PCS COMPANY
Turn To The Industry Experts

KISTLER
measure. analyze. innovate.

Quick Start Installation

ICAM-B – Industrial Charge Amplifier for Multi-purpose with Ethernet

Type 5073B...

5073B_012-063e-01.24

Foreword

Information in this document is subject to change without notice. Kistler reserves the right to change or improve its products and make changes in the content without obligation to notify any person or organization of such changes or improvements.

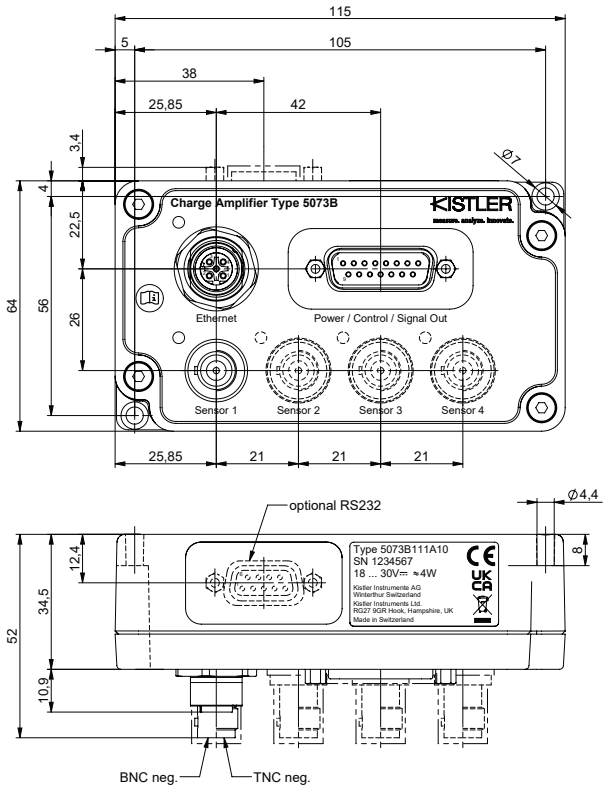
To the extent permitted by law Kistler does not accept any liability if this quick start guide is not followed or products other than those listed under Accessories are used.

1. General notes

CAUTION

- Do not open the amplifier (danger and loss of warranty
- Commissioning by specialist staff only
- Comply with product-specific and nationally applicable safety provisions
- Only perform manipulations with device powered off
- It is imperative to connect the common control (pin 7) to 0 V to prevent potential damage to the device when configuring any of the digital I/O pins as output.
- Do not use devices that have been damaged, manipulated, or stored incorrectly. Please send them to Kistler or its representatives for repair.
- Keep the plug connections dry and free of dust. When not in use, cover with protective caps supplied.

2. Dimensions



3. Parametrization

All parameters can be set in different ways:

- Using the web user interface
- By means of OPC UA (licensed feature)
- Through REST-API
- With ManuWare software if optional RS232 interface is available (5073A compatibility mode)
- With serial commands via the RS232 interface if this optional interface is available

4. Firmware update

This device allows firmware update by customer using the web interface. The latest firmware version is listed on the product website at www.kistler.com.

5. EMC and ground loop

Piezoelectric sensors are usually designed so that one of the electrodes is connected on the sensor case, allowing the use of coaxial cables. When the sensor is installed, it is usually grounded by the metal structure. If the sensor is not insulated when it is installed, a resultant ground loop could cause interference.

A low-impedance but also low-inductance connection between the device case and the sensor (large-area copper braiding, ribbon cable) produces good results in most cases.

Furthermore, the sensor may also be installed using insulation elements to eliminate current flow based on potential differences or induction.

Please check the user manual for further information about grounding of 5073B....

