

datamate



datamate

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**HARWIN**

The Datamate range is designed to meet the exacting requirements of British Standard 9525-F0033, this conformity is made possible by Harwin's High reliability four finger Beryllium Copper Contact technology. The Contact features a 4 finger beryllium copper clip to ensure integrity of connection under the most severe conditions. The Datamate range is ideal for applications where safety is key, the application is subject to high loads of vibration and shock or operates in harsh environments.



High reliability four finger Beryllium Copper Contact



## DATAMATE FEATURES AND BENEFITS

- ❖ Professional connector system at commercial prices
- ❖ The 4 finger Beryllium Copper Contact ensures integrity of connection
- ❖ Proven history in High End Industrial and Mil/Aero applications
- ❖ Suited for use in environments where high vibration, shock and extremes of temperature are a consideration
- ❖ J-Tek and L-Tek fixing variants offer additional security
- ❖ Customer specific variants available
- ❖ Mates with known industry equivalents
- ❖ Superior connector performance (see over)
- ❖ Subject to continual approval testing
- ❖ Global distribution network – stocked in depth
- ❖ Significant future development program
- ❖ Specialist technical backup
- ❖ Ideal for COTS applications
- ❖ Extensive test data available
- ❖ Complies with BS9525-F0033/MIL C 55302/CECC 75101-008

### Datamate Project Involvement:

- Delfi-C<sup>3</sup> Experimental Satellite
- “IceCube” Neutrino telescope
- Bowman Military Radio
- Airbus A380
- Meteor Air to Air Missile

## RoHS

To satisfy customer demand across all markets Harwin are maintaining production of leaded components in the Datamate range. Look for the symbols on the right to determine the order code required.



RoHS compliant & lead free process compliant.

CONTAINS



Solder tails feature Tin/Lead.

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# SPECIFICATION

# Datamate

## 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):	At 25°C 3.3A max At 85°C 2.6A max
All contacts simultaneously:	At 25°C 3.0A max At 85°C 2.2A max
Working Voltage (at sea level 1013 mbar)	240V d.c. or a.c. peak
Proof voltage (at sea level 1013 mbar)	360V d.c. or a.c. peak
Contact resistance (initial)	20 milliohms max.
Contact resistance (after conditioning)	25 milliohms max.
Insulation resistance (initial):	1000 Megohms min at 500V d.c.
Insulation resistance (after conditioning):	100 Megohms min at 500V d.c.

## Mechanical

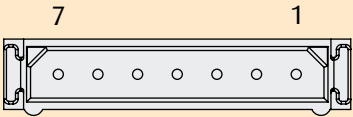
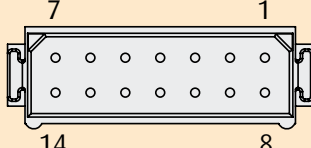
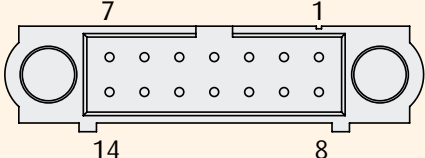
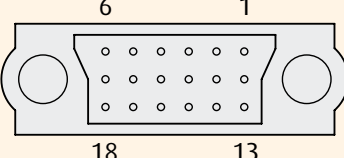
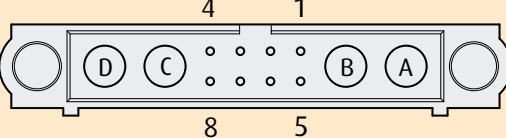
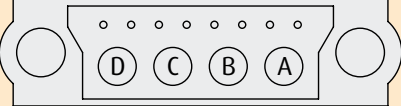
Durability:	500 operations*
Engaging and separating force (per contact pair):	2.8N max, 0.2N min (M80-XXX) 1.0N max, 0.2N min (M83-XXX)
Contact retention in moulding:	10N min.
Contact holding force:	0.2N min.
Crimp barrel accommodation:	22 A.W.G. to 28 A.W.G. BS 3G 210 Type A. (16 A.W.G. to 18 A.W.G. for power contacts).

## Environmental

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

\* Datamate has been tested to 5,000 operations, and still performed within Electrical Specifications. Please contact [datamate@harwin.com](mailto:datamate@harwin.com) for more information.

