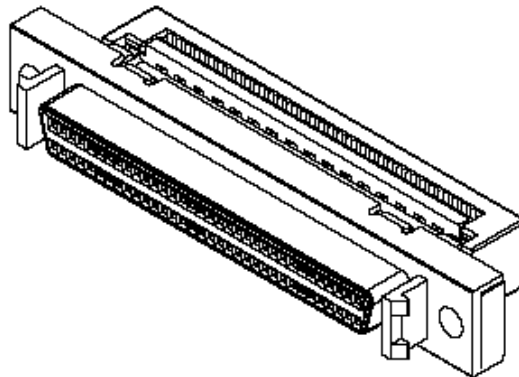
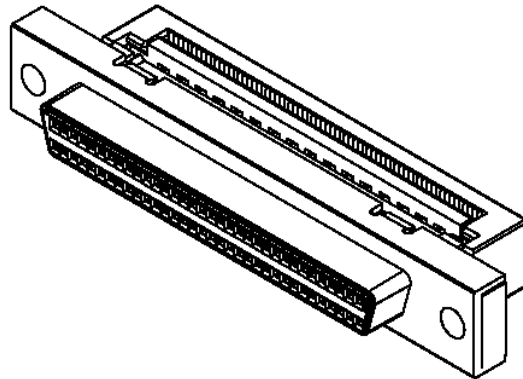


SPECIFICATION
AND PERFORMANCE CHARACTERISTICS
OF "MDS"
CONNECTOR SERIES



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1.0 SCOPE

- 1.1 This specification defines the physical interface, performance and test requirements for CA MDS Insulation Displacement Connectors Series using 30 AWG solid and stranded wires. These series consist of shielded connectors compatible with SCSI-2, SCSI-3 and EIA-364 standards and terminate with 0.635" centerline flat unshielded cable and single conductor cable having various insulations: such as Polypropylene, FEP, TPE, AND PVC.

2.0 APPLICABLE DOCUMENTS:

Reference documents listed below shall be the latest revision unless otherwise specified. Should a conflict occur between this specification and any of the listed documents then this specification shall prevail.

2.1 Regulatory Requirements

- Be a UL, C-UL listed or UL, C-UL Recognized Communication Circuit Accessory
- Be molded of plastics rated UL 94V-0

2.2 Industry Standards (TO BE REVIEWED)

- X3.131T-1994 SCSI-2 Small Computer System Interface
- ANSI-Y14.5M Dimension and Tolerancing
- EIA-364 Electrical Connector Test Procedures
- CA-MDS DRAWINGS

3.0 APPLICATION FEATURES:

3.1 Environmental

Temperature Range: -55°C to 105°C

3.2 Mechanical

Insulator Material: Glass filled polyester or CA approved equivalent, UL94V-0 Black

Contact Material: Phosphor bronze

Contact Plating A = Contact Area: Gold flash
 IDC Area: .000100 ± .000025 Tin
 Underplate: .000075 ± .000025 Nickel

C = Contact Area: .000015 Gold
 IDC Area: .000100 ± .000025 Tin
 Underplate: .000075 ± .000025 Nickel

D = Contact Area: .000005 Gold
 IDC Area: .000100 ± .000025 Tin
 Underplate: .000075 ± .000025 Nickel

F = Contact Area: .000030 Gold
 IDC Area: .000100 ± .000025 Tin
 Underplate: .000075 ± .000025 Nickel

Die Cast Frame Material: Die cast, Zinc alloy

Plating: Nickel Plate over Copper

Frame push out force: 40lbs. minimum

3.3 Durability

500 cycles minimum

3.4 Mating Force

68 position connector, 9.07Kg max. (20#)

3.5 Unmating Force

68 position connector, 2.26 Kg. min. (5#)

3.6 Electrical

Current Rating: 0.5 A

Dielectric Withstanding Voltage 500 VDC for 1 minute

Insulator Resistance: 1000 MΩ Min.

Contact Resistance: A. 25 mΩ max. measured through insulation displacement portion and mating pin environmental class I-3.

 B. 15mΩ max. through male-female contact interface

3.7 Recognition and Certification

Recognized under UL, & C-UL File No. E95981, categories ECBT2 & ECBT8.

4.0 CONNECTOR PERFORMANCE CRITERIA AND TEST SCHEDULE

Unless otherwise specified, all tests shall be performed at standard atmospheric conditions

4.1 TEST SCHEDULE

4.1.1 General

This test schedule shows the tests and the order in which they shall be carried out as well as the requirements to be met.

