COMMON PARTS/MATERIALS, SPACE USE, APPLICATION DATA SHEET FOR

Part Description	ACCESSORIES FOR CONNECTORS, RECTANGULAR, MINIATURE AND CONNECTORS, RECTANGULAR, MINIATURE, HIGH DENSITY, HIGH RELIABILITY, SPACE USE
Part Number and Type	ND102-SL-**
Applicable Specification	JAXA-QTS-2060 JAXA-QTS-2060/E102B

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Prepared and Established by Japan Aviation Electronics Industry, Ltd.

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This document is the English version of JAXA QTS/ADS which was originally written and authorized in Japanese and carefully translated into English for international users. If any question arises as to the context or detailed description, it is strongly recommended to verify against the latest official Japanese version.

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Record of revisions

Rev.	Date	Description
NC	Jun. 2003	Original
A	Jul. 2004	Reflected the document (document number: JAHL-3301(Original)) prepared by Japan Aviation Electronics Industry, Ltd..
B	4 Jul. 2025	Reflected the document (document number: JAHL-3301(Rev. 2)) prepared by Japan Aviation Electronics Industry, Ltd..
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JAHL-3301

Revision history

Rev.	Date	Description
2	4 Jul. 2025	Changed the following items. • Paragraph 1.1 - Changed “NASDA” to “JAXA”. • Paragraph 1.2 - Changed “NASDA” to “JAXA”. - Changed “MIL-STD-1344” to “EIA-364”. • Paragraph 2.1 - Changed “NASDA” to “JAXA”. • Item (1) of paragraph 2.2 - Corrected “(1) “N” indicates the part is for space use.” to “Note (1) : “N” indicates the part is for space use.” in accordance with Appendix E of JAXA-QTS-2060. • Item (2) of paragraph 2.2 - Changed “NASDA-QTS-2060/E102A” to “JAXA-QTS-2060/E102”. • Table 2, item (2) of paragraph 3.2 - Changed “NASDA” to “JAXA”. - Deleted the column ND211. • Paragraph 5.1 - Changed “test method 1001 of MIL-STD-1344” to “EIA-364-26”. • Paragraph 5.2 - Changed “test method 1003 of MIL-STD-1344” to “EIA-364-32”. • Paragraph 7.2 - Changed “(2) Address: 1-21-2, Dogenzaka, Shibuya-ku, Tokyo 150-0043, Japan“ to “(2) Address: “1-19, Aobadai 3-chome, Meguro-ku, Tokyo 153-0042, Japan”. - Changed “(3) Tel: +81-3-3780-2957 “ to “(3) Tel: +81-3-3780-2865 (Connector 1st Sales Div.)”. Note: JAHL-3301(Original) was established as NASDA-ADS-2060/E102A for QPL (Qualified Products List). JAHL-3301(Rev. 2) was submitted for registration as JAXA-ADS-2060/E102B for QML (Qualified Manufacturers List).

JAHL-3301

Contents

1. GENERAL 1
1.1 Scope 1
1.2 Applicable Documents 1
2. SUMMARY OF PRODUCTS 1
2.1 Outline 1
2.2 Part Number 2
2.3 Externals 2
3. USAGE 3
3.1 Combination 3
3.2 Compatible Connectors 4
3.3 Male Screw Lock Installation 4
3.4 Female Screw Lock Installation 5
3.5 Screw Fastening Torque 5
3.6 Precautions 5
4. CHARACTERISTICS UNDER NORMAL OPERATING CONDITIONS 6
4.1 Ratings 6
4.2 Mechanical Characteristics 6
5. CHARACTERISTICS UNDER VARIOUS OPERATING CONDITIONS AND ENVIRONMENTAL LIMITS 6
5.1 Salt Spray 6
5.2 Thermal Shock 6
5.3 Vibration 7
5.3.1 Sinusoidal Vibration 7
5.3.2 Random Vibration 7
5.4 Shock 7
5.5 Screw Tensile Strength 7
5.6 Screw Yield Torque 7
6. STORAGE CONDITIONS 7
7. OTHERS 8
7.1 Mass 8
7.2 Contact Information 8

JAHL-3301

COMMON PARTS/MATERIALS, SPACE USE,
APPLICATION DATA SHEET FOR

1. GENERAL

1.1 Scope

This Application Data Sheet details additional general information necessary for parts selection and/or equipment design that is not contained in JAXA-QML. Users are encouraged to look into other information sources for specific applications, and responsible for their decisions on part selection and usage.
Refer to JAXA-ADS-2060/C101 and JAXA-ADS-2060/D114 for the application data sheet for connectors.

