



# **CORESIGHT GALVANIC ISOLATION ADAPTER HARDWARE USER MANUAL**

V1.4, July 2024

## **General safety instructions**

Please read the following safety precautions carefully before putting this device to use to avoid any personal injuries, damage to the instrument, or to the target system. Use this instrument only for its intended purpose as specified by this manual to prevent potential hazards.

## **Use included power cord and power supply**

The enclosed power supply has been approved for use by TASKING. Please contact TASKING if you need to consider an alternative power.

## **Use grounding wire**

Prior to applying power to either the BlueBox or the target, connect the device and the target system together with the included grounding wire. This is to avoid potential damage caused by any voltage difference between the device and the target system.

## **Use proper overvoltage protection**

Ensure proper protection to avoid exposing the BlueBox device or the operator to overvoltage surges (e.g. caused by thunderstorm, mains power).

## **Do not operate without cover**

Do not operate the device with cover removed.

## **Avoid circuit and wire exposure**

Do not touch exposed components or wires when the device is powered.

## **Do not operate with suspected damage**

If you suspect damage may have occurred, the BlueBox device must be inspected by qualified service personnel before further operation.

## **Do not operate the device outside its rated supply voltage or environmental range**

Consult with TASKING before using equipment outside of the parameters provided in this manual.



This symbol is used within the manual to highlight further safety notices.

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# Introduction

Galvanic isolation is used where two electric circuits must communicate, but their grounds may be at different potentials. It is an effective method of breaking ground loops between the two circuits. Galvanic isolation is also used for safety, preventing accidental current from reaching ground through a person's body.

Galvanic Isolation Adapters provide a **basic** isolation that withstands high voltages.

To prevent injury to personnel when dealing with potentially hazardous voltages it is mandatory to have a second protection measure in place, in case the first insulation barrier fails. This is termed double or, reinforced isolation. How should a double isolation be implemented depends on the use-case or application setup.



It is your responsibility to check the local safety directives applicable to your company and country to ensure that all requirements are met.

CoreSight 20-pin 1.27 mm Galvanic Isolation Adapter is used to electrically isolate:

- iC7max (or iC5700) BlueBox in conjunction with:
    - 20-pin 1.27 mm CoreSight Debug Adapter (Ordering code IC50118-2)
- from the embedded target.



More information about our products via [sales@tasking.com](mailto:sales@tasking.com).

# Package content

CoreSight 20-pin 1.27 mm Galvanic Isolation Adapter is delivered with the following components:

CoreSight 20-pin 1.27 mm Galvanic Isolation Adapter	USB PD Power supply	Ribbon cable
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Ordering code:  
IEA-GI-CORESIGHT


Ordering code:  
IT5V2AUSBC-PS


Ordering code:  
IA20PIN20\_10PIN-CS



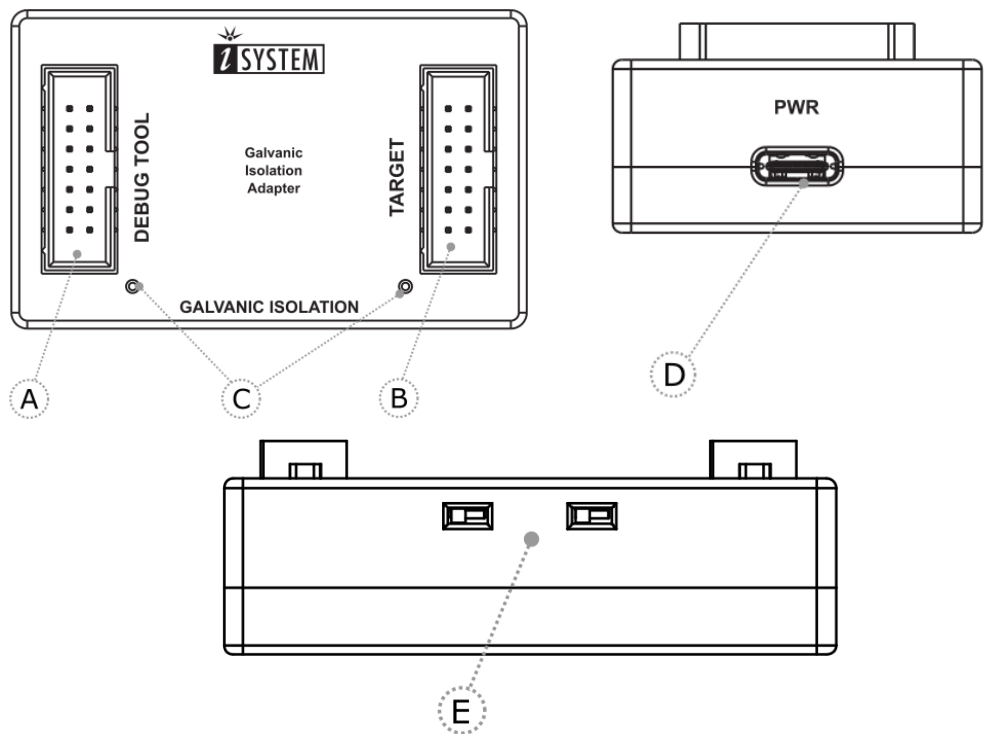
# Specifications

GENERAL	
Operating temperature	10°C to 40°C
Storage temperature	-10°C to 60°C
MECHANICAL	
Size	65 x 40 x 19 mm
Weight	approx. 55 g
ELECTRICAL	
Isolation Type	Basic
Isolation Ratings	1 kVrms
VIORM *	560 V peak
DEBUG TOOL SIDE	
Supply Voltage	5 V (via attached power supply)
Max Supply Current	50 mA
TARGET SIDE	
Supply Voltage	3 V - 5 V (via VREF)
Max Supply Current	50mA
PERFORMANCE	
JTAG	Up to 50 MHz
SWD	Up to 2 MHz

 VIORM is defined as the maximum repetitive peak voltage that the isolator can withstand.

