HORIZONTAL PC TAIL			
VERTICAL SMT			
HORIZONTAL SMT			
CRIMP			
CRIMP 1mm EXTENDED WALL			
CRIMP 5mm EXTENDED WALL			

All dimensions in mm.

Female Vertical PC Tail

- Fully shrouded contacts.
- Polarised mouldings.
- Mates with male connectors shown on pages 52, 54, 56, 58, 60, 63 and 64.

WITHOUT JACKSCREWS

Recommended PC Board Pattern

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

WITH JACKSCREWS

M80-40X

M80-42X

Recommended PC Board Pattern

HOW TO ORDER

M80 - 4 X X XX XX

SERIES CODE

0	With Hex Slotted Jackscrews
1	Without Jackscrews
2	With Hex Socket Jackscrews

0	3mm Tails
1	4.5mm Tails

FINISH		
01	Gold + Tin/Lead	Pb
05	Gold	Pb
42	Gold + Tin	Pb

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

All dimensions in mm.

Female Vertical PC Tail Guide Pin, 101Lok

- 101Lok fixing gives secure, fast and simple mating; no special tooling required. Just a simple 101-degree turn is required to fix the connectors together.
- 101Lok style mates with male connectors shown on pages 53, 55, 57, 59 and 61.
- Guide pin style includes board mount fixing, and mates with male connectors with Jackscrews, shown on pages 52, 54, 56, 58, 60, 63 and 64.

GUIDE PIN JACKSCREWS

Recommended PC Board Pattern

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

101LOK

101 Lok

Recommended PC Board Pattern

HOW TO ORDER

M80 - 4 TX XX XX FX

SERIES CODE

TYPE	
T1	3mm Tails
T2	4.5mm Tails

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

JACKSCREW	
F3	Guide Pin
FC	101Lok

FINISH	
01	Gold + Tin/Lead
05	Gold
42	Gold + Tin

All dimensions in mm.

Female Vertical PC Tail Reverse Fix

- Fully shrouded contacts.
- Polarised mouldings.
- Includes board mount fixing, and mates with male connectors shown on page 62.

REVERSE FIX

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

Recommended PC Board Pattern

HOW TO ORDER

M80 - 40 X XX XX

SERIES CODE

TYPE

5	3mm Tails
6	4.5mm Tails

FINISH

01	Gold + Tin/Lead	Pb
05	Gold	Pb
42	Gold + Tin	Pb

TOTAL NO. OF CONTACTS

04 to 50

Even numbers only

All dimensions in mm.

Female Vertical Surface Mount

- Optional pick and place cap.
- Contact **datamate@harwin.com** for tape and reel options.
- Gull wing SMT tails simplify inspection process.
- Mates with male connectors shown on pages 52, 54, 56, 58, 60, 63 and 64.

WITHOUT JACKSCREWS

Recommended PC Board Pattern

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

WITH JACKSCREWS

M80-402

M80-422

Recommended PC Board Pattern

HOW TO ORDER

M80 - 4 X 2 XX XX P

SERIES CODE

TYPE	
0	With Hex Slotted Jackscrews
1	Without Jackscrews
2	With Hex Socket Jackscrews

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

FINISH		
01	Gold + Tin/Lead	Pb
05	Gold	Pb
42	Gold + Tin	Pb

PICK AND PLACE CAP	
BLANK	No cap
P	Pick and place cap

All dimensions in mm.

Female Vertical Surface Mount Guide Pin, 101Lok

- 101Lok fixing gives secure, fast and simple mating; no special tooling required. Just a simple 101-degree turn is required to fix the connectors together.
- 101Lok style mates with male connectors shown on pages 53, 55, 57, 59 and 61.
- Guide pin style includes Board Mount fixing, and mates with male connectors with Jackscrews, shown on pages 52, 54, 56, 58, 60, 63 and 64.

GUIDE PIN JACKSCREWS

Recommended PC Board Pattern

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

101LOK

101 Lok

Recommended PC Board Pattern

HOW TO ORDER

M80 - 4S1 XX XX FX

TYPE	
F3	Guide Pin
FC	101Lok

SERIES CODE

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

FINISH		
01	Gold + Tin/Lead	Pb
05	Gold	Pb
42	Gold + Tin	Pb

All dimensions in mm.

Female Vertical Surface Mount Reverse Fix

- Fully shrouded contacts.
- Polarised mouldings.
- Includes Board Mount fixing, and mates with male connectors shown on page 62.

REVERSE FIX

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

Recommended PC Board Pattern

HOW TO ORDER

M80 - 4S1 XX XX FX

TYPE	
F8	3.5mm Board Mount Jackscrew
F9	5mm Board Mount Jackscrew

SERIES CODE

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

FINISH		
01	Gold + Tin/Lead	Pb
05	Gold	Pb
42	Gold + Tin	Pb

All dimensions in mm.

Datamate Connectors

Datamate J-Tek

Female Crimp

- Large bore 22 AWG, small bore 24 – 28 AWG.
- Jackscrews are assembled where specified.
- Crimp contacts are rear insertable.
- Mates with male connectors shown on pages 52, 54, 56, 58, 60, 63 and 64.
- Part numbers are for housings and the equivalent number of contacts.
- Spare contacts available, see page 51.
- Version also available for 28 – 32 AWG cable – see page 46.

WITHOUT JACKSCREWS

WITH JACKSCREWS

M80-460
M80-461

M80-480
M80-481

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – T5747
Contact Insertion/Removal Tool – Z80-280
See pages 87 to 89

- **Instruction sheets available at www.harwin.com/downloads/instructions**

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - XXX XX XX

SERIES CODE

TYPE			
460	Large Bore, with Jackscrews*	**471**	Small Bore, without Jackscrews
461	Small Bore, with Jackscrews*	**480**	Large Bore, with Hex Jackscrews
470	Large Bore, without Jackscrews	**481**	Small Bore, with Hex Jackscrews

* Slotted

FINISH		
05	Gold	Pb
42	Gold + Tin	Pb

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

All dimensions in mm.

Female Crimp Reverse Fix

- Mates with male connectors shown on page 62.
- Allows for further flexibility in system design.
- Crimp contacts supplied loose and are inserted from rear.
- Large bore 22 AWG, small bore 24 – 28 AWG.
- Part numbers are for housings and the equivalent number of contacts.
- Spare contacts are available – see page 51.
- Version also available for 28 – 32 AWG cable – see page 47.

WITH JACKSCREWS

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – T5747
Contact Insertion/Removal Tool – Z80-280
See pages 87 to 89

- **Instruction sheets available at www.harwin.com/downloads/instructions**

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - XXX XX XX

SERIES CODE

TYPE	
462	Large Bore Connector
463	Small Bore Connector

FINISH		
05	Gold	Pb
42	Gold + Tin	Pb

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

All dimensions in mm.

Female Crimp Extra Small Bore

- Extra small bore for 28 – 32 AWG.
- Crimp contacts are rear insertable.
- Mates with male connectors shown on pages 52, 54, 56, 58, 60, 63 and 64.
- Part numbers are for a housing and the equivalent number of contacts.
- Spare contacts available, see page 51.
- Versions also available for 22 – 28 AWG cable – see page 44.

WITHOUT JACKSCREWS

WITH JACKSCREWS

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – T5747
Contact Insertion/Removal Tool – Z80-280
See pages 87 to 89

- Instruction sheets available at www.harwin.com/downloads/instructions

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - 4 E1 XX XX FX

SERIES CODE

TYPE	
E1	Extra Small Bore 28-32AWG

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

JACKSCREW	
00	Without Jackscrews
F1	With Hexagonal Slotted Jackscrews
F2	With Hex Socket Jackscrews

FINISH		
05	Gold	Pb
42	Gold + Tin	Pb

All dimensions in mm.

Female Crimp 101Lok, Guide Pin, Reverse Fix

- Extra Small Bore for 28 – 32 AWG.
- 101Lok fixing gives secure, fast and simple mating; no special tooling required. Just a simple 101-degree turn to fix the connectors together.
- 101Lok style mates with male connectors shown on pages 53, 55, 57, 59 and 61.
- Reverse fix includes board mount fixing, and mates with male connectors shown on page 62.
- Guide pin style includes Board Mount fixing, and mates with male connectors with Jackscrews, shown on pages 52, 54, 56, 58, 60, 63 and 64.

