

IO-Link

Product Quality Policy

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Prepared, approved and released by the IO-Link Steering Committee

Any comments, proposals, requests on this document are appreciated.

Important notes:

NOTE 1 The IO-Link Community Rules shall be considered prior to the development and marketing of IO-Link products. The document can be downloaded from the www.io-link.com portal.


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1 Management Summary – Scope of this Document

This policy describes the procedures necessary for the attainment of a manufacturer declaration for an IO-Link Master and Device. Furthermore in sections 4 and 5 it gives hints for the successful preparations for the tests as well as describing procedures for brand labelling and dealing with equipment variants.

1.1 Manufacturer declaration

- The Manufacturer Declaration states compliance to the IO-Link specifications and has to be signed by vendors based on tests.
- Members are entitled to perform the required test under their own responsibility. The Manufacturer Declaration has no expiring date.
- Non-members are obliged to have the tests required for the manufacturer declaration performed at an accredited IO-Link Test Center (IOLTC) and to pay for these tests as well for the license fee (according to the IO-Link Community Rules). After every 3 years (provided that no change has been made to the product properties), the license can be extended for another 3 years. If the device is unchanged, the manufacturer has to inform the IO-Link Support Center by sending a written note. Otherwise (i.e. the device has been changed), the required steps for a new version of the manufacturer declaration have to be performed. For details see chapter “Additional Procedure regarding Retests”.

2 References and related documents

	document
[1]	IO-Link Community Rules
[2]	IO-Link Interface and System Specification
[3]	IO Device Description Specification
[4]	IO-Link Test Specification
[5]	IO-Link Master Test Interface

Applicable are the documents of the actual package

3 Definitions and Abbreviations

For the purposes of this document, the following definitions apply

Term	Definition
Master Tester	A tool that is designed to execute the protocol tests according to the test specification, recommendet by the IO-Link Quaility WG
Device Tester	A tool that is designed to execute the protocol tests according to the test specification, recommendet by the IO-Link Quaility WG
IODD	IO Device Description
DID	Device Identifier of an IO-Link device
VID	Vendor ID (Identification)

OEM	Original equipment manufacturer (OEM): a company providing a part or subsystem that is used in another company's end product
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For the purposes of this document, the following abbreviations apply

Abbreviation	Meaning
IOLCC	IO-Link Competence Center
DUT	Device under test
MD	Manufacturer declaration
uC	Micro controller
PL	Physical layer
IOLTC	IO-Link Test Center

4 The way to the manufacturer declaration (MD)

Each device or master has to be listed in the MD.

Masters having an identical IO-Link interfaces need only one MD.

Prerequisites are: Vendor ID, IODD (for devices only)

Members: The manufacturer of a device or a master will execute the tests described in [4].

After successful testing

- the manufacturer has to sign the MD
- the test report and the MD must be archived and reside on manufacturer site. The MD can be send to IO-Link Support Center to be published on the approved component list.

Non-members: In order to get the licensee granted it is required to have the tests, that are required for the MD, performed at an accredited IOLTC and to pay for these tests services as well for the license fee (details see IO-Link Community Rules). The IOLTC issues a test report and a confirmation of a successfully passed test.

After successful testing

- the manufacturer has to sign the MD
- the test report shall be archived and reside on the manufacturers site
- The MD and the confirmation of an IOLTC have to be sent to IO-Link Support Center for archiving purposes. On request it can be published on the approved component list

The test service is to be payed to the IOLTC, the license fee to the IO-Link Support Center.

4.1 Method for brand labelling and similar device

4.1.1 Brand labelling

Brand labeled products are functional identical devices distributed by different companies. Only differences in the outer design the product identification or parameter descriptions are permitted. Brand labeled products need a new Vendor ID (VID).

4.2 Additional Procedure regarding Retests

4.2.1 General Approach

This chapter describes the regulations for retests when changes have been made at an already tested device or master. Either a full test or a part test has to be performed. This leads to a new test report and MD.

Due to the increasing complexity of device variants the following chapter can only cope with the cardinal changes of the IO-Link interface (communication and/or timing). Other changes should be discussed bilateral between manufacturer and an IOLTC.

