

NUMBER GS-12-1347	TYPE PRODUCT SPECIFICATION		
TITLE INDUSTRIAL MINI I/O Connector Piercing Type		PAGE 1 of 7	REVISION
		AUTHORIZED BY JUILLET J.	DATE 15/11/09
		CLASSIFICATION UNRESTRICTED	

1. Scope

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of INDUSTRIAL MINI I/O Connector. Applicable product description and part numbers are as shown in Appendix 1.

2. Applicable Documents :

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

3. Requirements:

3.1 Design and Construction:

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2 Materials:

A. Contact :

(1) Plug

Material: Copper alloy
 Finish: Nickel plating all over
 Contact area: Au plating
 Termination area: Au plating

(2) Receptacle

Material: Copper alloy
 Finish: Nickel plating all over
 Contact area: Au plating
 Termination area: Au plating

B. Housing :

(1) Plug

Material: Thermo plastic
 Flammability : UL94 V-0

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(2) Receptacle

Material: Thermo plastic
Flammability : UL94 V-0

C.Shell :

(1) Plug

Material: Copper alloy
Finish : Nickel plating all over

(2) Receptacle

Material: Copper alloy
Finish: Nickel plating all over

3.3 Ratings:

- A. Voltage Rating : 60V AC (rms)
- B. Current Rating: 0.5A
- C. Temperature Rating : -40°C to 85°C
(Unless limited by cable)

3.4 Performance Requirements and Test Descriptions :

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Fig.1. All tests shall be performed in the room temperature, unless otherwise specified.

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Para.	Test Items	Requirements	Procedures
3.5.1	Examination of Product	Meets requirements of product drawing.	Visual inspection No physical damage.
Electrical Requirements			
3.5.2	Termination Resistance (Low Level)	200 mΩ Max. (Initial) 200 mΩ Max. (After Test)	Subject mated contacts assembled in housing to 20mV Max open circuit at 100mA. Fig.3 EIA364-23
3.5.3	Insulation Resistance	500MΩ Min.	100V DC. 1minute hold. Test between adjacent circuits of mated connectors. EIA364-21
3.5.4	Dielectric withstanding Voltage	No creeping discharge or flashover shall occur. Leak current: 0.5mA Max.	250V AC 1 minute hold. Test between adjacent circuits of mated connectors. EIA364-20
3.5.5	Temperature Rising	30°C MAX under loaded rating current.	Measure temperature rising by energized current.
3.5.6	Connector Mating Force	30 N Max.	Operation speed: 10mm/min. Measure force necessary to mate samples. EIA364-13
3.5.7	Connector Unmating Force	30 N Max.	Set lock operation part of plug connector to open. Operation speed: 10mm/min. Measure force necessary to unmate samples. EIA364-13

Fig. 1 (CONT.)

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Para.	Test Items	Requirements	Procedures
Mechanical Requirements			
3.5.8	Durability (Repeated Mate/Unmating)	Termination Resistance (Low Level).	Operation Speed :200cycles/hour No. of Cycles: 750cycles. EIA364-09
3.5.9	Cable Pull-Out	No damage on soldering place. No disconnection between shield wire to shell.	Apply axial load to cable on plug connector. Fig.4 EIA364-38 Retention force for KIT products shall be determined by cable. Retention force for CABLE ASSY products shall be specified on CABLE ASSY drawing.
3.5.10	Lock Strength	Connector must not unmate. No destruction on Lock elements and no harmful damage on other parts.	Mate connector and make lock mechanism effective. Apply axial load to cable on plug connector. 98 N. 1 minute.
3.5.11	Elasticity	Connector must not unmate. No destruction on Lock elements, and no harmful damage on other parts.	Mate connector and make lock mechanism effective. Apply axial load to cable on plug connector 20N and bend cable to direction 45 degrees each on both side up to 20 cycles.
3.5.12	Vibration (Low Frequency)	No electrical discontinuity greater than 1 μ sec shall occur. Termination Resistance (Low Level).	Subject mated connectors to 10-55-10 Hz traversed in 1 minute at 1.52mm amplitude 2 hours each of 3 mutually perpendicular planes. EIA364-28
3.5.13	Physical Shock	No electrical discontinuity greater than 1 μ sec shall occur. Termination Resistance (Low Level).	Accelerated Velocity : 30G Waveform : Half-sin wave Duration : 11 m sec. Number of drops : 3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops. EIA364-27
3.5.14	Temperature Life (Heat Aging)	Termination resistance (Low Level)	Mated connector 85°C, 315 Hours EIA364-17

Fig. 1 (CONT.)