101LOK

101 Lok

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

GUIDE PIN, REVERSE FIX

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – T5747
Contact Insertion/Removal Tool – Z80-280
See pages 87 to 89

- **Instruction sheets available at www.harwin.com/downloads/instructions**

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - 4 X1 XX XX FX

SERIES CODE
M80

TYPE	
C1	Small Bore 24-28AWG
D1	Large Bore 22AWG
E1	Extra Small Bore 28-32AWG

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

JACKSCREW	
F3	Guide Pin
F8	Reverse Fix (3.5mm Board Mount)
F9	Reverse Fix (5mm Board Mount)
FC	101Lok

FINISH		
05	Gold	Pb
42	Gold + Tin	Pb

All dimensions in mm.

Female Crimp Extended Wall

- Extended Wall Datamate allows back potting to be performed.
- Polarised mouldings.
- Crimp contacts are rear insertable.
- Large bore 22AWG, small bore 24 – 28 AWG.
- Part numbers are for a housing and the equivalent number of contacts.
- Mates with male connectors shown on pages 52, 54, 56, 58, 60, 63 and 64.
- Spare contacts are available – see page 51.

WITHOUT JACKSCREWS

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

WITH JACKSCREWS

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – T5747
Contact Insertion/Removal Tool – Z80-280
See pages 87 to 89

- Instruction sheets available at www.harwin.com/downloads/instructions

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - XXX XX XX

SERIES CODE

TYPE			
465	Large Bore, with Jackscrews*	476	Small Bore, without Jackscrews
466	Small Bore, with Jackscrews*	485	Large Bore, with Hex Jackscrews
475	Large Bore, without Jackscrews	486	Small Bore, with Hex Jackscrews

*Slotted

WALL SIZE	
BLANK	Wall = 5mm
A	Wall = 1mm

FINISH	
05	Gold
42	Gold + Tin

TOTAL NO. OF CONTACTS
06, 10, 12, 14, 18, 20, 26, 34, 42, 50

All dimensions in mm.

Female Crimp with Hood

- Supplied as a complete kit, including hood, screws, connector, contacts and Jackscrews.
- For spare crimp contacts, see page 51.
- Provides strain relief by preventing cable bending at the rear of the connector, and also has the option of inserting a cable tie to reduce pull strain.
- Mates with male connectors shown on pages 52, 54, 56, 58, 60, 63 and 64.

FEMALE

CALCULATION	
A	B + 21.5
B	Total no. of contacts - 2
C	B + 7

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – T5747
Contact Insertion/Removal Tool – Z80-280
See pages 87 to 89

- Instruction sheets available at www.harwin.com/downloads/instructions

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - 94 X XX XX

SERIES CODE

TYPE	
0	Small Bore 24-28AWG
1	Large Bore 22AWG

FINISH		
05	Gold	Pb
42	Gold + Tin	Pb

TOTAL NO. OF CONTACTS
06, 08, 10, 12, 14, 20, 26, 34, 42, 50

All dimensions in mm.

Female Crimp Trio-Tek

- Crimp inspection window in housing.
- Mates with male connectors shown on pages 52 to 64.
- Contacts available separately, see page 51.
- Triangular contact design for automated assembly equipment.
- Ideal for volume applications.

WITH JACKSCREWS

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

WITHOUT JACKSCREWS

TOOLS

Recommended Hand Crimp Tool – Z80-255
Contact Removal Tool – Z80-258
See pages 87 to 89

- Instruction sheets available at www.harwin.com/downloads/instructions

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - 45X XX 98

SERIES CODE

TYPE			
454	Without Jackscrews	457	Reverse Fix Jackscrews
455	Hex Slotted Jackscrews	458	Guide pin with panel mount
456	Hex Socket Jackscrews	459	101Lok Jackscrews

FINISH	
98	Housings

TOTAL NO. OF CONTACTS

06, 08, 10, 12, 14, 20, 26, 34, 42, 50

All dimensions in mm.

Female Crimp Contacts

- Trio-Tek contacts must be ordered separately, see page 50 for applicable housings.
- Barrel Crimp contacts are supplied with the connectors (pages 44 to 49) – use the order codes below for extra crimps.
- For crimp and insertion tools, see pages 87 to 89.

TRIO-TEK

Reeled

Loose

Datamate Trio-Tek

Wire Stripping Details

BARREL CRIMP

Large Bore (22 AWG):

Small Bore (24 – 28 AWG):

Extra Small Bore (28 – 32 AWG):

Wire Stripping Details

HOW TO ORDER

M80 - XXX 00 XX

SERIES CODE

FINISH	
01	Gold + Tin (M80-01x)
05	Gold (M80-01x)
42	Gold + Tin (M80-2xx)
45	Gold (M80-2xx)

TYPE			
011	Barrel Crimp, Large Bore (22 AWG)	253	Trio-Tek Crimp 22-24 AWG, Reeled
013	Barrel Crimp, Small Bore (24-28 AWG)	254	Trio-Tek Crimp 26-28 AWG, Reeled
019	Barrel Crimp, Extra Small Bore (28-32 AWG)	283	Trio-Tek Crimp 22-24 AWG, Loose
		284	Trio-Tek Crimp 26-28 AWG, Loose

All dimensions in mm.

Datamate Connectors

Datamate J-Tek

Male Vertical PC Tail

- Mates with female connectors shown on pages 38, 39, 41, 42, 44 and 46 to 50 (excluding 101Lok).
- Polarised mouldings.
- Fully shrouded contacts.
- Jackscrews are assembled where specified.
- Choice of PC tail length.
- Board Mount provides PCB strain relief.

WITHOUT JACKSCREWS

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

Recommended PC Board Pattern

WITH JACKSCREWS

WITH BOARD MOUNT

HOW TO ORDER

M80 - 5 X X XX XX

SERIES CODE	
0	With Jackscrews
1	With Board Mount
2	Without Jackscrews

0	3mm Tails
1	4.5mm Tails

FINISH	
05	Gold
22	Gold + Tin/Lead
42	Gold + Tin

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

All dimensions in mm.

Male Vertical PC Tail 101Lok

- Mates with female connectors shown on pages 39, 42, 47 and 50.
- Polarised mouldings.
- Fully shrouded contacts.
- Jackscrews are assembled where specified.
- Choice of PC tail length.
- Board Mount provides PCB strain relief.

101 Lok

Recommended PC Board Pattern

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

101LOK

101LOK WITH BOARD MOUNT

HOW TO ORDER

M80 - 5 TX XX XX MX

SERIES CODE

TYPE	
T1	3mm Tails
T2	4.5mm Tails

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

JACKSCREW	
MC	101Lok
ME	101Lok with Board Mount

FINISH		
05	Gold	Pb
22	Gold + Tin/Lead	Pb
42	Gold + Tin	Pb

All dimensions in mm.

Male Horizontal PC Tail

- Mates with female connectors shown on pages 38, 39, 41, 42, 44 and 46 to 50 (excluding 101Lok).
- Jackscrews are assembled where specified.
- Choice of PC tail length.
- Board Mount provides PCB strain relief.

WITHOUT JACKSCREWS

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

Recommended PC Board Pattern

WITH JACKSCREWS

WITH BOARD MOUNT

HOW TO ORDER

M80 - 5 X X XX XX

SERIES CODE	
3	With Jackscrews
4	With Board Mount
5	Without Jackscrews

0	3mm Tails
1	4.5mm Tails

FINISH		
05	Gold	Pb
22	Gold + Tin/Lead	Pb
42	Gold + Tin	Pb

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

All dimensions in mm.

Male Horizontal PC Tail 101Lok

- Mates with female connectors shown on pages 39, 42, 47 and 50.
- Jackscrews are assembled where specified.
- Choice of PC tail length.
- Board Mount provides PCB strain relief.

101 Lok

Recommended PC Board Pattern

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

101LOK

101LOK WITH BOARD MOUNT

HOW TO ORDER

M80 - 5 LX XX XX MX

SERIES CODE
M80

TYPE	
L1	3mm Tails
L2	4.5mm Tails

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

JACKSCREW	
MC	101Lok
MD	101Lok with Board Mount

FINISH	
05	Gold
22	Gold + Tin/Lead
42	Gold + Tin

All dimensions in mm.

Datamate Connectors

Datamate J-Tek

Male Vertical Surface Mount

- Contact **datamate@harwin.com** for tape & reel options.
- Optional pick and place cap.
- Mates with female connectors shown on pages 38, 39, 41, 42, 44 and 46 to 50.
- Gull wing SMT tails simplify inspection process.
- Board Mount provides PCB strain relief.