1.2 Applicable Documents

JAXA-QTS-2060	Capacitors, Fixed, High Reliability, Space Use, General Specification for
JAXA-QTS-2060/C101	Connectors, Rectangular, High Reliability, Space Use, Detail Specification for
JAXA-QTS-2060/D114	Connectors, Rectangular, High Density, High Reliability, Space Use, Detail Specification for
JAXA-QTS-2060/E102	Accessories for Connectors, Rectangular, Miniature and Connectors, Rectangular, Miniature, High Density, High Reliability, Space Use, Detail Specification for
EIA-364	Electrical Connector/Socket Test Procedures Including Environmental Classifications
MIL-STD-202	Test Methods for Electronic and Electrical Component Parts

2. SUMMARY OF PRODUCTS

2.1 Outline

Connector accessories described in this data sheet are latches designed to keep a pair of pin connector and socket connector mated. The latches are designed for the rectangular, miniature connectors (JAXA-QTS-2060 Appendix C) and the rectangular, miniature, high density connectors (JAXA-QTS-2060 Appendix D), which are high reliability connectors for space applications (JAXA-QTS-2060) developed for electronic equipment to be installed on satellites and/or launching vehicles.
Considering the space environments such as magnetism and sublimation, nonferrous materials and gold plated surface finishes are used.
Fasteners are inch screws which are interchangeable with NASA- and MIL-certified screw locks.

2.2 Part Number

There are male screw locks and female screw locks. The part number of these screw locks is assigned as follows

N(1) D 102 – SL – M 1
N(1) D 102 – SL – F _

(5) Size
(4) Accessory type
(3) Accessory style
(2) Identification number
(1) Connector type

Note(1) : "N" indicates the part is for space use.

(1) Connector type: Identified by a single capital letter. "D" indicates a "D-sub connector."
(2) Identification number: Identified by a three-digit number. "102" indicates the individual specification [JAXA-QTS-2060/E102].
(3) Accessory style: Identified by two capital letters. "SL" means screw lock.
(4) Accessory type: Identified by a single capital letter. "M" means male screw lock and "F" means female screw lock.
(5) Size: Identified by a single-digit number and indicate the size.

2.3 Externals

Refer to Figure 1 and Figure 2.