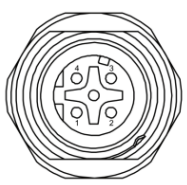
6. Status LED

Sensor LED per channel		
Initialization	◐	yellow 1Hz blinking
Operate / Measure	●	blue
Reset, waiting for trigger	◑	blue 1Hz blinking
Overload	●	red
Device LED		
Device boot/ initialization	◐	yellow 1Hz blinking
Network connected, but initializing / waiting for IP-address assignment	◐	yellow 1Hz blinking
MQTT configured broker not available / no response	◐	yellow 1Hz blinking
Waiting for internal/external action/ factory reset button pressed	◑	blue 3Hz blinking
Device state “ok”	●	blue
Device state “error” • Overload on one or more channels • Operating temperature out of specification • Hardware error (device broken / not responding)	●	red
Device state “error “ Reset/Measure timing violation (55ms) • Range switch during measure	◑	red 3Hz blinking
Device state “connection lost” • Network connection lost (unplugged ethernet cable)	●	yellow

7. Connectors

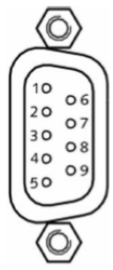
The Ethernet interface enables remote access, remote configuration and monitoring, firmware update, integration with control systems, data streaming and a web-based user interface.

Connector	Pin	Function
M12 4-pole neg. D-coded	1	TX+
	2	RX+
	3	TX-
	4	RX-
	5	Shield



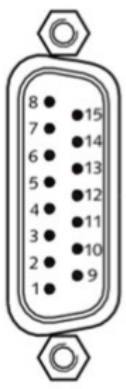
The optional RS-232C interface was kept for reverse compatibility to 5073A. This interface can be used to integrate the 5073B… into control systems, or to configure the device via ManuWare software in 5073A compatibility mode.

Connector	Pin	Function
D-Sub 9 pole neg. (optional)	1	Not connected
	2	RxD
	3	TxD
	4	Not connected
	5	Exct. GND
	6	Not connected
	7	Not connected
	8	Not connected
	9	Not connected



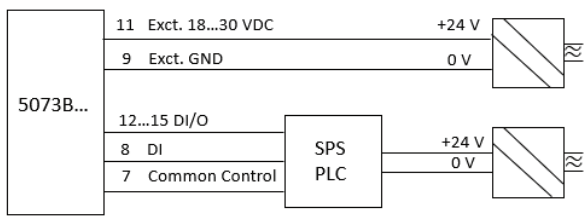
The D-Sub 15-pole connector is used to connect the supply voltage. Six pins on the D-sub connector are designated for analog outputs with fully flexible scaling and internal routing. The connector also accommodates pins for digital inputs and outputs for controlling industrial measurement processes.

Connector	Pin	Function
D-Sub 15-pol. pos	1	Analog output 1
	2	Analog output 2
	3	Analog output 3
	4	Analog output 4
	5	Analog output 5
	6	Analog output 6
	7	Common Control
	8	DI (08)
	9	Exct. GND
	10	Signal GND
	11	Exct.+
	12	DIO (12)
	13	DIO (13)
	14	DIO (14)
	15	DIO (15)

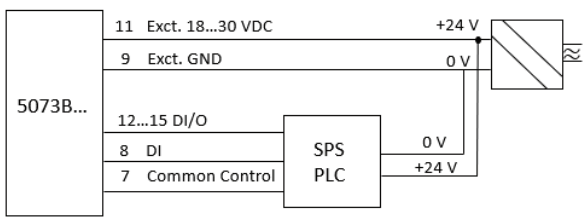


8. Power supply

The voltage supply is provided between Exc+ 18 ... 30 VDC pin 11 and Exct. GND pin 9 as ground.



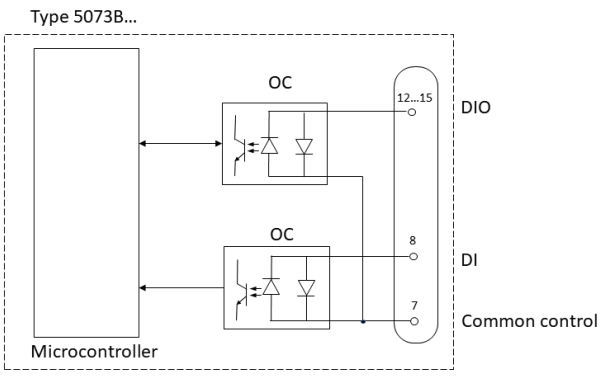
Power supply with electrical isolation to PLC