WITHOUT JACKSCREWS

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

Recommended PC Board Pattern

WITH JACKSCREWS

WITH BOARD MOUNT

HOW TO ORDER

M80 - 5 XX XX XX P

SERIES CODE

TYPE	
02	With Jackscrews
12	With 3.5mm Board Mount
13	With 5mm Board Mount
22	Without Jackscrews

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

PICK AND PLACE CAP	
BLANK	No cap
P	Pick and place cap

FINISH		
05	Gold	Pb
22	Gold + Tin/Lead	Pb
42	Gold + Tin	Pb

All dimensions in mm.

Male Vertical Surface Mount 101Lok

- Contact **datamate@harwin.com** for tape & reel options.
- Optional pick and place cap.
- Mates with female connectors shown on pages 39, 42, 47 and 50.
- Gull wing SMT tails simplify inspection process.
- Board Mount provides PCB strain relief.

Recommended PC Board Pattern

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

101LOK

101LOK WITH BOARD MOUNT

HOW TO ORDER

M80 - 5 S1 XX XX MX

SERIES CODE

TYPE	
S1	Vertical Surface Mount

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

JACKSCREW	
MC	101Lok
ME	101Lok with 5mm Board Mount

FINISH		
05	Gold	Pb
22	Gold + Tin/Lead	Pb
42	Gold + Tin	Pb

All dimensions in mm.

Male Horizontal Surface Mount

- Contact **datamate@harwin.com** for tape & reel options.
- Mates with female connectors shown on pages 38, 39, 41, 42, 44 and 46 to 50.
- Stamped contact ensures co-planarity.
- Board Mount provides PCB strain relief.

WITHOUT JACKSCREWS

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

Recommended PC Board Pattern

WITH JACKSCREWS

WITH BOARD MOUNT

HOW TO ORDER

M80 - 5 XX XX XX

SERIES CODE

TYPE	
32	With Jackscrews
42	With 3.5mm Board Mount
43	With 5mm Board Mount
52	Without Jackscrews

FINISH		
05	Gold	PG
22	Gold + Tin/Lead	Pb
42	Gold + Tin	PG

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

All dimensions in mm.

Datamate 101 Lok

Male Horizontal Surface Mount 101Lok

- Contact **datamate@harwin.com** for tape & reel options.
- Mates with female connectors shown on pages 39, 42, 47 and 50.
- Stamped contact ensures co-planarity.
- Board Mount provides PCB strain relief.

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

Recommended PC Board Pattern

101LOK

101LOK WITH BOARD MOUNT

HOW TO ORDER

M80 - 5 S2 XX XX MX

SERIES CODE

TYPE

S2	Horizontal Surface Mount

TOTAL NO. OF CONTACTS

04 to 50

Even numbers only

JACKSCREW

MC	101Lok
MD	101Lok with Board Mount

FINISH

05	Gold	PbO
22	Gold + Tin/Lead	Pb
42	Gold + Tin	PbO

All dimensions in mm.

Male Crimp

- Mates with female connectors shown on pages 38, 39, 41, 42, 44 and 46 to 50.
- Jackscrews are assembled where specified.
- Crimp contacts supplied loose.
- Crimp contacts are rear insertable and replaceable.
- Large Bore 22 AWG, Small Bore 24 – 28 AWG.
- Part numbers are for housings and the equivalent no. of contacts.
- Spare contacts are available – see page 65.

WITHOUT JACKSCREWS

WITH JACKSCREWS

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – Z80-193
Contact Insertion/Removal Tool – Z80-280
See pages 87 to 89

- Instruction sheets available at www.harwin.com/downloads/instructions

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - XXX XX 05

SERIES CODE

TYPE			
560	Large Bore, with Jackscrews	**570**	Large Bore, without Jackscrews
561	Small Bore, with Jackscrews	**571**	Small Bore, without Jackscrews

FINISH	
05	Gold

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

All dimensions in mm.

Male Crimp 101Lok

- Mates with female connectors shown on pages 39, 42, 47 and 50.
- Crimp contacts supplied loose.
- Crimp contacts are rear insertable and replaceable.
- Large Bore 22 AWG, Small Bore 24 – 28 AWG.
- Part numbers are for housings and the equivalent number of contacts.
- Spare contacts are available – see page 65.

101LOK

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – Z80-193
Contact Insertion/Removal Tool – Z80-280
See pages 87 to 89

- **Instruction sheets available at www.harwin.com/downloads/instructions**

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - 5 X1 XX 05 MC

SERIES CODE

TYPE	
C1	Small Bore 24-28 AWG
D1	Large Bore 22 AWG

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

JACKSCREW	
MC	101Lok

FINISH	
05	Gold

All dimensions in mm.

Male Crimp Reverse Fix

- Mates with female connectors shown on pages 40, 43, 45 and 46.
- Allows for further flexibility in system design.
- Crimp contacts supplied loose.
- Crimp contacts are rear insertable and replaceable.
- Large Bore 22 AWG, Small Bore 24 – 28 AWG.
- Part numbers are for housings and the equivalent number of contacts.
- Spare contacts are available – see page 65.

REVERSE FIX

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – Z80-193
Contact Insertion/Removal Tool – Z80-280
See pages 87 to 89

- Instruction sheets available at www.harwin.com/downloads/instructions

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - XXX XX 05

SERIES CODE
M80

TYPE	
562	Large Bore, Slotted Jackscrew
563	Small Bore, Slotted Jackscrew
582	Large Bore, Hex Socket Jackscrew
583	Small Bore, Hex Socket Jackscrew

FINISH	
05	Gold

TOTAL NO. OF CONTACTS
04 to 50

Even numbers only

All dimensions in mm.

Male Crimp Extended Wall

- Extended Wall Datamate allows back potting to be performed.
- Fully shrouded contacts.
- Large Bore 22 AWG, Small Bore 24 – 28 AWG.
- Part numbers are for housings and the equivalent number of contacts.
- Mates with female connectors shown on pages 38, 39, 41, 42, 44 and 46 to 50.
- Spare contacts are available – see page 65.

WITHOUT JACKSCREWS

CALCULATION	
A	B + 12
B	Total no. of contacts - 2
C	B + 7

WITH JACKSCREWS

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – Z80-193
Contact Insertion/Removal Tool – Z80-280
See pages 87 to 89

- Instruction sheets available at www.harwin.com/downloads/instructions

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - XXX XX 05 X

WALL SIZE	
BLANK	Wall = 5mm
A	Wall = 1mm

FINISH	
05	Gold

TOTAL NO. OF CONTACTS
06, 10, 14, 20, 26, 34

SERIES CODE

TYPE			
565	Large Bore, with Jackscrews	575	Large Bore, without Jackscrews
566	Small Bore, with Jackscrews	576	Small Bore, without Jackscrews

All dimensions in mm.

Male Crimp with Hood

- Supplied as a complete kit, including hood, screws, connector, contacts and Jackscrews.
- For spare crimp contacts, see page 65.
- Provides strain relief by preventing cable bending at the rear of the connector, and also the option of inserting a cable tie to reduce pull strain.
- Mates with female connectors shown on pages 38, 39, 41, 42, 44 and 46 to 50.

MALE

CALCULATION	
A	B + 21.5
B	Total no. of contacts - 2
C	B + 7

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – Z80-193
Contact Insertion/Removal Tool – Z80-280
See pages 87 to 89

- Instruction sheets available at www.harwin.com/downloads/instructions

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - 94 X XX XX

SERIES CODE

TYPE	
2	Small Bore 24-28AWG
3	Large Bore 22AWG

FINISH	
05	Gold

TOTAL NO. OF CONTACTS
06, 08, 10, 12, 14, 20, 26, 34, 42, 50

All dimensions in mm.

Male Crimp Contacts

- Crimp contacts are supplied with the connectors (pages 60 to 64) – use the order codes below for extra crimp contacts.
- For crimp and insertion tools, see pages 87 to 89.

SPARE CRIMP CONTACT

Large Bore (22 AWG):

Wire Stripping Details

Small Bore (24 – 28 AWG):

HOW TO ORDER

M80 - 19 X 00 XX

SERIES CODE

TYPE

4	Large Bore for J-Tek
5	Small Bore for J-Tek

FINISH

05	Gold

All dimensions in mm.

