Intona USB 2.0 Type-C Hi-Speed Isolator Model 7052

1. Features

- Provides galvanic isolation to the USB data and power lines
- Compliant to USB 2.0 Hi-Speed 480 Mbps
- Backwards compatible to Full Speed (12 Mbps) and Low Speed (1.1 Mbps)
- Transparent to host and device
- Works with all operating systems, no drivers needed
- Supports all USB-specific transfers and modes
- Powered by USB
- Ultra-quiet power rail isolation, linear regulation
- Connectors: USB Type-C
- Stainless steel enclosure with rubber mold finish
- USB-C cables and adapter to USB-A included
- Engineered and manufactured in Germany

2. Applications

All systems requiring clean and stable USB connections where different parts benefit from separate grounds.

- Environments requiring safety insulation
- Industrial automation systems
- Medical equipment
- Machine protection
- Measurement devices
- Physical and technical research
- Broadcast and studio
- Audiophile-grade home systems

3. Description

The 7052 is Intona's most compact USB isolator and features USB-C connectors on both sides. The purpose is to provide electrical isolation for devices requiring clean and stable USB connections, effectively preventing issues like ground loops (humming) and electrical interference, balancing or transient currents while maintaining a small form factor. The use of USB-C enhances compatibility with modern devices, offering versatility in connectivity options.

The device was developed and manufactured in Germany, ensuring a commitment to quality and precision. The silicone-wrapped stainless steel housing provides both stability and a premium feel.

Intona invented USB Hi-Speed isolation and has decades of experience with galvanic isolation, being the first manufacturer worldwide to offer a complete line of USB isolators. This pioneering achievement underscores Intona's leadership and expertise in developing advanced solutions that ensure safe, interference-free connectivity across various applications. Their focus on innovation allows them to address complex challenges associated with high-speed data transmission, providing robust protection against electrical noise and ensuring reliable performance in demanding environments.

Figure 1: Front view

Figure 2: Rear view

4. Table of Contents

5. Revisions

v1 - 2026-03-30

- Initial version

6. Safety Instructions

6.1. General Safety

- Use the product only in accordance with this document.
- Do not open the device. There are no user-serviceable parts inside.
- Use the product only in dry, clean, and non-explosive environments.
- Do not use damaged cables, connectors, or enclosures.
- Protect the product from excessive mechanical stress, moisture, aggressive chemicals, and extreme heat.

6.2. Electrical Safety

- The USB isolator is intended for galvanic isolation of the USB bus.
- Isolation can only be effective if there are no other conductive connections between the host and the end device.
- Additional ground connections, shielding connections, signal lines, or earthed subsystems can wholly or partially negate the isolation effect.
- The product does not replace the safety isolation of other interfaces or power supplies.
- The permanent voltage difference ("working voltage") between the isolated grounds must not exceed 264 V AC.
- The isolation is not guaranteed for voltages above 1.5 kV (internal creepage distance).

6.3. Operating Limits

- The product is designed for USB 2.0 Hi-Speed up to 480 Mbps.
- It is backward compatible with Full Speed (12 Mbps) and Low Speed (1.1 Mbps).
- USB 3.x / SuperSpeed is not supported.
- USB Power Delivery protocol (USB-PD) is not supported.
- The maximum available output current on the isolated side is 500 mA.
- The maximum available output current may be limited by the power source connected via the USB host port, as this also supplies the USB isolator.

7. Disposal

Electronic devices must not be disposed of improperly. Dispose of the product in accordance with the applicable national regulations for electrical and electronic equipment.

Packaging materials should be disposed of according to local guidelines.

Intona avoids using plastic in packaging. We opt for recyclable materials based on paper.

8. Specifications

Table 1: Electrical Characteristics

| Parameter	Minimum	Typical	Maximum	Unit	Note
Operating voltage	4.2	5	5.5	V	
Current consumption	22	—	50	mA	Plus load current divided by supply isolation efficiency
Efficiency of supply isolation	62.5	65	—	%	Includes low noise linear regulation
Maximum isolated current drain	—	—	500	mA	
Maximum isolated current drain, standards-compliant	—	—	335	mA	When overall consumption must not exceed 500 mA
Output voltage	4.8	—	5.0	V	
Ambient temperature	−25	—	85	°C	
Isolation rating	—	1500	—	V AC	
Working voltage	—	264	—	V AC	Recommended maximum sustained potential difference
Internal creepage distance	3.2	—	—	mm	
Isolation capacitance	—	500	—	pF	2× 1000 pF 3 kV in series due to regulatory requirements
Leakage current	50	—	100	µA	Test voltage: 300 V AC
ESD protection	—	±8	—	kV	Contact discharge
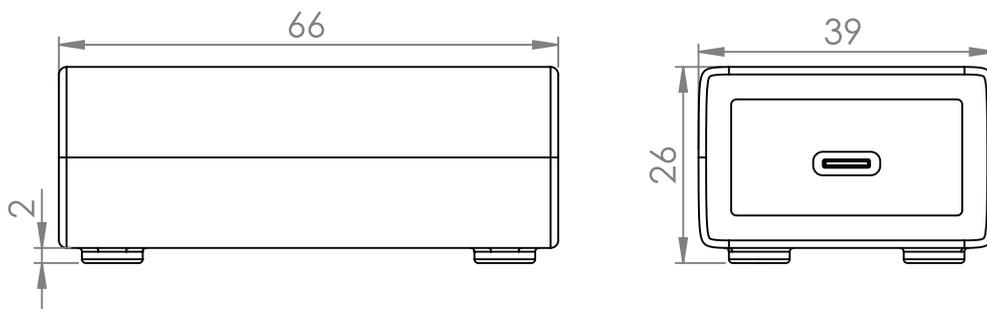
Figure 3: Dimensions (in millimeters)