## POLARISING FEATURES

<p><u>Datamate L-Tek</u> Single Row</p> 	<p><u>Datamate L-Tek</u> Double Row</p> 	<p>3 flexible mating options: Friction latch, locking latch and no latch</p>
<p><u>Datamate J-Tek</u> Double Row</p> 	<p><u>Datamate J-Tek</u> 3 - Row (M83)</p> 	<p>A mating option of Jackscrews including board mount</p>
<p><u>Datamate Mix-Tek</u> Double Row</p> 	<p><u>Datamate Mix-Tek</u> 3 - Row (M83)</p> 	<p>3 connector styles in one. Includes signal, coax and power contacts</p>

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

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**These instructions cover the use of the following tools** (shown on page 61):

- ❖ **Hand Crimp Tool M22520/2-01**
- ❖ **Positioners T5747 and Z80-193**
- ❖ **Insertion/Extraction tool Z80-280**

All crimp and insertion/extraction tools are supplied with instruction sheets. Before starting, assemble the positioner to the crimp tool (instructions supplied with the crimp tool).

## 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	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		44 Newtons	
	26	19/0.1		25 Newtons	
	28	7/0.125		12.5 Newtons	

- ❖ Cut the end of the cable to give a clean cut end. Strip the end of the cable by  $2.00 \pm 0.15$ mm 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 crimp onto the end of the cable – make sure all the strands are within the crimp body. Look through the inspection hole in the side of the barrel, to check the ends of the strands are fully inside the barrel. The cable insulation should also go inside the crimp barrel – see Figure 1.
- ❖ Position the crimp socket 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 fully together, until the ratchet releases. The handles will then return to the open position. Remove the crimped wire, and check the following:
  - ❖ The strands are still visible within the inspection hole
  - ❖ 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

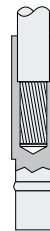


Fig. 1

## 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.

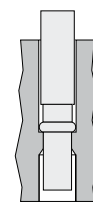


Fig. 2 – correct

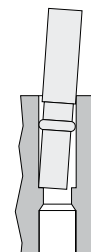


Fig. 3 – incorrect

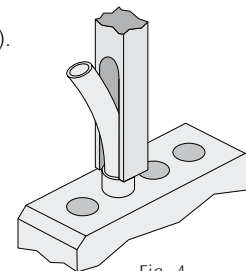


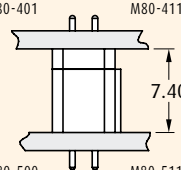
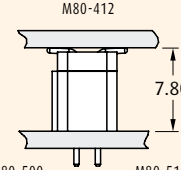
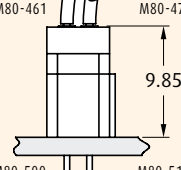
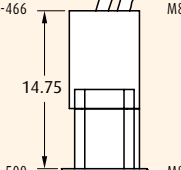
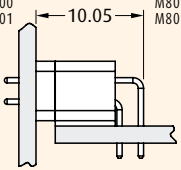
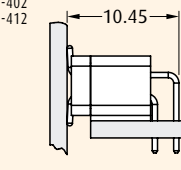
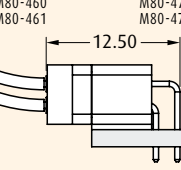
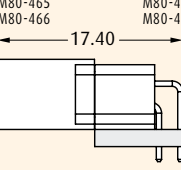
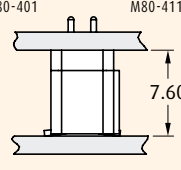
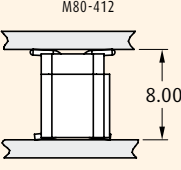
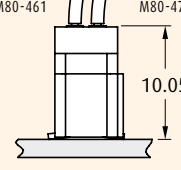
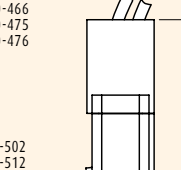
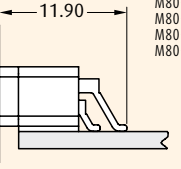
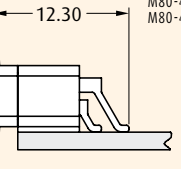
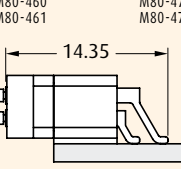
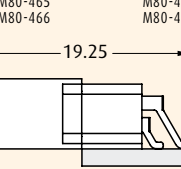
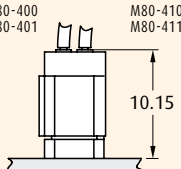
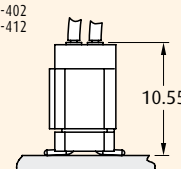
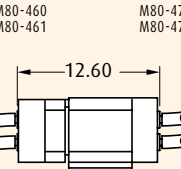
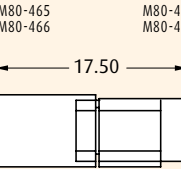
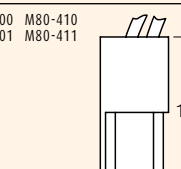
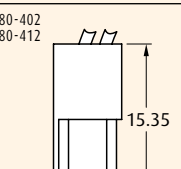
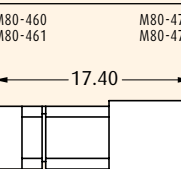
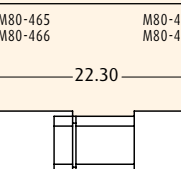
Fig. 4

