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Test Report Summary

HT00202

Voltage Breakdown and
Insulation Resistance of
Datamate (M80 Series) Connectors

1. Introduction

1.1. Description and Purpose

The Harwin Datamate (M80 series) connector is manufactured to the requirements of BS9525-F0033. The following tests were carried out on a selection of Datamate connectors, to establish the ultimate breakdown voltage across a two millimetre (adjoining contacts), four millimetre and six millimetre contact pitches.

1.2. Conclusion

The following test data has been taken from Harwin test report T43/97 and 413. The connectors tested achieved a greater flashover voltage than the BS9525-F0033 Voltage Proof requirement of 360V_{dc}, and can be rated to an 800V_{dc} Working Voltage and 1,200V_{dc} maximum Voltage Proof. However, it must be noted that these tests were conducted under standard factory conditions. Any requirement to use the connectors should consider these conditions, and also the spacing of the printed circuit board tracking to which the assemblies are connected.

The specified insulation resistance of 1,000MΩ minimum at 500V_{dc} for 1 minute was also confirmed during these tests.

2. Test Method, Requirements and Results

2.1. Specification Parameters

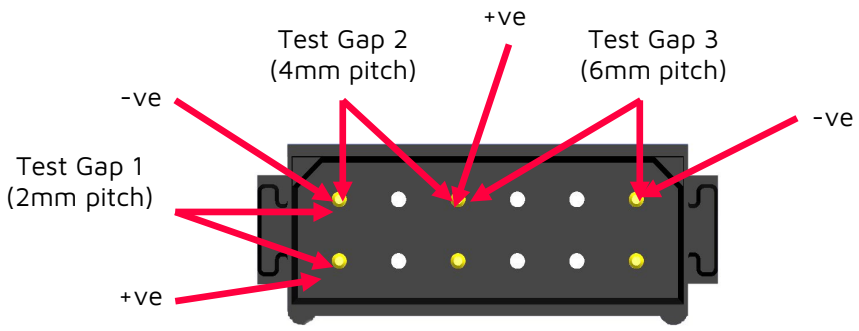
	BS9525 F0033 Specification	Elevated specification required
Working Voltage (DC nominal or AC peak)	120V	800V
Voltage Proof (DC or AC peak)	360V for 5 seconds	1,200V for 1 minute
Insulation Resistance (initial)	1,000MΩ minimum at 500V	1,000MΩ minimum at 500V

2.2. List of Test Samples

- M80-8691822 – Datamate L-Tek male assembly, 18 contact, through-board termination
- M80-8871801 – Datamate L-Tek female assembly , 18 contact, through-board termination
- M80-8891805 – Datamate L-Tek female assembly, 18 contact, crimp termination
- M80-5010642 – Datamate J-Tek male assembly, 6 contact, through-board termination
- M80-4100642 – Datamate J-Tek female assembly, 6 contact, through-board termination
- M80-5011442 – Datamate J-Tek male assembly, 14 contact, through-board termination
- M80-4101442 – Datamate J-Tek female assembly, 14 contact, through-board termination
- M80-5012042 – Datamate J-Tek male assembly, 20 contact, through-board termination
- M80-4102042 – Datamate J-Tek female assembly, 20 contact, through-board termination

2.3. Test Method and Results – Insulation Resistance from Test Report T43/97

Methodology: A 500V_{dc} test voltage was applied to each test gap in turn, for a period of 60 seconds.



Results:

	M80-8691822	M80-8871801	M80-8891805	M80-8691822 and M80-8871801 mated
Test Gap 1 (2mm pitch)	20 x 10^6MΩ	15 x 10^6MΩ	5 x 10^6MΩ	15 x 10^6MΩ
Test Gap 2 (4mm pitch)	20 x 10^6MΩ	20 x 10^6MΩ	9 x 10^6MΩ	15 x 10^6MΩ
Test Gap 3 (6mm pitch)	20 x 10^6MΩ	15 x 10^6MΩ	15 x 10^6MΩ	15 x 10^6MΩ

2.4. Test Method and Results – Voltage Proof from Test Report T43/97

Methodology: An increasing DC voltage was applied to each test point in turn, until either breakdown or flashover occurred.

Results:

All flashovers occured across the contacts mating face "air gap" at the following voltages:

	M80-8691822	M80-8871801	M80-8891805	M80-8691822 and M80-8871801 mated
Test Gap 1 (2mm pitch)	2,500V_{dc}	3,500V_{dc}	2,500V_{dc}	3,000V_{dc}
Test Gap 2 (4mm pitch)	4,000V_{dc}	4,000V_{dc}	5,000V_{dc}	4,000V_{dc}
Test Gap 3 (6mm pitch)	5,000V_{dc}	5,000V_{dc}	6,500V_{dc}	5,500V_{dc}

2.5. Test Method and Results – 1,200V Voltage Proof from Test Report 413

Methodology: 1,200V_{dc} voltage was applied to adjacent contacts for the duration of 1 minute to see if breakdown or flashover occurred.

Results: No breakdown or flashover occurred on any of these samples:

- M80-5010642 – Datamate J-Tek male assembly, 6 contact, through-board termination
- M80-4100642 – Datamate J-Tek female assembly, 6 contact, through-board termination
- M80-5011442 – Datamate J-Tek male assembly, 14 contact, through-board termination
- M80-4101442 – Datamate J-Tek female assembly, 14 contact, through-board termination
- M80-5012042 – Datamate J-Tek male assembly, 20 contact, through-board termination
- M80-4102042 – Datamate J-Tek female assembly, 20 contact, through-board termination