Datamate Specification

Datamate **3-Row**

Materials

Mouldings:	Glass-filled thermoplastic UL94V-0
Female contacts:	Brass shell, with Beryllium Copper inner contact
Male contacts:	Phosphor bronze
Finish:	See individual pages

Electrical

Current (individual contacts in isolation):	3.3A max (at 25°C) 2.6A max (at 85°C)
All contacts simultaneously:	3.0A max (at 25°C) 2.2A max (at 85°C)
Working Voltage (at sea level 1013 mbar):	800V DC or ACrms
Proof Voltage (at sea level 1013 mbar):	1200V DC or ACrms
Contact resistance (initial):	20 mΩ max
Contact resistance (after conditioning):	25 mΩ max
Insulation resistance (initial):	1000 MΩ min
Insulation resistance (after conditioning):	100 MΩ min

Mechanical

Durability:	500 operations
Insertion force (max):	1.0N
Withdrawal force (min):	0.2N
Signal crimp accommodation:	22 AWG to 28 AWG BS 3G 210 Type A or MIL-DTL-16878/6 Type ET

Environmental

Environmental classification:	55/125/56 days at 95% RH
Operational temperature:	-55ºC to +125ºC
*Vibration sensitivity:	10Hz to 2000Hz, 0.75mm, 98m/s^2 (10G), duration 6h
*Bump severity:	390m/s^2 (40G), 4000 ±10 bumps
*Shock severity:	981m/s^2 (100G) for 6ms
*Acceleration severity:	490m/s^2 (50G)

* Tested with connectors with Jackscrews.

Pin Numbering

3 – Row

Contact numbering is shown looking onto mating face of male connector.

Mating Profiles

MALE \ FEMALE	VERTICAL PC TAIL	CRIMP
VERTICAL PC TAIL	M83-LFTXxxNXX M83-LMTXxxNXX	M83-LFC1xxNXX M83-LFD1xxNXX M83-LMTXxxNXX
HORIZONTAL PC TAIL	M83-LFTXxxNXX M83-LMLXxxNXX	M83-LFC1xxNXX M83-LFD1xxNXX M83-LMLXxxNXX

All dimensions in mm.

Female Vertical PC Tail

- Low-force 4-finger Beryllium Copper contact clip.
- Fully shrouded contacts.
- Polarised mouldings.
- All contacts are gold finish for full RoHS compliance.
- Mates with male connectors shown on pages 69 and 70.

FEMALE VERTICAL

CALCULATION	
A	B + 15
B	(Total no. of contacts - 3) x 2/3
C	B + 9

Recommended PC Board Pattern

HOW TO ORDER

M83 - LF T1 F2 N XX - 0000 - 000

SERIES CODE

TAIL	
T1	3mm Tail

TOTAL NO. OF CONTACTS
18, 27, 36, 54, 60, 96

JACKSCREW	
F2	Hex Socket Jackscrew

All dimensions in mm.

M83 Datamate Connectors

Datamate 3-Row

Female Crimp

- Part numbers are for a kit of housing and contacts.
- Spare contacts are available.
- Low-force 4-finger Beryllium Copper contact clip.
- Fully shrouded contacts, rear-insertable.
- Crimp instruction sheets & video available online at **www.harwin.com**.
- Mates with male connectors shown on pages 69 and 70.

FEMALE CRIMP

CALCULATION	
A	B + 15
B	(Total no. of contacts - 3) x 2/3
C	B + 9

SPARE CONTACTS

WIRE SIZE	PART NUMBER
22 AWG	**M83-0110005**
24-28 AWG	**M83-0130005**

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – T5747
Contact Insertion/Removal Tool – Z80-280
See pages 87 to 89

- Instruction sheets available at www.harwin.com/downloads/instructions

WIRE STRIPPING DETAILS

HOW TO ORDER

M83 - LF X1 F2 N XX - 0000 - 000

TOTAL NO. OF CONTACTS
18, 27, 36, 54, 60, 96

SERIES CODE

CRIMPS	
C1	Small Bore (24-28 AWG)
D1	Large Bore (22 AWG)

JACKSCREW	
F2	Hex Socket Jackscrew

All dimensions in mm.

Male Vertical PC Tail

- Board Mount nuts to be tightened to a maximum torque of 23cmN.
- Fully shrouded contacts.
- Polarised mouldings.
- All contacts are gold finish for full RoHS compliance.
- Mates with female connectors shown on pages 67 and 68.

MALE VERTICAL

CALCULATION	
A	B + 15
B	(Total no. of contacts - 3) x 2/3
C	B + 9

Recommended PC Board Pattern

HOW TO ORDER

M83 - LM T1 M2 N XX - 0000 - 000

SERIES CODE

TAIL	
T1	3mm Tail

TOTAL NO. OF CONTACTS
18, 27, 36, 54, 60, 96

JACKSCREW	
M2	Board Mount Jackscrew

All dimensions in mm.

Male Horizontal PC Tail

- Board Mount screws to be tightened to a maximum torque of 23cmN.
- Suitable for motherboard/daughterboard configurations.
- Fully shrouded contacts, polarised mouldings.
- All contacts are gold finish for full RoHS compliance.
- Mates with female connectors shown on pages 67 and 68.

MALE HORIZONTAL

CALCULATION	
A	B + 15
B	(Total no. of contacts - 3) x 2/3
C	B + 9

Recommended PC Board Pattern

HOW TO ORDER

M83 - LM L3 M7 N XX - 0000 - 000

SERIES CODE

TAIL	
L3	4mm Tail

TOTAL NO. OF CONTACTS
18, 27, 36, 54, 60, 96

JACKSCREW	
M7	Hex Socket Board Mount

All dimensions in mm.

Datamate Connectors

Features and Benefits

- Shielded High-Reliability connectors, for I/O and cable-to-board applications.
- Performs to the same high standards as the existing Datamate range, but with the added facility of complete shielding for cable-to-panel and PCB applications where EMI and RFI screening is required.
- Tested in accordance with MIL-STD-1377.
- 30dBs attenuation.
- Nickel-plated aluminium alloy construction, 360° attachment to braid.

Typical Applications

- Avionic Systems
- Communications Systems
- Control Systems
- Radar Equipment
- Space Applications
- Life Sciences

Specifications

Materials

Mouldings:	Glass-filled thermoplastic UL94V-0
Female contacts:	Brass shell, with Beryllium Copper inner contact
Male contacts:	Copper alloy
Finish:	See individual pages

Electrical

RF Attenuation:	10kHz to 400MHz @ >30dBs
Current (individual contacts in isolation):	3.3A max (at 25°C) 2.6A max (at 85°C)
All contacts simultaneously:	3.0A max (at 25°C) 2.2A max (at 85°C)
Working Voltage (at sea level 1013 mbar):	800V DC or ACrms
Voltage Proof (at sea level 1013 mbar):	1,200V DC or ACrms
Contact resistance (initial):	20 mΩ max
Contact resistance (after conditioning):	25 mΩ max
Insulation resistance (initial):	1,000 MΩ min
Insulation resistance (after conditioning):	100 MΩ min

Mechanical

Durability:	500 operations
Insertion force (max):	2.8N
Withdrawal force (min):	0.2N
Signal crimp accommodation:	22 A.W.G. to 28 A.W.G. BS 3G 210 Type A, MIL-W-16878

Environmental

Environmental classification:	55/125/56 days at 95% RH
Operational temperature:	-55ºC to +125ºC
*Vibration sensitivity:	10Hz to 2000Hz, 0.75mm, 98m/s² (10G). duration 6h
*Bump severity:	390m/s² (40G), 4000 ±10 bumps
*Shock severity:	981m/s² (100G) for 6ms
*Acceleration severity:	490m/s² (50G)

* Tested with connectors with Jackscrews.

All preferred sizes of this range are held in stock.
Check www.harwin.com for availability.

See page 35 for Pin Numbering

Mating Profiles

MALE / FEMALE	PC TAIL	CRIMP
CRIMP		

All dimensions in mm.

Datamate Connectors

Female Crimp with Metal Backshell

A range of shielded Datamate connectors, performing to the same high-reliability standards, with the added feature of aluminium backshells compatible with full 360° securing to braiding.

- Supplied as a kit, including backshell, tie-band (not shown), e-clips, Jackscrews, connector housing and contacts (braiding not included).
- For spare crimp contacts, see page 51.
- Mates with male connectors shown on pages 73 and 74.