Unless otherwise specified, mated sets of connectors shall be tested. A mated set of connectors is called a "specimen". When the initial tests have been completed, all specimens are divided up according to the test groups. Care shall be taken to keep a particular combination of connectors together during the complete test sequence, i.e. when unmating is necessary for a certain test, the same connectors as before shall be mated for the subsequent tests.

Before testing commences, the connectors shall have been stored for at least 24 hours in the non-inserted state under normal climatic conditions for testing.

In the following test sequence tables, where and EIA test is specified without a letter suffix, the latest approved version of that test shall be used.

5.0 TEST SEQUENCES AND PERFORMANCE

ALL GROUPS - General Examination

GROUP I - Low Level Contact Resistance
Vibration
Low Level Contact Resistance
Mechanical Shock
Low Level Contact Resistance

GROUP II - Insulation Resistance
Withstanding Voltage
Thermal Shock
Humidity
Insulation Resistance
Low Level Contact Resistance

GROUP III - Low Level Contact Resistance
Gas Tight
Low Level Contact Resistance

GROUP IV - General Examination
Low Level Contact Resistance
Temperature Life
Low Level Contact Resistance
General Examination

GROUP V - General Examination
Mating
Un-mating
Low Level Contact Resistance
Durability
Low Level Contact Resistance
Temperature Life
Low Level Contact Resistance
General Examination

GROUP VI - General Examination
Continuity
Cable Flexing
Continuity
Cable Axial Pull
Continuity

GROUP VII - Low Level Contact Resistance
Mixed Flowing Gas
Low Level Contact Resistance

General examination

| Test Phase | Tests to be Performed | | | Comments |
|------------|---|------------------|---|---|
| | Title | EIA 364 Test No. | Requirements | |
| All Groups | General Examination (Visual and Dimensional Inspection) | 18 | Unmated connector Dimensions and plating thickness shall comply with CA's drawings | There shall be no defects that would impair normal operations |

Test and Performance Group I – LLCR, Vibration, LLCR, Mechanical Shock, LLCR

| Test Phase | Tests to be Performed | | | Comments |
|------------|-----------------------|------------------|--|--|
| | Title | EIA 364 Test No. | Requirements | |
| I.1 | LLCR | 23 | Apply 100 mA DC max. test current (short circuited), 20mV DC max. (open circuit). Measure initial LLCR | There shall be no physical damage and/or degradation of electrical stability |
| I.2 | Vibration | 28 | Condition III, frequency range of 10 to 2,000 Hz, 15g's peak level | No discontinuities greater than 1 micro second |
| I.3 | LLCR | 23 | Apply 100 mA DC max. test current (short circuited), 20mV DC max. (open circuit) Measure Δ LLCR | There shall be no physical damage and/or degradation of electrical stability |
| I.4 | Mechanical Shock | 27 | Condition G, 100g's peak acceleration, 6ms duration, 9.7ft/s | No discontinuities greater than 1 micro second |
| I.5 | LLCR | 23 | Apply 100 mA DC max. test current (short circuited), 20mV DC max. (open circuit) Measure Δ LLCR | There shall be no physical damage and/or degradation of electrical stability |

Test and Performance Group II – IR, DWV, Thermal Shock, Humidity, IR, DWV

| Test Phase | Tests to be Performed | | | Comments |
|------------|---------------------------------|------------------|--|---|
| | Title | EIA 364 Test No. | Requirements | |
| II.1 | Insulation Resistance | 21 | Apply a test potential of 500 VDC \pm 50V for 1 minute between adjacent contacts and contacts and shell | There shall be no degradation of electrical stability. No leakage is allowed There shall not be less than 1.0 G Ω |
| II.2 | Dielectric Withstanding Voltage | 20 | Method B Apply 500 VDC for 60 seconds | There shall be no evidence of disruptive discharge or deterioration, leakage, flashover, sparkover, arcing, and/or breakdown |
| II.3 | Thermal Shock | 32 | Condition IV, mated connectors 10 cycles for a period of 30 minutes -55°C +0°C / -3°C (Extreme cold) +125°C +0°C / -3°C (Extreme hot) | There shall be no damage such as permanent dimensional changes, cracking, crazing. No flashover, sparkover, breakdown and/or leakage greater than 0.5 mA DC |
| II.4 | Humidity | 31 | Test condition A, Method III Non-energized for (96 hrs). Omit 7a & b | There shall be no evidence of physical deterioration of the test samples as tested 1G Ω min. |
| II.5 | Insulation Resistance | 21 | Apply a test potential of 500 VDC \pm 50V for 1 minute between adjacent contacts and contacts and shell | There shall be no degradation of electrical stability. No leakage is allowed There shall not be less than 1.0 G Ω |
| II.6 | Dielectric Withstanding Voltage | 20 | Method B Apply 500 VDC for 60 seconds | There shall be no evidence of disruptive discharge or deterioration, leakage, flashover, sparkover, arcing, and/or breakdown |