Unit: mm

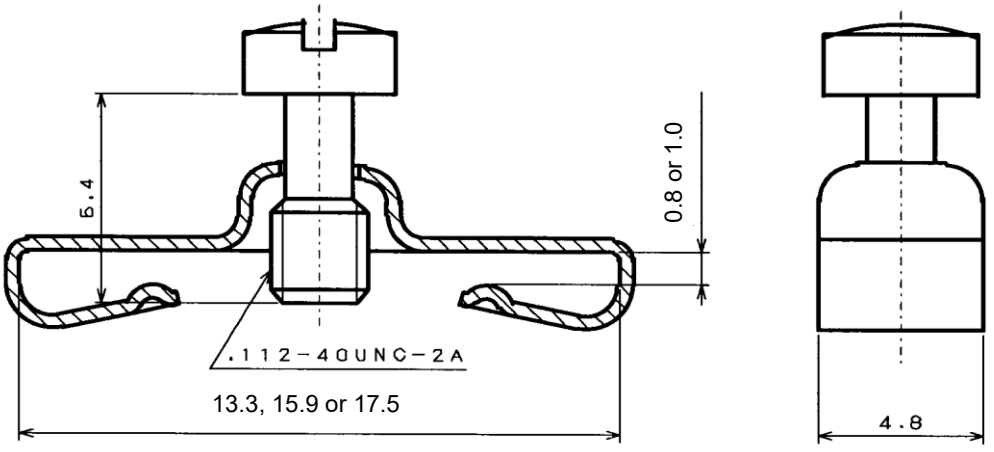


Figure 1. Male Screw Lock

Unit: mm

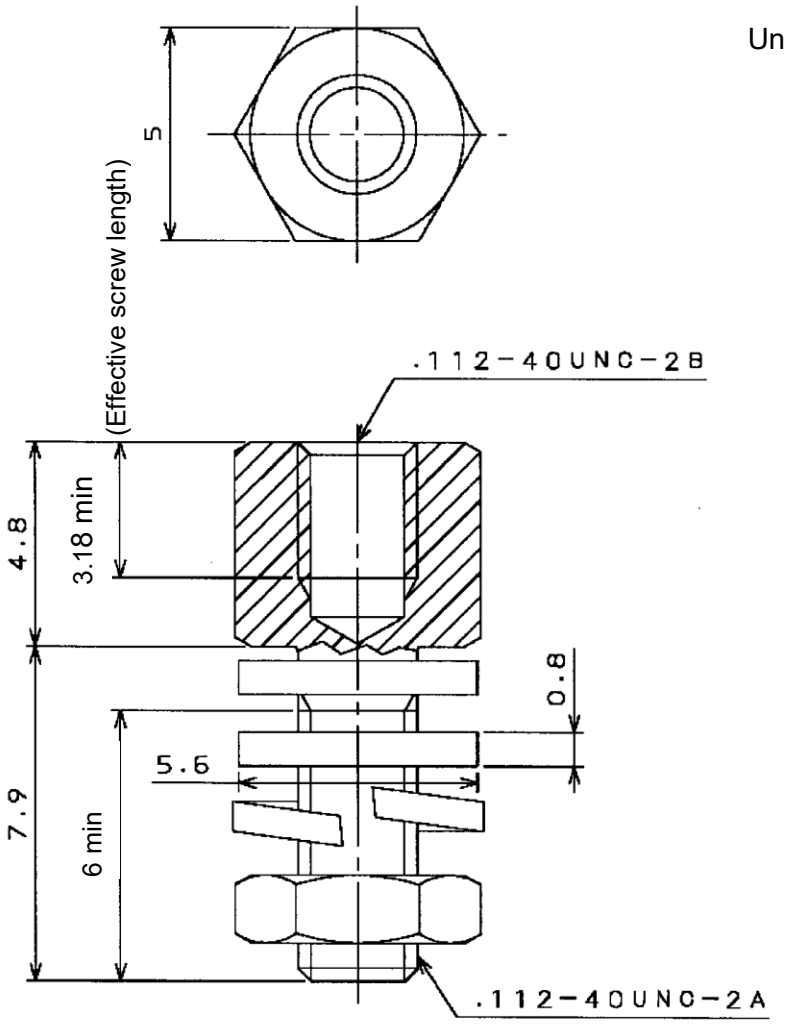
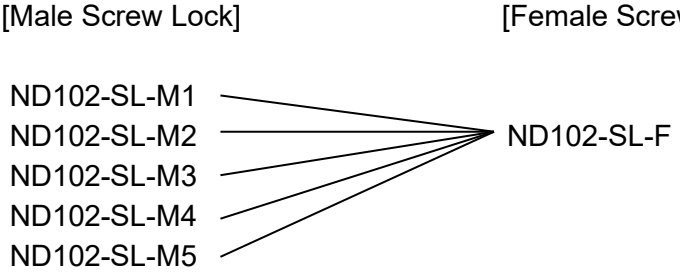


Figure 2. Female Screw Lock

3. USAGE

3.1 Combination

Male screw locks shall be used with cable side connectors and female screw locks shall be used with panel chassis side connectors. Two pairs of male and female screw locks are needed for one connector.



3.2 Compatible Connectors

(1) Compatible connectors with the screw lock are shown in Table 1.

Table 1. Compatible Connectors

Termination type	Male screw lock	Female screw lock
Crimp	O	O
Solder	O	O
Right angle through hole type	X	O

(2) There are five variations of the male screw locks, which should be selected by thickness, material, and flange width of the connector shell as shown in Table 2.

Table 2. Compatible Connectors with Male Screw Lock

		Applications	
JAXA-QTS-2060		Appendix C	Appendix D
Identification number		ND101	ND114
Shell materials		Copper	Aluminum
Part No.	ND102-SL-M1	9P, 15P, 9S, 15S, 25S, 37S	-
	ND102-SL-M2	25P, 37P	-
	ND102-SL-M3	50S	-
	ND102-SL-M4	50P	-
	ND102-SL-M5	-	104P, 104S

Note: “P” means “pin connector” and “S” means “socket connector.”