FEMALE

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – T5747
Contact Insertion/Removal Tool – Z80-280
E-Clip Assembly Tool – Z80-300
See pages 87 to 89

- Instruction sheets available at www.harwin.com/downloads/instructions

CALCULATION	
A	B + 16.20
B	Total no. of contacts - 2
C	B + 7

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - 4 X1 XX XX S1

SERIES CODE

TYPE	
C1	Small Bore 24-28 AWG
D1	Large Bore 22 AWG

TOTAL NO. OF CONTACTS
06, 10, 14, 20, 26

FINISH		
05	Gold	Pb
42	Gold + Tin	Pb

All dimensions in mm.

Male Vertical PC Tail with Metal Backshell

- Board Mount version, with Jackscrew fixings for attachment to PCB for added strain relief.
- Supplied as a complete kit, including backshell, jackscrew nuts, and connector with Jackscrew studs assembled.
- Mates with female connectors shown on page 72.

Recommended PC Board Pattern

CALCULATION	
A	B + 13.40
B	Total no. of contacts - 2
C	B + 7

2.7mm TAIL

3.8mm TAIL

HOW TO ORDER

M80 - 5 TX XX XX B1

SERIES CODE

TYPE	
T1	2.7mm Tails
T2	3.8mm Tails

FINISH	
05	Gold
22	Gold + Tin/Lead
42	Gold + Tin

TOTAL NO. OF CONTACTS
06, 10, 14, 20, 26

All dimensions in mm.

Male Crimp with Metal Backshell

- Panel mount version, with Jackscrew fixings for attachment to panels.
- Supplied as a complete kit, including backshell, contacts, Jackscrew nuts, and connector housing with jackscrew studs assembled.
- For spare crimp contacts, see page 65.
- Mates with female connectors shown on page 72.

CALCULATION	
A	B + 13.40
B	Total no. of contacts - 2
C	B + 7

Recommended Panel Cutout

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – Z80-193
Contact Insertion/Removal Tool – Z80-280
See pages 87 to 89

- Instruction sheets available at www.harwin.com/downloads/instructions

WIRE STRIPPING DETAILS

HOW TO ORDER

M80 - 5 X1 XX 05 B1

SERIES CODE

TYPE	
C1	Small Bore 24-28 AWG
D1	Large Bore 22 AWG

FINISH	
05	Gold

TOTAL NO. OF CONTACTS
06, 10, 14, 20, 26

All dimensions in mm.

Datamate Specification

Datamate Mix-Tek

Materials

Mouldings:	Glass-filled thermoplastic UL94V-0
Female contacts:	Brass shell, with Beryllium Copper inner contact
Male contacts:	Copper alloy
Finish:	See individual pages

Electrical

Current (individual contacts in isolation):	3.3A max (at 25°C) 2.6A max (at 85°C)
All contacts simultaneously:	3.0A max (at 25°C) 2.2A max (at 85°C)
Working Voltage (at sea level 1013 mbar):	800V DC or ACrms
Voltage Proof (at sea level 1013 mbar):	1,200V DC or ACrms
Contact resistance (initial):	20 mΩ max
Contact resistance (after conditioning):	25 mΩ max
Insulation resistance (initial):	1,000 MΩ min
Insulation resistance (after conditioning):	100 MΩ min

Mechanical

Durability:	500 operations
Insertion force (max):	2.8N
Withdrawal force (min):	0.2N
Signal crimp accommodation:	22 AWG to 28 AWG BS 3G 210 Type A

Environmental

Environmental classification:	55/125/56 days at 95% RH
Operational temperature:	-55ºC to +125ºC
*Vibration sensitivity:	10Hz to 2000Hz, 0.75mm, 98m/s^2 (10G), duration 6h
*Bump severity:	390m/s^2 (40G), 4000 ±10 bumps
*Shock severity:	981m/s^2 (100G) for 6ms
*Acceleration severity:	490m/s^2 (50G)

* Tested with connectors with Jackscrews.

All preferred sizes of this range are held in stock.
Check www.harwin.com for availability.

Power Contacts

Materials

Latching collar:	Beryllium Copper, nickel plated
Other metallic parts:	Copper alloy, Gold plated

Electrical

Current (contact only):	20A max
Contact resistance:	6 mΩ max

Mechanical

Insertion force (max):	8N
Withdrawal force (min):	0.5N
Contact replacement in connector:	5 times
Power contact accommodation:	12 to 20 AWG

Coax Contacts

Materials

Latching collar:	Beryllium Copper, nickel plated
Other metallic parts:	Copper alloy, Gold plated
Insulator:	PTFE

Electrical

Frequency range:	6 GHz (depending on cable)
Impedance:	50Ω
VSWR:	1.05 + (0.04 x Frequency) GHz max
Operating voltage (sea level):	180 V AC at 500 mA
Maximum voltage (sea level):	1000 V ACrms
Contact resistance:	6 mΩ max
Insulation resistance:	10^6 MΩ at 250 V ACrms

Mechanical

Insertion force (max):	8N
Withdrawal force (min):	0.5N
Contact replacement in connector:	5 times

		FEMALE CABLE	MALE HORIZONTAL PC TAIL
		HEXAGONAL SLOTTED JACKSCREW	JACKSCREW WITH 5mm BOARD-MOUNT
CONTACT ARRANGEMENT	2 Power	M80-4000000F1-02-325-00-000	M80-5000000M5-02-333-00-000
	4 Power	M80-4000000F1-04-325-00-000	M80-5000000M5-04-333-00-000
	6 Power	M80-4000000F1-06-325-00-000	M80-5000000M5-06-333-00-000
	8 Power	M80-4000000F1-08-325-00-000	M80-5000000M5-08-333-00-000
	10 Power	M80-4000000F1-10-325-00-000	M80-5000000M5-10-333-00-000
	2 Signal, 2 Power	M80-4C10205F1-02-325-00-000	
	2 Signal, 4 Power	M80-4C10205F1-04-325-00-000	
	4 Signal, 2 Power	M80-4C10405F1-02-325-00-000	M80-5L10405M5-02-333-00-000
	4 Signal, 4 Power	M80-4C10405F1-04-325-00-000	M80-5L10405M5-04-333-00-000
	6 Signal, 2 Power	M80-4C10605F1-02-325-00-000	
	6 Signal, 4 Power	M80-4C10605F1-04-325-00-000	
	8 Signal, 2 Power	M80-4C10805F1-02-325-00-000	
	8 Signal, 4 Power	M80-4C10805F1-04-325-00-000	
	12 Signal, 2 Power	M80-4C11205F1-02-325-00-000	
	12 Signal, 4 Power	M80-4C11205F1-04-325-00-000	

		MALE VERTICAL PC TAIL		
		JACKSCREW ONLY	JACKSCREW WITH 3.5mm BOARD-MOUNT	JACKSCREW WITH 5mm BOARD-MOUNT
CONTACT ARRANGEMENT	2 Power	M80-5000000M1-02-331-00-000	M80-5000000M2-02-331-00-000	M80-5000000M3-02-332-00-000
	4 Power	M80-5000000M1-04-331-00-000	M80-5000000M2-04-331-00-000	M80-5000000M3-04-332-00-000
	6 Power		M80-5000000M2-06-331-00-000	M80-5000000M3-06-332-00-000
	8 Power		M80-5000000M2-08-331-00-000	M80-5000000M3-08-332-00-000
	10 Power		M80-5000000M2-10-331-00-000	M80-5000000M3-10-332-00-000
	2 Signal, 2 Power	M80-5T10205M1-02-331-00-000	M80-5T10205M2-02-331-00-000	
	2 Signal, 4 Power	M80-5T10205M1-04-331-00-000	M80-5T10205M2-04-331-00-000	
	4 Signal, 2 Power	M80-5T10405M1-02-331-00-000	M80-5T10405M2-02-331-00-000	
	4 Signal, 4 Power	M80-5T10405M1-04-331-00-000	M80-5T10405M2-04-331-00-000	
	6 Signal, 2 Power	M80-5T10605M1-02-331-00-000		
	6 Signal, 4 Power	M80-5T10605M1-04-331-00-000	M80-5T10605M2-04-331-00-000	
	8 Signal, 2 Power	M80-5T10805M1-02-331-00-000		
	8 Signal, 4 Power	M80-5T10805M1-04-331-00-000	M80-5T10805M2-04-331-00-000	
	12 Signal, 2 Power	M80-5T11205M1-02-331-00-000		
	12 Signal, 4 Power	M80-5T11205M1-04-331-00-000		

Mating Profiles

FEMALE / MALE	VERTICAL PC TAIL	CRIMP
VERTICAL PC TAIL		
HORIZONTAL PC TAIL		
CRIMP		

All dimensions in mm.