Power supply without electrical isolation to PLC

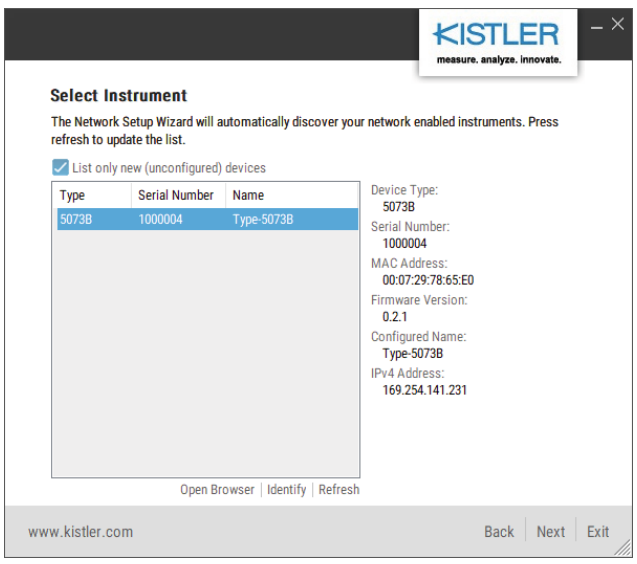
9. Control inputs/outputs

The 5073B… charge amplifier features multiple pins with applications as control inputs or outputs. Notably, pin 8 is exclusively designated for digital input configuration, serving to control reset/measure or switch the range based on user-defined assignments. The other I/O pins (pin 12…15) could be configured as digital inputs or outputs.
It is essential to emphasize that when configuring any of the digital I/O pins as output, it is imperative to connect the common control (pin 7) to 0 V to prevent potential damage to the device.
Users have the flexibility to designate the logic for each digital input/output (I/O) as either active high or active low. For the digital inputs, a low level is defined as potentials below 0.8 V, while a high level is potentials above 2.4 V. In the case of digital outputs, a low state is 0 V, while the high state is dependent on the power supply and can be within the range of 18-30 V.



10. Connection and configuration via Ethernet

Connect the measuring amplifier with a network cable directly to a PC or a network (e.g. network switch). Then, start the "Network Setup Wizard" tool that finds all Kistler network devices (tool can be found under www.kistler.com). All the Kistler network devices will be displayed in the "Network Setup Wizard". Choose your device in the table by clicking on the table entry and click on "Open Browser" to open the web interface of the respective device. Alternatively, the IP address can be entered in the web browser to access the web interface. The charge amplifier can be configured and operated using the web user interface.



11. Device factory reset

A factory reset can be initiated through either the web user interface or by utilizing the factory reset button on the device. When opting for the web user interface, users can navigate to the factory reset option within the maintenance menu on the navigation pane. Alternatively, if the factory reset button is preferred, the following steps should be followed:

- Power off the device.
- Press and hold the factory reset button.
- Power on the device while holding the factory reset button.
- Hold the factory reset button for 10 s after powering on.

In order to use 5073B… as a replacement for 5073A… in compatibility mode, a factory reset is required. Otherwise, the device might not be identified in ManuWare.

12. Repairs at Kistler

Repairs at the Kistler factory can be arranged via the local sales company.

Information can be found at www.kistler.com. Please contact your sales partner directly for additional product information.

13. Conformity

CE

This device has been exclusively designed and tested for use in industrial environments. Conformity with the requirements of Directive 2014/30/EU on electromagnetic compatibility has been demonstrated and confirmed. It is not recommended to use the device in environments other than those specified for industrial use, as this may affect performance and lead to unpredictable results.

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

14. Safety instructions

As an environmentally aware company, Kistler does not send out operating instructions in paper form. For this reason, please refer to the following information regarding the installation and operation of Kistler products:

- **The safety and warning information set out below**
- **The specifically applicable instruction manual for the purchased product**

NOTE

Instruction manuals for each product are available on the Kistler website and can be accessed via the type number at www.kistler.com. Paper instruction manuals can also be requested from Kistler's customer service or the responsible Kistler sales department.

Instruction manuals are subject to change at any time without advance notification, in particular regarding equipment modifications (conversions, retrofits etc.). Instruction manuals must be accessed regularly on the internet for this reason.