3.3 Male Screw Lock Installation

Install the male screw locks by hands at each end of the flange with the screw heads on the cable side as shown in Figure 3.

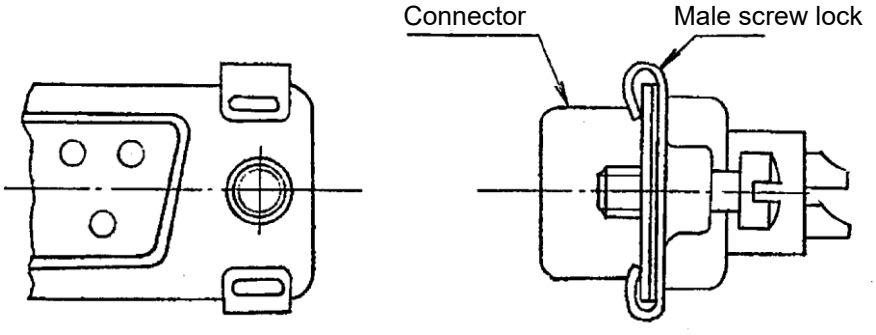


Figure 3. Male Screw Installation

3.4 Female Screw Lock Installation

(1) Female screw locks are installed differently depending on whether they are installed on the front surface or the back surface of panel chassis.

(2) To install on the front surface of the panel, use two plain washers, which come with the product, as shown in Figure 4.

(3) To install on the back surface of the panel, adjust the quantity of the plain washers depending on the panel thickness as shown in figure 5. For example, as the thickness of the plain washer is 0.8mm, if the thickness is approximately 0.8mm, use one plain washer, if the thickness is approximately 1.6mm, don't use any plain washer.

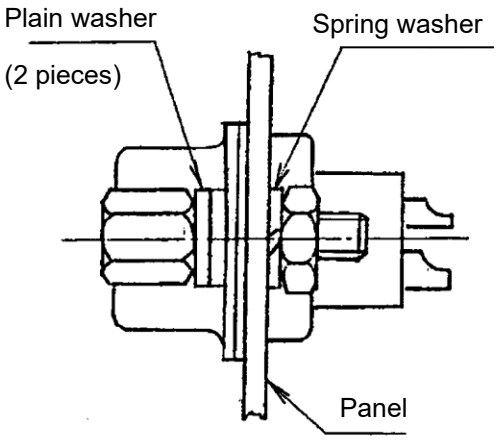


Figure 4. Front Mounting

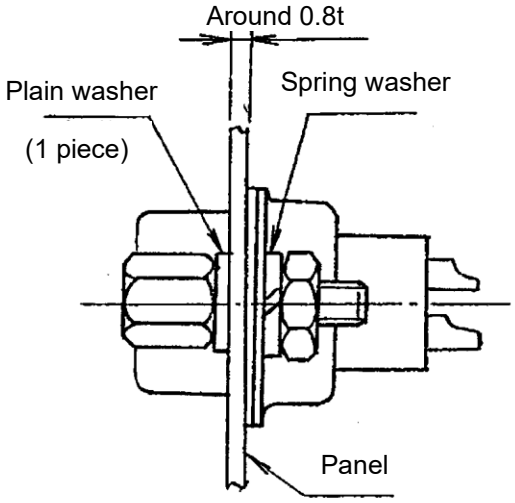


Figure 5. Back Mounting

3.5 Screw Fastening Torque

Fasten the screws with the following recommended torques. In addition, the fastening torque for the male screws shall be less than those for the female screws.

Male: 2.9 to 3.9N· m {3 to 4kg· cm}
Female: 3.9 to 4.9N· m {4 to 5kg· cm}

3.6 Precautions

(1) When the screw locks are used with the right angle thorough hole type connectors, install the connectors within 4mm from the edge of printed-wiring board as shown in Figure 6 to prevent the male screw locks from touching the printed-wiring board.

(2) To install the female screw locks on a panel, it is reccommended to use paint to avoid rotation of the female screw locks.