Pin Numbering

FEMALE	MALE

Datamate Mix-Tek OFF THE SHELF

Female Off-The-Shelf

A selection of stocked, female crimp, Datamate Mix-Tek standard layouts.

- Hexagonal slotted jackscrew style.
- Crimp tooling on pages 87 to 89.
- Polarised mouldings.
- Power contacts rated to 20A, signal to 3A.
- Mates with connectors on pages 80 and 81.

POWER CONTACTS ONLY

CALCULATION	
A	B + 14
B	(No. of Power contacts - 1) x 4
C	B + 9

HOW TO ORDER

M80 - 4000000F1 - XX - 325 - 00 - 000

Refer to page 76 for stocked sizes.

NO. OF POWER CONTACTS
02, 04, 06, 08, 10

SIGNAL AND POWER CONTACTS

CALCULATION	
A	B + 13
B	(No. of Power contacts - 1) x 4 + Total no. of Signal contacts +1
C	B + 8

HOW TO ORDER

M80 - 4C1 XX 05F1 - XX - 325 - 00 - 000

Refer to page 76 for stocked sizes.

NO. OF SIGNAL CONTACTS
02, 04, 06, 08, 12

NO. OF POWER CONTACTS
02, 04

All dimensions in mm.

Datamate Connectors

Datamate Mix-Tek OFF THE SHELF

Male Vertical Off-The-Shelf

- A selection of stocked Datamate Mix-Tek solder tail standard layouts.
- Choice to suit two PCB thicknesses and two stud lengths.
- Mates with connectors shown on page 79.

POWER CONTACTS ONLY

CALCULATION	
A	B + 14
B	(No. of Power contacts - 1) x 4
C	B + 9

Recommended PC Board Pattern

HOW TO ORDER

M80 - 5000000 XX - XX - XXX - 00 - 000

JACKSCREW	
M1	Jackscrew only
M2	With 3.5mm Board Mount stud
M3	With 5mm Board Mount stud

NO. OF POWER CONTACTS
02, 04, 06, 08, 10

Refer to page 77 for stocked sizes.

POWER CONTACT PART NO.	
331	3.5mm Tail
332	5 mm Tail

SIGNAL AND POWER CONTACTS

CALCULATION	
A	B + 13
B	(No. of Power contacts - 1) x 4+ Total no. of Signal contacts +1
C	B + 8

Recommended PC Board Pattern

HOW TO ORDER

M80 - 5T1 XX 05 XX - XX - 331 - 00 - 000

NO. OF SIGNAL CONTACTS
02, 04, 06, 08, 12

JACKSCREW	
M1	Jackscrew only
M2	With 3.5mm Board Mount stud

Refer to page 77 for stocked sizes.

NO. OF POWER CONTACTS
02, 04

All dimensions in mm.

Male Horizontal Off-The-Shelf

- A selection of stocked Datamate Mix-Tek solder tail standard layouts.
- Choice to suit two PCB thicknesses and two stud lengths.
- Mates with connectors shown on page 79.

POWER CONTACTS ONLY

CALCULATION	
A	B + 14
B	(No. of Power contacts - 1) x 4
C	B + 9

Recommended PC Board Pattern

HOW TO ORDER

M80 - 5000000 M5 - XX - 333 - 00 - 000

Refer to page 76 for stocked sizes.

NO. OF POWER CONTACTS
02, 04, 06, 08, 10

SIGNAL AND POWER CONTACTS

CALCULATION	
A	B + 13
B	(No. of Power contacts - 1) x 4 + Total no. of Signal contacts +1
C	B + 8

Recommended PC Board Pattern

HOW TO ORDER

M80 - 5L1 04 05 M5 - XX - 333 - 00 - 000

Refer to page 76 for stocked sizes.

NO. OF SIGNAL CONTACTS
04

NO. OF POWER CONTACTS
02, 04

All dimensions in mm.

Datamate Connectors

Datamate Mix-Tek

If you are unable to specify the connectors you require from our Off-The-Shelf range of Datamate Mix-Tek (pages 76 to 81), then customise your own Mix-Tek part number.

All items in this range are made-to-order, and may be subject to minimum order quantities and current availability conditions.

PART NUMBERING SYSTEM

M80 - X #X XX XX #X - XX - XXX - XX - XXX

PRODUCT RANGE

GENDER

4	Female (Socket)
5	Male (Plug)

SIGNAL CONTACT STYLE

00	No Signal Contacts
T1	Vertical PC Tail, 3mm tail
T2	Vertical PC Tail, 4.5mm tail
L1	Horizontal PC Tail, 3mm tail (Male only)
L2	Horizontal PC Tail, 4.5mm tail (Male only)
C1	Crimp 24-28 AWG (Small Bore)
D1	Crimp 22 AWG (Large Bore)
E1	Crimp 28-32 AWG (Extra Small Bore)
S1	Vertical Surface Mount
S2	Horizontal Surface Mount (Male only)

NO. OF SIGNAL CONTACTS

00, 02 to 50 (Must be even number)

SIGNAL CONTACT FINISH

00	No Signal Contacts	
01	Gold + Tin/Lead	Female PC Tail only
05	Gold	
22	Gold + Tin/Lead	Male PC Tail only
42	Gold + Tin	All PC Tail & Female Crimp

PART NUMBER OF SPECIAL CONTACTS AFTER FINAL SIGNAL CONTACT

See page 86, or 000 if none loaded

NUMBER OF SPECIAL CONTACTS AFTER FINAL SIGNAL CONTACT

00 to 12

PART NUMBER OF SPECIAL CONTACTS BEFORE SIGNAL CONTACT NO. 1

See page 86, or 000 if none loaded

NUMBER OF SPECIAL CONTACTS BEFORE SIGNAL CONTACT NO. 1

00 to 12

JACKSCREW VARIANT

00	None assembled
Fx	Female Jackscrews – see page 84
Mx	Male Jackscrews – see page 85

Note: If special contacts are being ordered separately, and cavities in mould are to be left empty, then the Special Contact part numbers should be 000.

EXAMPLES:

M80-5T11422M1-02-311-02-311
DIL Male Vertical with Jackscrew, no Board Mount, 3mm PC Tail – 2 Coax, 14 Signal, 2 Coax.

M80-4C12005F1-04-326-00-000
DIL Female Crimp with Slotted Hex Jackscrews, Small Bore – 4 Power (for 14 AWG), 20 Signal.

M80-4D11042F2-04-305-02-308
DIL Female Crimp with Hex Socket Jackscrews, Large Bore – 4 Special cavity, 10 Signal, 2 Special cavity.
Supplied with 4-off Female Straight Crimp Coax for Ø2mm cable, and 2-off Female 90° Crimp Coax for Ø2mm cable.

Max. number of contacts per connector: Special contacts only – 12 off, Signal contacts only – 50 off.

All dimensions in mm.

Spare Signal Crimp Contacts

- Crimp contacts are supplied with all Mix-Tek connectors – use the order codes below for extra crimp contacts.
- For crimp and insertion tools, see pages 87 to 89.

FEMALE

Large Bore (22 AWG):

Small Bore (24 – 28 AWG):

Extra Small Bore (28 – 32 AWG):

Wire Stripping Details

MALE

Large Bore (22 AWG):

Small Bore (24 – 28 AWG):

Wire Stripping Details

HOW TO ORDER

M80 - XXX 00 XX

SERIES CODE

FINISH	
01	Gold + Tin (Female only)
05	Gold

TYPE			
011	Female Large Bore (22 AWG)	194	Male Large Bore (22 AWG)
013	Female Small Bore (24-28 AWG)	195	Male Small Bore (24-28 AWG)
019	Female Extra Small Bore (28-32 AWG)		

All dimensions in mm.