15. Safety and warning information

15.1 General

Kistler offers a wide range of products in the dynamic measurement technology sector for recording pressure, force, torque and acceleration, designed exclusively for use in industry and research with an emphasis on automotive development, industrial automation and further applications engaged in pushing back the frontiers of physical science. These products are high-precision devices that acquire and process data which can be transmitted electronically to other systems.

At the time of purchase, each Kistler product is compliant with the necessary and applicable safety regulations and all other relevant requirements. Every product is in perfect condition with respect to safety requirements when it leaves Kistler's factory.

15.2 Setting up and using your product

Only qualified individuals with the necessary technical knowhow are allowed to install and operate Kistler products. These qualified individuals must adhere to all requirements contained in this safety and warning information and in the applicable instruction manual for the respective product. They must also comply with the applicable national safety provisions for installation and operation in each case.

If a product is not installed, used or maintained in the proper manner, this could result in serious injuries or fatal accidents and damage to the product and its surroundings.

Please check for any damage to the packaging before unpacking the product. Any damage found must be reported to the shipping company and the Kistler Sales Center or its distributor.

The delivery scope must be checked before starting to set up the product. If a part is missing, the responsible Kistler Sales Center or its distributor must be notified.

If the product has visible signs of damage, no longer works, is stored for lengthy periods in unfavorable conditions and/or was exposed to major stresses during shipping, safe operation is no longer guaranteed, and the product must immediately be returned for repair to Kistler or the responsible distributor.

The product may not be disassembled, opened, repaired or otherwise modified because this may impair its operation and, in particular, can result in electric shocks. Any attempt to open or modify the product or to damage or remove labels will automatically result in the voiding of all warranty claims.

The product must not be used in potentially explosive environments unless it is specifically designated for such use.

15.3 Transportation and storage

All the following safety precautions must be taken if the product is to be shipped or stored for a lengthy period:

- All BNC, TNC and KIAG 10-32 connections must be covered with the dust caps that are supplied.
- The plug connections must be kept dry and dust-free.
- It must be ensured that no dirt can penetrate the product.
- The storage environment must be dry and must provide protection against vibrations.
- Compliance with the storage temperature is required according to the specifications on the relevant data sheet or in the relevant operating instructions.
- The product must be stored in the original packaging.

15.4 Product use

During storage and operation, the specifications on ambient temperature stated in the technical data must also be observed. The product may be permanently damaged if the permissible ambient temperature is exceeded to a significant extent.

The product may only be used under the specified operating conditions; in particular, high relative air humidity and temperature fluctuations that might result in condensation should be avoided.

Under no circumstances must the protective ground conductor be interrupted or rendered ineffective. Its purpose is to provide protection against electric shocks, and it must therefore be connected to the relevant equipment.

Defective fuses must only be replaced by appropriate substitute types with the specified current rating. "Repaired" fuses must not be used, and fuse holders must not be short-circuited.
Do not perform tuning, maintenance or repair work on live, open devices.

15.5 Electromagnetic compatibility

To ensure that electromagnetic compatibility (EMC) is maintained for the entire measuring chain, particular attention must be paid to connection of the inputs and outputs of the cable screen, and to the cable installation:

- Cables must not be run parallel to wiring that causes interference.
- Only the supplied or optionally available cables must be used.
- Please ensure a reliable connection between shielding, connector boxes and device enclosures.
- Machinery and hardware must also comply with the EMC standards.

15.6 Software upgrades and updates

The software and firmware available on the Kistler website must always be used.

Kistler accepts no liability whatsoever for direct or consequential damage caused by products with outdated firmware. The responsibility for updating the firmware to the latest version rests with the customer as automatic updates are not available.

15.7 Disposal information for electrical equipment

The product must not be disposed of as domestic waste. It must be taken instead to a suitable collection point for the recycling of disposable or rechargeable batteries, electrical and electronic equipment. Sorting, collecting and recycling helps to preserve natural resources and prevents impairment of human health and the environment by hazardous substances that may be released through the incorrect disposal of disposable or rechargeable batteries, electrical and electronic equipment.

Please contact your Kistler Sales Center if you have any questions about disposal.

Contact addresses and further information are available at this internet address: www.kistler.com