 Make sure that the target side provides a reference voltage (VREF) for the adapter to work properly.

# Device overview



- A – DEBUG TOOL connector.
- B – TARGET connector.
- C – LED lights indicate power supply status.

**!** If LEDs on the GI Adapter are OFF, immediately turn everything OFF!

- D – USB PD Power supply socket (PWR).

**!** Use only original USB PD Power supply for powering and connecting with the GI Adapter, otherwise the primary functionality of the GI Adapter would be counteracted.

E – Debug interface (SWD, JTAG) selection.  
Both jumpers (SW1, SW2) should be in the same position to achieve the desired debug interface.  
The legend is printed on the housing.

Debug interface	SW1	SW2
SWD		

Debug interface	SW1	SW2
JTAG		



# Pinout

## 10-pin 1.27 mm CoreSight Debug Adapter

The following pinout is valid on the target side:

Signal Direction	Signal Description	Signal	Pin	Pin	Signal	Signal Description	Signal Direction
I	Reference Voltage	Vref	1	2	SWDIO/TMS	SWD/JTAG	I/O / O
	Ground	GND	3	4	SWCLK/TCK	SWD/JTAG	O
	Ground	GND	5	6	SWO/TDO	SWD/JTAG	I
	Not Connected	KEY	7	8	NC/TDI	Not Connected / JTAG	O
	Ground	GND	9	10	nRESET	Reset	I/O

10-pin ARM CoreSight pinout

## 20-pin 1.27 mm CoreSight Debug Adapter

The following pinout is valid on the target side:

Signal Direction	Signal Description	Signal	Pin	Pin	Signal	Signal Description	Signal Direction
I	Reference Voltage	Vref	1	2	SWDIO/TMS	JTAG	I/O / O
	Ground	GND	3	4	SWCLK/TCK	JTAG	O
	Ground	GND	5	6	SWO/TDO	JTAG	I
	Not Connected	KEY	7	8	NC/TDI	Not Connected / JTAG	O
	Ground	GND	9	10	nRESET	Reset	I/O
	Reference Voltage/Ground	NC_CAPGND	11	12	NC	Not Connected	
	Reference Voltage/Ground	NC_CAPGND	13	14	NC	Not Connected	
	Ground	GND	15	16	NC	Not Connected	
	Ground	GND	17	18	NC	Not Connected	
	Ground	GND	19	20	NC	Not Connected	

20-pin ARM CoreSight pinout

# Connecting procedure



Do not use a Grounding wire between the BlueBox and the embedded target since it would counteract the primary functionality of the Galvanic Isolation (GI) Adapter!

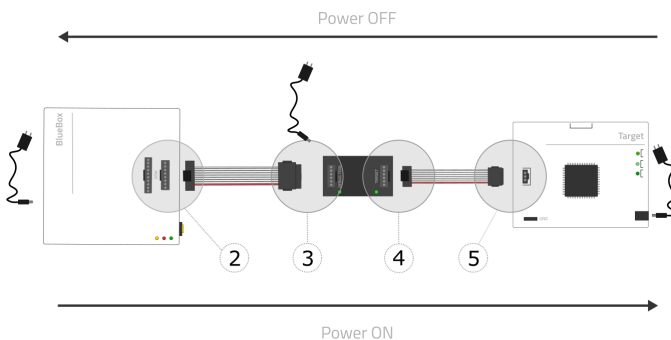
1. Make sure you select a suitable debug interface (SWD, JTAG) via switches SW1 and SW2 on the GI Adapter. In opposite case you may damage the hardware.
2. Make sure your hardware is powered **OFF**.
  - Embedded Target
  - BlueBox
  - GI Adapter
3. Connect a Debug Adapter to the BlueBox. Refer to the BlueBox User Manual for more details on connecting the Debug Adapter.
4. Connect the Debug Adapter to the GI Adapter.
5. Connect 1:1 Ribbon cable which is delivered along this package to the GI Adapter.
6. Connect 1:1 Ribbon cable to the embedded target.
7. Connect BlueBox, GI Adapter and Target to the power supply.



Use only original USB PD Power supply for powering and connecting with the GI Adapter, otherwise the primary functionality of the GI Adapter would be counteracted.

8. Power **ON** the hardware in the following order:


- BlueBox
- GI Adapter
- Target



If LEDs on the GI Adapter are OFF, immediately turn everything OFF!

# Accessories

Description	Ordering Code
iC7mini BlueBox	IC70001
iC7pro BlueBox	IC70002
iC7max BlueBox	IC70003
iC5700 BlueBox	IC57000
Active Probe Debug	IC57801 / IC71801
20-pin 1.27 mm Arm CoreSight Adapter	IC70118
20-pin 1.27 mm CoreSight Debug Adapter	IC50118-2

 More information about our products via [sales@tasking.com](mailto:sales@tasking.com).

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