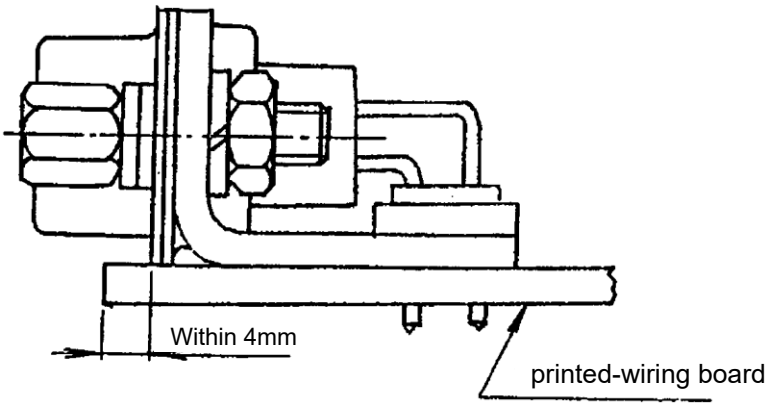


Figure 6. Right Angle Through Hole Type Connector

4. CHARACTERISTICS UNDER NORMAL OPERATING CONDITIONS

4.1 Ratings

(1) Operating temperature range: -65 to +125°C

4.2 Mechanical Characteristics

(1) Vibration: 10 to 2,000Hz, (294m/s^2 {30G} peak)
(2) Shock: 2,942m/s^2 {300G}, 3ms

5. CHARACTERISTICS UNDER VARIOUS OPERATING CONDITIONS AND ENVIRONMENTAL LIMITS

In this section, the accessary characteristics under various environmental conditions and environmental limits of the accessary are described based on the quality conformance inspection and breakdown limit test data.

5.1 Salt Spray

The accessories have superior corrosion resistance because the metal surfaces are gold plated of an appropriate thickness.
The salt spray test was performed for 48 hours in accordacne with EIA-364-26. No corrosion or discoloration was observed. The requirements specified in the applicable specification were satisfied.

5.2 Thermal Shock

Thermal shock test was performed at -60 to +125°C in accordacne with EIA-364-32. No peeled plating or discoloration was observed. The requirements specified in the applicable specification were satisfied.

5.3 Vibration

High frequency vibration test and random vibration test were conducted. No damaged parts or loosened screw were observed. The requirements specified in the applicable specification were met.

5.3.1 Sinusoidal Vibration

The sinusoidal vibration test was performed at 20 to 2,000Hz, 294m/s^2 {30G} peak as specified in applicable specification and at 20 to 2,000Hz, 490m/s^2 {50G} peak as specified in test method 204 of MIL-STD-202 along 3 axes for a total of 12 hours.

5.3.2 Random Vibration

The random test was conducted in the positive and negative directions along 3 axes for 90 seconds each direction at 20 to 2,000Hz, 192m/s^{2}rms {19.6Grms}.

5.4 Shock

The shock test was conducted in the positive and negative directions along 3 axes at 5,884m/s^2 {600G} and 9,807m/s^2 {1,000G} for 3 times in each direction (54 times in total), The test condition specified in the applicable specification is 2,942m/s^2 {300G}. No damaged parts or loosened screw were observed. The requirements specified in the applicable specification were met.

5.5 Screw Tensile Strength

The screw tensile strength test was conducted for the male and female screw locks. The result is as follows.

Male: 1,275N {130kg} as a minimum
Female: 1,716N {175kg} as a minimum

5.6 Screw Yield Torque

The screw yield torque test was conducted for the male and female screw locks. The result is as follows.

Male: 62.8N {6.4kg} as a minimum
Female: 74.5N {7.6kg} as a minimum

6. STORAGE CONDITIONS

(1) The connectors are ultrasonic cleaned and sealed before shipping. Do not open the seal bag if not necessary. Re-seal the bag before storage if opened for receiving inspection or other needs.
(2) Store the accessories at an ambient temperature and humidity.

7. OTHERS

7.1 Mass

The mass values (actual measurements) of accessories are shown in Table 3. Please note that the mass value may be a variation of approximately ±10% depending on the production lot.

Table 3. Mass of Accessory (1 pc.)

Part number	Mass (g)±10%
ND102-SL-M1	0.79
ND102-SL-M2	0.79
ND102-SL-M3	0.87
ND102-SL-M4	0.87
ND102-SL-M5	0.92
ND102-SL-F	1.51

7.2 Contact Information

(1) Manufacturer: Japan Aviation Electronics Industry, Ltd.
(2) Address: 1-19, Aobadai 3-chome, Meguro-ku, Tokyo 153-0042, Japan
(3) Tel: +81-3-3780-2865 (Connector 1st Sales Div.)