Test and Performance Group III – LLCR, Gas Tight, LLCR

| Test Phase | Tests to be Performed | | | Comments |
|------------|-----------------------|------------------|---|--|
| | Title | EIA 364 Test No. | Requirements | |
| III.1 | LLCR | 23 | Apply 100 mA DC max. test current (short circuited), 20mV DC max. (open circuit) Initial LLCR | There shall be no physical damage and/or degradation of electrical stability |
| III.2 | Gas Tight | 36 | Class II, 60 \pm 5 minutes exposure at 30° C max. room temperature, relative humidity of 60% max. | There shall be no discoloration. Specimens shall meet requirements of the LLCR test |
| III.3 | LLCR | 23 | Apply 100 mA DC max. test current (short circuited), 20mV DC max. (open circuit) Measure Δ LLCR | There shall be no physical damage and/or degradation of electrical stability |

Test and Performance Group IV General Examination, LLCR, Temperature Life, LLCR, General Examination

| Test Phase | Tests to be Performed | | | Comments |
|------------|-----------------------|------------------|--|--|
| | Title | EIA 364 Test No. | Requirements | |
| IV.1 | General Examination | 18 | Unmated connector Dimensions and plating thickness shall comply with CA's drawings | There shall be no defects that would impair normal operations |
| IV.2 | LLCR | 23 | Apply 100 mA DC max. test current (short circuited), 20mV DC max. (open circuit) Measure initial LLCR | There shall be no physical damage and/or degradation of electrical stability |
| IV.3 | Temperature Life | 17 | Condition IV, Method A Temperature 105°C ± 2°C for 250 hours | There shall be no evidence of physical damage. |
| IV.4 | LLCR | 23 | Apply 100 mA DC max. test current (short circuited), 20mV DC max. (open circuit) Measure Δ LLCR | There shall be no physical damage and/or degradation of electrical stability |
| IV.5 | General Examination | 18 | Unmated connector Dimensions and plating thickness shall comply with CA's drawings | There shall be no defects that would impair normal operations |

Test and Performance Group V – General Examination, Mating, Unmating, LLCR, Durability, LLCR, General Examination

| Test Phase | Tests to be Performed | | | Comments |
|------------|-----------------------|------------------|--|--|
| | Title | EIA 364 Test No. | Requirements | |
| V.1 | General Examination | 18 | Unmated connector Dimensions and plating thickness shall comply with CA's drawings | There shall be no defects that would impair normal operations |
| V.2 | Mating | 13 | Measure force necessary to mate the connector assemblies at max. rate of 12.5mm per min. | 134g max. per contact |
| V.3 | Unmating | 13 | Measure force necessary to unmate the connector assemblies at max. rate of 12.5mm per min. | 33g min. per contact |
| V.4 | LLCR | 23 | Apply 100 mA DC max. test current (short circuited), 20mV DC max. (open circuit) Measure initial LLCR | There shall be no physical damage and/or degradation of electrical stability |
| V.5 | Durability | 09 | 500 cycles Mate/Unmate at a rate of 300 cycles per hour | There shall be no evidence of physical damage and the connectors shall meet the requirements of the Mate/Unmate Force, LLCR and Withstanding Voltage tests |
| V.6 | LLCR | 23 | Apply 100 mA DC max. test current (short circuited), 20mV DC max. (open circuit) Measure Δ LLCR | There shall be no physical damage and/or degradation of electrical stability |
| V.7 | General Examination | 18 | Unmated connector Dimensions and plating thickness shall comply with CA's drawings | There shall be no defects that would impair normal operations |