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Para.	Test Items	Requirements	Procedures
Environmental Requirements			
3.5.15	Humidity (Steady State)	Insulation resistance Dielectric Strength Termination resistance (Low Level)	Mated connector 90-95%R.H. 40°C 240 hours EIA364-31
3.5.16	Thermal Shock	Termination Resistance (Low Level)	Mated connector -55°C/ 30 min. +85°C/ 30 min. Making this a cycle, repeat 10 cycles. EIA364-32
3.5.17	Humidity- Temperature Cycling	Insulation resistance Dielectric Strength Termination resistance (Low Level)	Mated connector, 25~65°C, 80~100%R.H. 7 cycles Cold shock -10°C performed EIA364-31
3.5.18	Salt Spray	Termination resistance(Low Level) After it is left for 1 hour under a steady temperature/humidity, it is measured.	Mated connector Salt concentration: 5%, 35±2°C, 48 hours EIA364-26 (MIL-STD-202F Method 101 Condition B)

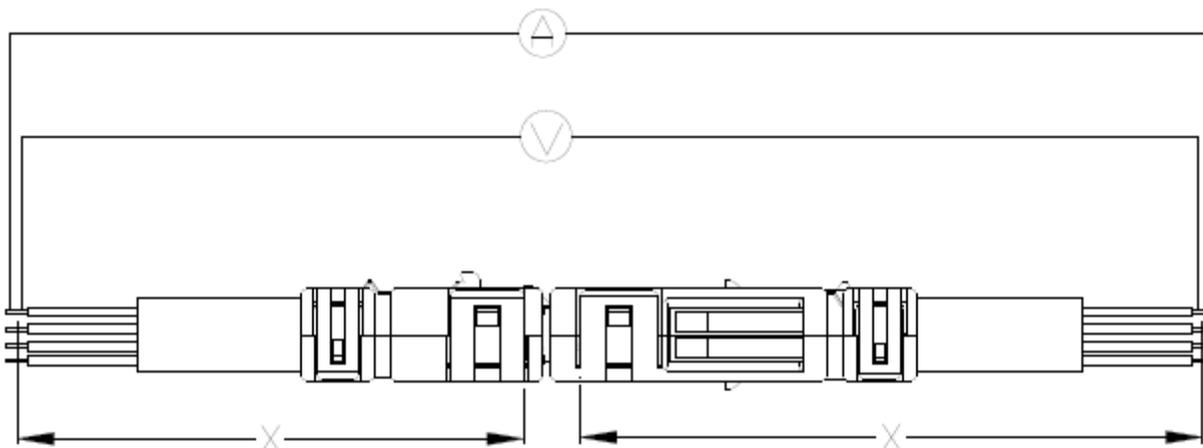
Fig. 1 (END)

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Test Examination	Test Group										
	1	2	3	4	5	6	7	8	9	10	
	Test Sequence (a)										
Examination of Product	1	1	1	1	1	1	1	1	1	1	
Termination Resistance (Low Level)	2.6	2.6		2.6			2.5	2.4	2.4	2.4	
Insulation Resistance	3.7	3.7									
Dielectric withstanding Voltage	4.8	4.8									
Temperature Rising			2								
Conn. Mating Force				3							
Conn. Unmating Force				4							
Durability (Repeated Mate/Unmating)				5							
Cable Pull-Out					2						
Lock Strength					3						
Elasticity						2					
Vibration (High Frequency)							3				
Physical Shock							4				
Temperature Life (Heat Aging)								3			
Humidity (Steady State)	5										
Thermal Shock									3		
Humidity-Temperature Cycling		5									
Salt Spray										3	

Fig.2
Numbers indicate sequence in which tests are performed.

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(Cable balk resistance of length X is deducted from measurements value.)
Fig.3 Termination Resistance Measurement Points

The applicable product descriptions and part numbers are as shown in Appendix 1.

Product Part No.	Description
10137239-001XLF	MINI I/O PIERCING PLUG TOP SHELL TYPE I
10137239-002XLF	MINI I/O PIERCING PLUG TOP SHELL TYPE II

Appendix 1

REVISION RECORD

Rev	Page	Description	EC#	Date