Table 2: Mechanical Characteristics

Parameter	Value	Unit	Note
Dimensions	66 × 39 × 26	mm	L x B x H
Weight	110	g	
Dimensions of packaging	152 × 105 × 42	mm	L x B x H
Total weight	200	g	incl. Packaging and Accessories
Inner casing	Stainless steel		
External housing	Silicone rubber mold		

9. Usage Instructions

9.1. Connecting the USB Isolator

The USB isolator features two ports. The functionality can only be achieved when each port is connected to its respective side.
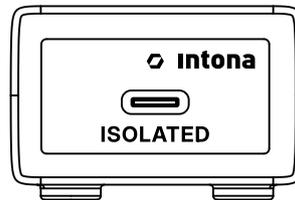

Figure 4: Device connection side

Connect the end device to the port labeled ISOLATED, which can also be identified by its lighter color.
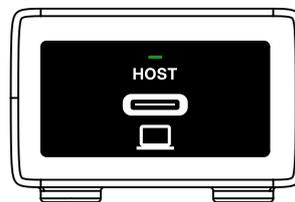

Figure 5: Host connection side

The computer should be connected on the darker side, which displays a PC symbol. Additionally, there is a green LED labeled HOST located there that lights up when power is supplied from the PC.

If there is no USB-C port available on the host PC, an adapter for USB-A is included.

> ⚠ **Accidently connected backwards?**
>
> If the USB isolator is connected in reverse, it will not cause any damage to your devices but it will simply fail to operate as intended.

9.2. Using the USB Isolator

The USB isolator operates transparently from a USB communication perspective. This means it seamlessly integrates with various systems and devices without requiring additional setup or adjustments. The isolator itself does not require any drivers to be installed.

It works with all operating systems, ensuring broad usability regardless of your computer environment. It does not introduce any extra delay in data transmission, ensuring optimal performance and responsiveness.

There is nothing specific you need to do to get it working with your computer. However, if the device you connect via the isolator needs its own drivers, those must be installed on the host computer independently of the isolator.

If everything functions smoothly without interference, the isolator is doing exactly what it's supposed to do. The ideal outcome is that once set up correctly, you can "set and forget" about it.

10. Application Notes

10.1. USB Type-C

The USB Type-C connector is a modern, versatile connector type that supports a wide range of functions, including high-speed data transmission (up to USB 3.x/4.0 SuperSpeed), video output and power delivery (USB Power Delivery, PD) for charging devices. These capabilities depend both on the connected hardware and the internal wiring of a device.

The Intona 7052 uses a subset of the USB-C connector's capabilities. Specifically, it utilizes the USB 2.0 data lines (D+ and D-) for data transmission and the standard 5 V VBUS power supply. The USB 3.x SuperSpeed data lines and Power Delivery (PD) handshake are not supported or connected in this device.

This means:

- Compatible with USB 2.0 High Speed
- Backward compatible with Full Speed and Low Speed
- No support for USB 3.x/4 (SuperSpeed, Thunderbolt 4)
- No support for video
- No support for advanced power delivery functions

> 💡 **Connector Orientation**
>
> USB-C connectors are reversible, meaning there is no specific orientation to consider when plugging them in. Simply insert the connector into the port for ease of use.

10.2. USB Version Types

USB 2.0 and USB 3.x use different data paths. USB 2.0 relies solely on the D+ and D- data lines. USB 3.x and higher require additional SuperSpeed lines for faster data transfer and other advanced features. When a USB 3.x/4 device is connected to this product, it will automatically fall back to USB 2.0 compatibility mode, which may limit the performance of the connected device.

Connecting USB 3.x/4 devices or cables will not affect the safe operation of this product. All modes above USB 2.0 Hi-Speed or requiring additional functions (such as Power Delivery or video output) will simply be ignored. Only data transfer via USB 2.0 Hi-Speed and below is supported.

> ℹ️ **Info**
>
> Intona also offers USB 3.0 SuperSpeed isolators. For more information, please visit the Intona website.

11. Order Information, Box Contents

The product can be ordered under the number 7052-BOX and contains the following parts:

Table 3: Box contents

Order Number	Description	Note
7052	Intona Model 7052 USB 2.0 Hi-Speed Isolator	
4150-0.5	Intona Professional USB Type-C Cable 0.5 m	Full featured USB 3.0 cable
4150-0.1	Intona Professional USB Type-C Cable 0.1 m	Full featured USB 3.0 cable
4110	Intona Professional USB Type-C to A Adapter	USB 3.0 capable

12. Manufacturer Information, Contact, Support

12.1. Manufacturer

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Intona Technology GmbH
Industriestr. 20
89616 Rottenacker
Germany
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12.2. Support

For technical questions, support requests, or service issues, please contact us via email at support@intona.eu.

Please have the following information ready:

- Model name
- Serial number
- Description of the host device and connected equipment
- Description of the cables used and the application
- Detailed issue description

12.3. Frequently Asked Questions

If you have further questions, visit the comprehensive FAQ database on our website: https://intona. eu/support/answer/.

13. Index

13.1. Figures

13.2. Tables

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