Test and Performance Group VI – General Examination, Continuity, Cable Flexing, Continuity, Cable Axial Pull, Continuity

| Test Phase | Tests to be Performed | | | Comments |
|------------|-----------------------|------------------|--|---|
| | Title | EIA 364 Test No. | Requirements | |
| VI.1 | General Examination | 18 | Unmated connector Dimensions and plating thickness shall comply with CA's drawings | There shall be no defects that would impair normal operations |
| VI.2 | Continuity | 46 | Verify performance of the connectors prior to Cable Flexing Test | No discontinuities allowed |
| VI.3 | Cable Flexing | 41 | Condition II, 250 cycles. Attached weight to cable equivalent to 1.0 Kg per 25.4mm of cable width, 300mm from flex axis | Specimens shall meet requirements of Continuity Test 364-46 |
| VI.4 | Continuity | 46 | Apply 100 mA DC, Voltage not to exceed 5 Volts | No discontinuities greater than 1 micro second |
| VI.5 | Cable Axial Pull Test | 38 | Applied load is at right angles to axis of cable thru connector. Load is equivalent to 225 g RMS per no. of positions. Load is maintained for 1 minute at 300mm from cable exit Perform Continuity test per 364-46 | Specimens shall meet requirements of Continuity Test 364-46 |
| VI.6 | Continuity | 46 | Apply 100 mA DC, Voltage not to exceed 5 Volts | No discontinuities greater than 1 micro second |

Test and Performance Group VII– LLCR, Mixed Flowing Gas, LLCR

| Test Phase | Tests to be Performed | | | Comments |
|------------|-----------------------|------------------|--|---|
| | Title | EIA 364 Test No. | Requirements | |
| VII.1 | LLCR | 23 | Apply 100 mA DC max. test current (short circuited), 20mV DC max. (open circuit) Measure initial LLCR | There shall be no physical damage and/or degradation of electrical stability |
| VII.2 | Mixed Flowing Gas | 65 | Class IIA, concentration (ppb) 10 days, 50% RH, at 30°C Cl ₂ 10±3 NO ₂ 200±50 H ₂ S 10±5 SO ₂ 100±20 | 10mΩ max. increase per contact pair There shall be no physical damage and/or degradation of electrical stability |
| VII.3 | LLCR | 23 | Apply 100 mA DC max. test current (short circuited), 20mV DC max. (open circuit) Measure Δ LLCR | There shall be no physical damage and/or degradation of electrical stability |

6.0 QUALITY ASSESSMENT PROCEDURES

6.1 Test Sequences

The following number of specimens shall be subjected to the tests under the conditions as specified in Table 6.1.

Table 6.1 – Qualification Approval Tests

| TEST OR EXAMINATION | TEST GROUPS | | | | | | |
|---------------------------------|-------------|------|--------------------|------|------|---------|------------------|
| | I | II | III ^(A) | IV | V | VI | VII |
| General Examination | | | | 1, 5 | 1, 7 | 1 | |
| Low Level Contact Resistance | 1, 3, 5 | | 1, 3 | 2, 4 | 4, 6 | | 1, 3 |
| Insulation Resistance | | 1, 5 | | | | | |
| Dielectric Withstanding Voltage | | 2, 6 | | | | | |
| Continuity | | | | | | 2, 4, 6 | |
| Mating | | | | | 2 | | |
| Unmating | | | | | 3 | | |
| Durability | | | | | 5 | | |
| Cable Flexing | | | | | | 3 | |
| Cable Axial Pull | | | | | | 5 | |
| Physical Shock | 4 | | | | | | |
| Vibration | 2 | | | | | | |
| Humidity | | 4 | | | | | |
| Temperature Life | | | | 3 | | | |
| Thermal Shock | | 3 | | | | | |
| Mixed Flowing Gas | | | | | | | 2 ^(A) |
| Gas Tight | | | 2 | | | | |

(A) If Gas Tight Test specified in Group III is performed, Mixed Flowing Gas Test specified in Group VII should be optional.

| | | | | | |
|---------------------------------|-------------------|------------------------------------|-------------------|---------------------------------|-------------------|
| Initiated By: Carmen C. Long | Date: 6-1-2001 | Engineering Approval Leroy Fong | Date: 6-1-2001 | Quality Approval Ian Morrell | Date: 6-1-2001 |
|---------------------------------|-------------------|------------------------------------|-------------------|---------------------------------|-------------------|

| REV. | DESCRIPTION | DATE | INITIALS |
|-------------|-----------------------------|-------------|-----------------|
| A | INITIAL RELEASE SEE DO 4511 | 6/01/01 | C.C. |
| B | INITIAL RELEASE SEE DO 4826 | 4/25/02 | C.C.L. |
| C | EFFECTIVE DATE PER DO 5273 | 9-02-03 | V.V. |
| D | EFFECTIVE DATE PER DO 5405 | 2-20-04 | I.M. |
| E | EFFECTIVE DATE PER DO 5717 | 03-30-05 | I.M. |
| F | SEE DO 7551 | 02-14-2020 | T.L. |
| G | SEE DO 7593 | 12-10-2020 | T.L. |