## Datamate L-Tek

MALE	FEMALE				
	VERTICAL PC TAIL		VERTICAL SMT	CRIMP	
	SIL	DIL	DIL	SIL	DIL
VERTICAL PC TAIL	M80-840 M80-897  7.23	M80-850 M80-887  7.23	M80-681  7.85	M80-898 M80-899  10.2 max.	M80-888 M80-889  10.2 max.
	M80-805    M80-879 M80-852    M80-881 M80-877    M80-882	M80-815    M80-863 M80-853    M80-867 M80-854    M80-869	M80-815    M80-863 M80-853    M80-867 M80-854    M80-869	M80-805    M80-879 M80-852    M80-881 M80-877    M80-882	M80-815    M80-863 M80-853    M80-867 M80-854    M80-869
HORIZONTAL PC TAIL	M80-840 M80-897  7.98	M80-850 M80-887  7.98	M80-681  10.60	M80-898 M80-899  11.1 max.	M80-888 M80-889  13.1 max.
	M80-804    M80-846 M80-842    M80-879 M80-843    M80-878	M80-814    M80-851 M80-839    M80-866 M80-841    M80-868	M80-814    M80-851 M80-839    M80-866 M80-841    M80-868	M80-804    M80-846 M80-842    M80-879 M80-843    M80-878	M80-814    M80-851 M80-839    M80-866 M80-841    M80-868
VERTICAL SMT		M80-850 M80-887  7.85	M80-681  8.45		M80-888 M80-889  10.50
		M80-826 M80-827 M80-828	M80-826 M80-827 M80-828		M80-826 M80-827 M80-828
HORIZONTAL SMT		M80-850 M80-887  11.85	M80-681  12.45		M80-888 M80-889  14.50
		M80-665 M80-666 M80-667	M80-665 M80-666 M80-667		M80-665 M80-666 M80-667
CRIMP		M80-850 M80-887  10.94 Max	M80-681  11.28		M80-888 M80-889  13.60 max.
		M80-812    M80-816 M80-813    M80-817	M80-812    M80-816 M80-813    M80-817		M80-812    M80-816 M80-813    M80-817



## Datamate J-Tek

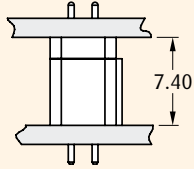
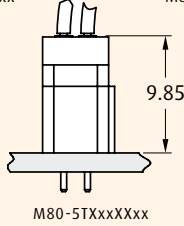
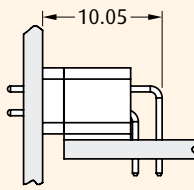
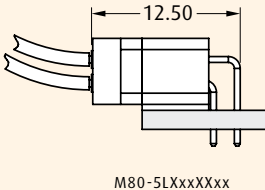
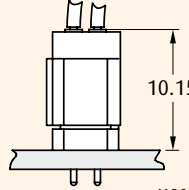
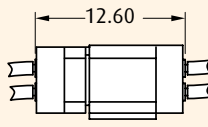
		FEMALE			
MALE	VERTICAL PC TAIL	VERTICAL SMT	CRIMP	CRIMP EXTENDED	
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<b>HORIZONTAL PC TAIL</b>	M80-400 M80-401 M80-410 M80-411  M80-530 M80-531 M80-540 M80-541 M80-550 M80-551 M80-552	M80-402 M80-412  M80-530 M80-531 M80-540 M80-541 M80-550 M80-551 M80-552	M80-460 M80-461 M80-470 M80-471  M80-530 M80-531 M80-540 M80-541 M80-550 M80-551 M80-552	M80-465 M80-466 M80-475 M80-476  M80-530 M80-531 M80-540 M80-541 M80-550 M80-551 M80-552	
<b>VERTICAL SMT</b>	M80-400 M80-401 M80-410 M80-411  M80-502 M80-512 M80-522 M80-513 M80-522	M80-402 M80-412  M80-502 M80-512 M80-522 M80-513 M80-522	M80-460 M80-461 M80-470 M80-471  M80-502 M80-512 M80-522 M80-513 M80-522	M80-465 M80-466 M80-475 M80-476  M80-502 M80-512 M80-522 M80-513 M80-522	
<b>HORIZONTAL SMT</b>	M80-400 M80-401 M80-410 M80-411  M80-532 M80-542 M80-543 M80-552	M80-402 M80-412  M80-532 M80-542 M80-543 M80-552	M80-460 M80-461 M80-470 M80-471  M80-532 M80-542 M80-543 M80-552	M80-465 M80-466 M80-475 M80-476  M80-532 M80-542 M80-543 M80-552	
<b>CRIMP</b>	M80-400 M80-401 M80-410 M80-411  M80-560 M80-561 M80-570 M80-571	M80-402 M80-412  M80-560 M80-561 M80-570 M80-571	M80-460 M80-461 M80-470 M80-471  M80-560 M80-561 M80-570 M80-571	M80-465 M80-466 M80-475 M80-476  M80-560 M80-561 M80-570 M80-571	
<b>CRIMP EXTENDED</b>	M80-400 M80-401 M80-410 M80-411  M80-565 M80-566 M80-575 M80-576	M80-402 M80-412  M80-565 M80-566 M80-575 M80-576	M80-460 M80-461 M80-470 M80-471  M80-565 M80-566 M80-575 M80-576	M80-465 M80-466 M80-475 M80-476  M80-565 M80-566 M80-575 M80-576	