Datamate – Jackscrews Female

00			None assembled
F1			Hexagonal Slotted Jackscrew (floating)
F2			Hexagonal Socket Jackscrew (floating)
F3			Guide Pin Jackscrew with Panel Mount
FC			101 Lok Jackscrew

Datamate – Jackscrews Male

00			None assembled
M1			Jackscrew nut only
M2 or M3			Jackscrew with Vertical Board Mount, slotted nut M2 = 3.50mm stud length M3 = 5.00mm stud length
M5 or M7			Jackscrew with Horizontal Board Mount, 5mm bolt length M5 = Slotted bolt M7 = Hex Socket bolt
MC			101 Lok Jackscrew Retainer

Datamate – Special Contacts

COAX

	FEMALE	
301 or 302		Vertical PC Tail 301 = 3.00mm tail 302 = 4.50mm tail
305 306 307		Straight Crimp 305 = Ø2.00mm cable 306 = Ø2.40mm cable 307 = Ø2.70mm cable
308 or 309		90° Crimp 308 = Ø2.00mm cable 309 = Ø2.70mm cable

	MALE	
311 or 312		Vertical PC Tail 311 = 3.00mm tail 312 = 4.50mm tail
313 or 314		Horizontal PC Tail 313 = 3.00mm tail 314 = 4.50mm tail
315 316 317		Straight Crimp 315 = Ø2.00mm cable 316 = Ø2.40mm cable 315 = Ø2.70mm cable
318 or 319		90° Crimp 318 = Ø2.00mm cable 319 = Ø2.70mm cable

POWER

	FEMALE	
321 or 322		Vertical PC Tail 321 = 3.50mm tail 322 = 5.00mm tail
323 or 324		Horizontal PC Tail 323 = 3.50mm tail 324 = 5.00mm tail
325 326 327 328 329		Straight Solder 325 = 12 AWG cable 326 = 14 AWG cable 327 = 16 AWG cable Straight Crimp 328 = 18 AWG cable 329 = 20 AWG cable
32A 32B 32C		90° Solder 32A = 12 AWG cable 32B = 14 AWG cable 32C = 16 AWG cable

	MALE	
331 or 332		Vertical PC Tail 331 = 3.50mm tail 332 = 5.00mm tail
333 or 334		Horizontal PC Tail 333 = 3.50mm tail 334 = 5.00mm tail
335 336 337 338 339		Straight Solder 335 = 12 AWG cable 336 = 14 AWG cable 337 = 16 AWG cable Straight Crimp 338 = 18 AWG cable 339 = 20 AWG cable

Datamate Tooling

Instruction sheets (where available) can be accessed at **www.harwin.com/downloads/instructions**

HAND CRIMP TOOL

- Standard circular crimp tool BS5210-3A-300 and MIL specification M22520/2-01.
- Precision tool with ratchet mechanism and 8-indent form.
- Must be used with applicable positioner shown below.
- Instruction sheet available.

ORDER CODE	
Signal contacts, L-Tek, J-Tek & Mix-Tek	**M22520/2-01**

HAND CRIMP TOOL

- Standard circular crimp tool.
- Precision tool with ratchet mechanism and 8-indent form.
- Must be used with applicable positioner shown below.
- Instruction sheet available.

ORDER CODE	
Inner contact of Mix-Tek coax contacts	**Z80-292**

HAND CRIMP TOOL

- Standard coax crimp tool for crimping the outer sleeve of Mix-Tek coax contacts.
- Instruction sheet available.

ORDER CODE	
Outer sleeve of Mix-Tek coax contacts	**Z80-293**

POSITIONER

- Used with applicable hand crimp tool shown above.

ORDER CODE	
Female Signal Barrel Crimp, Male L-Tek Crimp	**T5747**
Male J-Tek, Mix-Tek Signal Crimp	**Z80-193**
Inner contact of Mix-Tek coax contacts	**Z80-291**

Datamate Tooling

Instruction sheets (where available) can be accessed at **www.harwin.com/downloads/instructions**

INSERTION/REMOVAL TOOL

- For inserting crimped contacts into the rear of mouldings.
- Instruction sheet available.
- Suitable for all Datamate signal Barrel crimp contacts.

ORDER CODE	
Barrel Signal crimps for L-Tek, J-Tek & Mix-Tek	**Z80-280**

REMOVAL TOOL

- To aid removal of special cable contacts from Mix-Tek connectors.

ORDER CODE	
Mix-Tek special cable connectors	**Z80-290**

SEPARATOR TOOL

- Recommended for unplugging L-Tek latched connectors (tool releases the latches prior to disengagement).
- Can also be used with unlatched and friction lock connectors.
- Suitable for all sizes.

ORDER CODE	
L-Tek	**Z80-299**

SCREWDRIVER

- Recommended for use on J-Tek board mount nuts.

ORDER CODE	
J-Tek screwdriver	**Z80-298**

E-CLIP TOOL

- For assembling E-Clips supplied with J-Tek hooded connectors.

ORDER CODE	
J-Tek E-Clips	**Z80-300**

Datamate Tooling

Instruction sheets (where available) can be accessed at **www.harwin.com/downloads/instructions**

HAND CRIMP TOOL

- 'Rigidus' crimp tool design.
- Precision parallel action crimp tool with ratchet mechanism.
- Supplied with locator and die-set – spares available.
- Instruction sheet available.

ORDER CODE
Z80-255

REMOVAL TOOL

- For removal of crimped contacts from mouldings.
- Instruction sheet available.

ORDER CODE
Z80-258

SPARE DIE-SET

- Spare die-set for use with hand crimp tool shown above.

ORDER CODE
Z80-244

SPARE LOCATOR

- Used with hand crimp tool shown above.

ORDER CODE
Z80-259

Datamate Signal Contacts: Barrel Crimps

Crimps and Tools

These instructions are applicable for the following crimp contacts:

- Female Crimp contacts **M80-01100XX, M80-01300XX, M80-01900XX, M83-01100XX, M83-01300XX**
- Male Crimp contacts **M80-04000XX, M80-04100XX, M80-19400XX, M80-19500XX**

The following tools are used (see pages 87 and 88):

- Hand Crimp Tool **M22520/2-01**
- Insertion/Removal Tool **Z80-280**
- Positioner **Z80-193** (for M80-19400XX or M80-19500XX) or **T5747** (for all others)

All tools are supplied with instruction sheets, which are available at **www.harwin.com/downloads/instructions**.
Before starting, assemble the positioner to the crimp tool (see the M22520/2-01 Instruction Sheet for details).

Crimping

- Check that your selected cable size is correct to the following table – Harwin recommend PTFE insulated equipment wire to BS 3G 210 Type A or MIL-W-16878:

Type	Wire gauge (AWG)	Typical Stranding	Crimp tool setting	Minimum pull-off force	Insulator diameter
Large Bore	22	19/0.15	6	50 Newtons	Ø1.10mm max
Small Bore	24	7/0.2	6	44 Newtons	
	26	7/0.15	6	25 Newtons	
	28	7/0.125	6	12.5 Newtons	
Extra Small Bore	28	7/0.12	5	12.5 Newtons	Ø0.75mm max
	30	7/0.25	4	7 Newtons	
	32	7/0.08	4	4 Newtons	

- Cut the end of the cable to give a clean cut end. Strip the end of the cable by 2.00±0.15mm using a PTFE wire stripper, ideally with an adjustable rotating cutter. This should result in a clean edge to the insulation, and all the strands laying together neatly. If the strands are disturbed, they can be re-aligned by putting a slight twist into the strand bundle.
- Assemble the contact onto the end of the cable – make sure all the strands are within the crimp body. The cable insulation should also go inside the crimp barrel – see Figure 1.
- Position the contact fully into the positioner, by inserting it clip-end first through the crimp tool jaws. Keep a small amount of pressure on the cable, to ensure it stays inserted in the crimp.
- Squeeze the handles of the crimp tool fully together, until the ratchet releases. The handles will then return to the open position. Remove the crimped wire, and check the following:
  - Evenness of crimp indentations, no fractures or rough edges around the crimp
  - No damage to the rest of the crimp or insulation
  - Regularly check a sample to ensure the minimum pull-off force is maintained

Fig. 1

Fig. 2 – correct

Fig. 3 – incorrect

Crimp Insertion

- Attach the correct tool piece to the handle of Z80-280 for inserting your cable size (check the instruction sheet for further advice).
- Place the crimped contact partially in the moulding – this should leave 1.5-2mm of crimp protruding from the moulding. It is important that the correct position is found (Figure 2), otherwise the retention shoulder inside the moulding will get removed when force is applied, and the crimp will not stay in the moulding (Figure 3).
- Support the face of the moulding on a solid surface (do not rest the connector on any fitted latches). Place the insertion tool around the wire and onto the back of the crimp (Figure 4). Push firmly – there will be an audible click when the socket is correctly seated.