For devices:

Changes	New DID	PL Test	EMC Test	Protocol Test	New MD
SW changes in application New functions / parameters	X			X	X
SW changes influencing the communication / timing	X	X		X	X
HW changes influencing the communication		X	X		X
Bug fix in the communication software ¹⁾				X	X
Bug fix in the HW		X	X		X
Note 1) Communication software is the part of the software, which represents the implementation of the protocol layers, data objects, methods and interfaces as defined in the IO-Link System and Interface specification.					

For masters:

Changes		PL Test	EMC Test	Protocol Test	New MD
SW changes in gateway application				X	X
SW changes influencing the IO-Link communication / timing				X	X
HW changes influencing the IO-Link communication		X	X		X
Bug fix in the IO-Link communication software ¹⁾				X	X
Bug fix in the HW		X	X		X

Note 1)

Communication software is the part of the software, which represents the implementation of the protocol layers, data objects, methods and interfaces as defined in the IO-Link System and Interface specification.

5 Testing and Test tools

5.1 Prerequisites for the Test

- Final product release
- Devices
 - IODD file checked and CRC-stamped
 - Vendor ID (VID)
 - Device ID (DID)
- Masters
 - Vendor ID (VID)

5.2 Test of the IODD (only for Devices)

Every device manufacturer has to provide an IODD-file for the DUT. The IODD describes the functionality of a device which also used by device testers for protocol tests.

The correctness of the valid IODD-file must be tested with the IODD checker.

5.3 Test of the Physical Layer and EMC

The PL and EMC Test must be done according to the documents [2] and [4].

5.4 Test of the Protocol

The protocol test must be done according [4]. For devices a checked IODD must be used for the test.

5.5 Tools for the Test

There are different test systems on the market recommended by the IO-Link Quality WG for supporting tests and generating test reports.

5.5.1 For Devices

- Device Tester (Protocol test)
- IODD checker

5.5.2 For Masters

- Master Tester (Protocol test)

6 Quality center

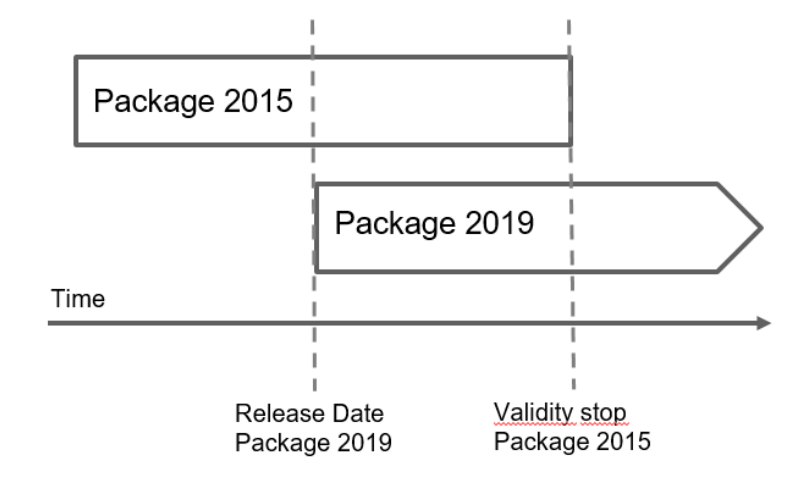
For clearing of MD relevant quality complains or exceptions regarding IO-Link specifications and validity periods the IO-Link community is operating the Quality Center.

Complains shall be reported to quality@io-link.com (in english)

Annex A (normative)

Validity of specifications

Due to improvements in specifications, the all valid core specifications are bundled into a package. These packages have a dedicated validity period for implementation and bringing products to the market. After the release of a new package the former package will be valid for a specified transition period. After the validity of a package is discontinued no new devices or masters shall be released on the market based on this package.



The validity period for the packages are listed below.

Package	Release Date	End of validity Date
Package 2015	07.03.2015	open
Package 2019	open	open

Package 2019 consists of:

Term	Version
IO-Link Interface and System Specification	V1.1.3
IO-Link Test Specification	V1.1.x
IODD – IO Device Description Specification	V1.1
Manufacurer declaration	19xxxx
Corrigendum Package 2019	

Package 2015 consists of:

Term	Version
IO-Link Interface and System Specification	V1.1.2
IO-Link Test Specification	V1.1.2
IODD – IO Device Description Specification	V1.1
Manufacturer declaration	160115
Corrigendum Package 2015	

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