All dimensions in mm.

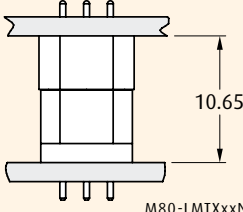
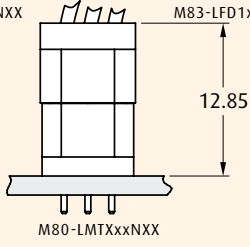
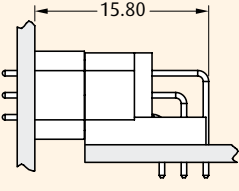
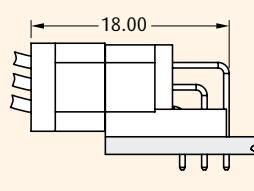
[www.harwin.com](http://www.harwin.com)



## Datamate **Mix-Tek**

		FEMALE	
MALE	VERTICAL PC TAIL	CRIMP	
VERTICAL PC TAIL	M80-4TxxXXxx  M80-5TxxXXxx	M80-4C1xxXXxx	M80-4D1xxXXxx  M80-5TxxXXxx
	M80-4TxxXXxx  M80-5LxxXXxx	M80-4C1xxXXxx	M80-4D1xxXXxx  M80-5LxxXXxx
CRIMP	M80-4TxxXXxx  M80-5C1xxXXxx	M80-4C1xxXXxx	M80-4D1xxXXxx  M80-5D1xxXXxx

Mix-Tek 2 Row

		FEMALE	
MALE	VERTICAL PC TAIL	CRIMP	
VERTICAL PC TAIL	M83-LFTxxNXX  M80-LMTxxNXX	M83-LFC1xxNXX	M83-LFD1xxNXX  M80-LMTxxNXX
	M83-LFTxxNXX  M80-LMLxxNXX	M83-LFC1xxNXX	M83-LFD1xxNXX  M80-LMLxxNXX

Mix-Tek 3 Row



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.

## PART NUMBERING SYSTEM

**B5XXX - X XX - X - X - X**

STYLE NUMBER	
<b>B5740</b>	Female Connector Types C and D (crimp)
<b>B5741</b>	Female Connector Types N and T (PC Tail)
<b>B5743</b>	Male Connector Types L and T (PC Tail)

NUMBER OF ROWS	
<b>1</b>	Single Row
<b>2</b>	Double Row

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

GENDER	
<b>F</b>	Female (Socket)
<b>M</b>	Male (Plug)

VARIANT	
<b>0</b>	Unlatched connector, tin finish PC Tail
<b>1</b>	Latched connector, tin finish PC Tail - Male only
<b>2</b>	Unlatched connector, gold finish PC Tail
<b>3</b>	Latched connector, gold finish PC Tail - Male only
<b>x</b>	Male (Plug)

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

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

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

[www.harwin.com](http://www.harwin.com)





<u>Datamate BS</u> 	<u>Datamate BS</u> CONTAINS 	<u>Datamate -Plus</u> 	<u>Datamate</u> 	<u>Datamate</u> CONTAINS 
B5740-1XX-F-C-0	n/a	B5740-898XX01	M80-898XX01	n/a
B5740-1XX-F-C-2	n/a	B5740-898XX05	M80-898XX05	n/a
B5740-1XX-F-D-0	n/a	B5740-899XX01	M80-899XX01	n/a
B5740-1XX-F-D-2	n/a	B5740-899XX05	M80-899XX05	n/a
B5740-2XX-F-C-0	n/a	B5740-888XX01	M80-888XX01	n/a
B5740-2XX-F-C-2	n/a	B5740-888XX05	M80-888XX05	n/a
B5740-2XX-F-D-0	n/a	B5740-889XX01	M80-889XX01	n/a
B5740-2XX-F-D-2	n/a	B5740-889XX05	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