Fig. 4

Datamate Signal Contacts: Datamate Trio-Tek

Crimps and Tools

These instructions are applicable for the following crimp contacts:

- Female Crimp contacts **M80-25300XX, M80-25400XX, M80-28300XX, M80-28400XX** (Pages 25 and 51).

The following tools are used (see page 89):

- Hand Crimp Tool **Z80-255**
- Locator **Z80-259** (supplied with crimp tool)
- Removal Tool **Z80-258**

All tools are supplied with instruction sheets, which are available at **www.harwin.com/downloads/instructions**.

Crimping

- Check that your selected cable size is correct to the following table – Harwin recommend PTFE insulated equipment wire to BS 3G 210 Type A:

Type	Wire gauge (AWG)	Typical Stranding	Minimum pull-off force	Insulator diameter
M80-25300XX or M80-28300XX	22	19/0.15	45 Newtons	Ø1.10mm max
	24	7/0.2	29 Newtons	Ø0.95mm max
M80-25400XX or M80-28400XX	26	7/0.15	18 Newtons	Ø0.80mm max
	28	7/0.125	9.8 Newtons	Ø0.71mm max

- Cut the end of the cable to give a clean cut end. Strip the end of the cable by 2.75±0.25mm using a PTFE wire stripper, ideally with an adjustable rotating cutter. This should result in a clean edge to the insulation, and all the strands laying together neatly. If the strands are disturbed, they can be re-aligned by putting a slight twist into the strand bundle.
- Check the locator is assembled (see the Z80-255 Instruction Sheet for details). Ensure that the crimp tool is at the fully open position (Figure 1).
- Push the button on the back of the locator (Figure 2), which will move the locator forward between the crimp dies (Figure 3). Whilst holding the locator in the forward position, insert the crimp contact into the correct locator nest (Figure 4). The wire size is marked on the crimp die, above each location.

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Datamate Crimping

- Release the locator button, allowing the crimp contact to move back between the crimping jaws (Figure 5). Partially close the handle, until the second ratchet position engages (Figure 6). Load the stripped wire through the terminal, and against the wire stop inside the tool (Figure 7).

Fig. 5 Fig. 6 Fig. 7 Fig. 8 Fig. 9

- Whilst holding the wire against the wire stop, complete the crimp by squeezing the tool handles together through the rest of the ratchet clicks – another 3, to make 5 in total (Figure 8). The handles should then be free to open. Remove the crimped wire (Figure 9).

Crimp Insertion

- The completed crimp can now be inserted into the appropriate Trio-Tek crimp housing. Crimps are assembled into the mould with the retaining tang towards the outer edge of the housing. With thinner wires, it may be helpful to push onto the back of the crimp with the Extraction Tool Z80-258. If it is necessary to remove a crimp once assembled, please refer to the instruction sheet for the Removal Tool Z80-258.

Datamate Coax Contacts: Datamate Mix-Tek

Crimps and Tools

These instructions are applicable for the following crimp contacts:

- Female Crimp Coax contacts: straight **M80-305, M80-306, M80-307** and 90° **M80-308, M80-309** (Page 86)
- Male Crimp Coax contacts: straight **M80-315, M80-316, M80-317** and 90° **M80-318, M80-319** (Page 86)

The following tools are used (see pages 87 and 88):

- Hand Crimp Tools **Z80-292, Z80-293**
- Positioner **Z80-291**
- Removal Tool **Z80-290**

Crimping Straight Coax Contacts

- Check that your selected cable size is correct to the following table:

Type	Cable size	Cable type	Correct Hex on tool Z80-293, for crimping sleeve	Correct setting on tool Z80-292, for crimping inner contact
M80-305, M80-315	Ø2.00mm	RG 178	Small Hex	4
M80-306	Ø2.40mm	PTFE Cellular	Small Hex	4
M80-307, M80-317	Ø2.70mm	RG 174, 179, 316	Large Hex	4 (M80-307), 6 (M80-317)

- Strip the cable to the appropriate dimensions for the part being crimped (as specified on the drawing). If the strands are disturbed, they can be re-aligned by putting a slight twist into the strand bundle.

- Identify the pieces of the coax connector to be assembled:

Datamate Crimping

- Slide the sleeve onto the cable, past the stripped area:

- Crimp the inner contact to the end of the cable inner conductor, using the Hand Crimp Tool **Z80-292**, with the Positioner **Z80-291** assembled.

- Insert the cable and crimped inner contact into the coax body from the rear. Make sure that the braid goes outside and over the rear section of the body.

- Slide the sleeve back to the body of the coax, so that it covers the exposed braid, and touches the shoulder of the coax body. Crimp into place using the Hand Crimp Tool **Z80-293**.

Crimping 90° Coax Contacts

- Check that your selected cable size is correct to the following table:

Type	Cable size	Cable type	Correct Hex on tool Z80-293, for crimping sleeve
M80-308, M80-318	Ø2.00mm	RG 178	Small Hex
M80-316	Ø2.40mm	PTFE Cellular	Small Hex
M80-309, M80-319	Ø2.70mm	RG 174, 179, 316	Large Hex

- Strip the cable to the appropriate dimensions for the part being crimped (as specified on the drawing). If the strands are disturbed, they can be re-aligned by putting a slight twist into the strand bundle.

- Identify the pieces of the coax connector to be assembled:

- Slide the sleeve onto the cable until it stops against the outer insulation. Fold the braid over the sleeve:

- Push the cable and sleeve into the body, as far as it will go. The cable inner conductor will be visible through the hole in the top of the coax body, and should go into the slot in the inner contact of the body.

- Solder the cable inner conductor to the body inner contact. When cool, place the insulator inside the top, and press the cover into place. Crimp the back end of the coax onto the insulation of the cable using the Hand Crimp Tool **Z80-293**.

Datamate Jackscrews

Using Datamate Jackscrews: Datamate J-Tek

Introduction

Jackscrews are available for all variations of Datamate J-Tek and Mix-Tek. They are often specified where the following needs may require more than the holding force of the contacts:

- To prevent disengaging of connectors under adverse conditions, where the withdrawal forces may be exceeded.
- To provide a locking feature which deters accidental disengaging by operators.
- To aid engaging, where the number of contacts is high enough to require additional force to complete the mating operation.
- To aid engaging where access to the connector is restricted.

Using M2 threaded Jackscrews

- Engage the two halves of the connector, and lightly push together until the Jackscrews touch.
- Maintaining pressure, turn one of the floating Jackscrews clockwise, until it engages with the fixed Jackscrews. Repeat with the other jackscrew.
- If high forces are encountered early on during engaging, then you may have cross-threaded the Jackscrews. Unscrew anti-clockwise, and try again. Ensure the connectors are directly in line before attempting to engage.
- Once both Jackscrews have begun to engage, ensure an even movement by applying a maximum of one turn to each jackscrew, in sequence. When the connectors have bottomed, the force required to turn the Jackscrews will suddenly increase.
- The torque force on each jackscrew should not exceed 23 cmN.
- To disengage the connectors, repeat the instructions in reverse: unscrew with an anti-clockwise movement. Ensure even movement by applying a maximum of one turn to each jackscrew, in sequence. Once the Jackscrews turn loose with no resistance, you can then easily pull apart the two connectors.

Using 101 Lok Jackscrews

Please see Jackscrews FC and MC on pages 84 and 85.

- Before engaging, the slot on the jackscrew should be at right angles to the length of the connector.
- Push the connectors together. Once the connectors are mated, use a screwdriver to push down onto each 101Lok jackscrew until the spring is compressed. Turn the jackscrew clockwise 101 degrees, and release. The jackscrew should remain partially compressed.
- To disengage, use a screwdriver to push down onto each 101Lok jackscrew until the spring is compressed. Turn the jackscrew anti-clockwise 101 degrees, and release. The jackscrew will spring back to its uncompressed position.

Using Board Mount

Two styles of Board Mount are used, either using a nut or a screw. Both are assembled by placing the connector in the correct position on the board, then screwing in the board fixing nut/screw on the underside of the board. Harwin recommend Slotted Screwdriver Z80-298 (page 88) for use with the slotted nuts.

- Nuts and Screws should be tightened to a torque of 21±2cmN.

Examples of Jackscrews:

M2 Threaded Jackscrews | 101 Lok Jackscrews | Board Mount Jackscrews