GEMAC

USER MANUAL

Version: 1.6
Date: 07/02/2025

PROGRAMMING DEVICE FOR SENSORS

USB

Type: ISPA2
Order No.: PR-23999-10
Serial No.: 00001
IP Code: IP20

24 V

GEMAC Chemnitz GmbH
Made in Germany

CE
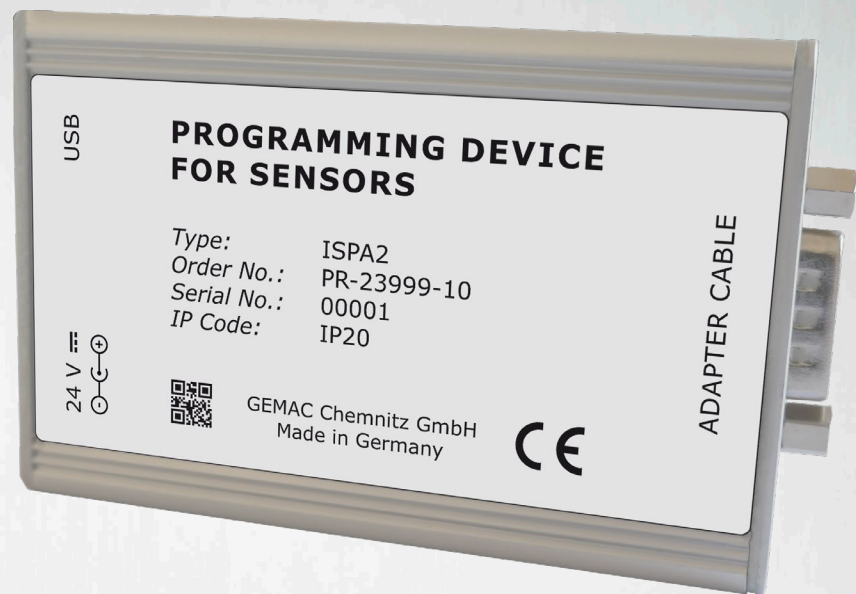
ADAPTER CABLE

SENSOR PROGRAMMING ADAPTER

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CAN

CANOPEN

SAE J1938

CURRENT

VOLTAGE

REVISION HISTORY

Date	Revision	Changes
02/05/2011	1.0	first Version
26/01/2015	1.1	Redesign ISPA1, Update Windows compatibility
11/02/2015	1.2	referenceLINE added
23/11/2020	1.3	GEMAC Motus Xx added adjustment to ISPA2
23/02/2021	1.4	Notes to external voltage supply
31/07/2023	1.5	General revision
07/02/2025	1.6	Transfer to the new corporate design / general revision / adaptation of scope of delivery

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1   Overview

With the optional sensor programming adapter, it is possible to adjust all sensors with CAN / CANopen / SAE J1939, current or voltage interface. It consists of a programming adapter that is connected via USB to a PC. The connection with the programming adapter is realized through various, also included adapter cables. The sensor is supplied with power through this. An additional power supply is not necessary.

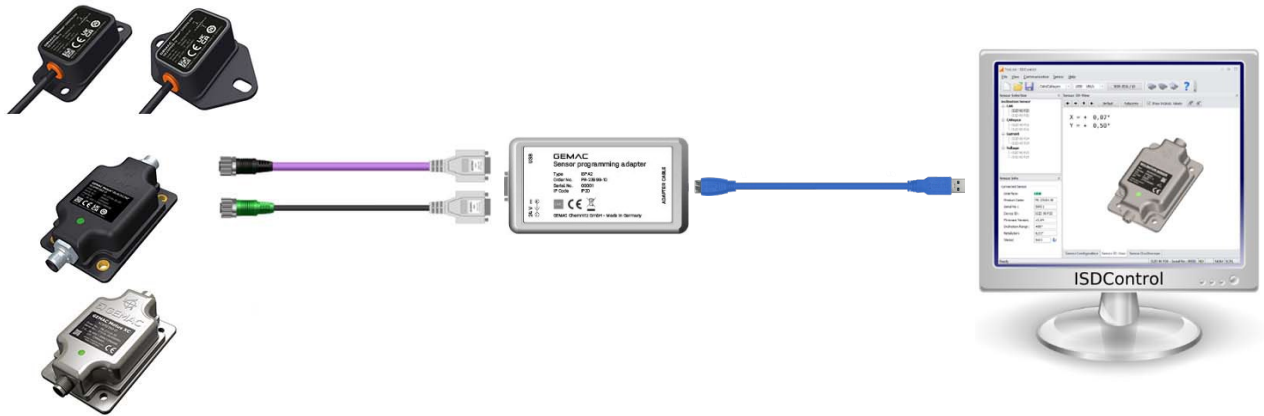Figure 1: Functionality of the sensor programming adapter

- Sensor programming adapter ISPA2
- Adapter cable M12 for digital sensors (CAN/CANopen/SAE J1939)
- Adapter cable M12 for analog sensors (current/voltage)
- The ISDControl software can be downloaded from the following link: Download

Note: A USB cable (USB-A to USB-B-Mini) is required for connection to the PC. This is not included in the scope of delivery.

2 Safety information

2.1 Incoming inspection

Unpack the device immediately after you received it and check the entire delivery for completeness. If transport damage is to be assumed, inform the delivery agent within 72 hours and keep the packaging for inspection. The device must only be transported in its original or equivalent packaging.

2.2 Intended use

The sensor programming adapter is a custom built evaluation kit for sensors of GEMAC Chemnitz GmbH. It may be used in solely at research and development facilities.

GEMAC Chemnitz GmbH assumes no liability for losses or damages arising from the use of the product, either directly or indirectly. This applies in particular to use of the product that does not conform to this intended purpose and is not described in this document.

2.3 Incorrect use

Any use that is not described in section **2.2 Intended use** is prohibited. Any use of accessories that is not specifically approved by GEMAC Chemnitz GmbH is at your own risk.

2.4 Requirements for the qualification of personnel

The personnel who work on and with the sensor programming adapter must be suitably authorized, trained, and sufficiently qualified. Skilled personnel refers to the following:

- Has received specialist training, which is backed up by additional knowledge and experience according to operation and service of the programming adapter and of the sensor to be tested and the respective application.
- Knows the relevant technical terms and regulations.
- Can appraise the work assigned to them, recognize potential hazards, and take suitable safety precautions.

3 Start-up

3.1 System requirements

To ensure the correct installation of the PC software, your PC or notebook should meet the following minimum requirements and possess one of the operating systems listed below.

Hardware:

- Processor: 2 GHz or higher
- at least 2 GB RAM
- Graphics card with 24-bit color depth (32-bit recommended)
- Resolution: 1,024x768 pixels or higher
- free USB port

Supported operating systems [1]:

- Microsoft Windows® 10 and 11

3.2 Connection of sensors

1. Connect the programing device through the USB interface to a PC or notebook.

2. Select the necessary adapter cable for your sensor type (see Table 1) and connect the sensor to the programming device.

3. Start the program ISDControl and select the sensor interface

   · CAN / CANopen / SAE J1939 (additional selection of baud rate and CAN identifier or Node-ID possible

   · or Current / Voltage

   in the toolbar (see section **4.2.1 Toolbar**).

4. The Device ID and serial number is displayed in the status bar of ISDControl. The connected sensor can now be configured.

Interface	Adapter cable
CAN	
CANopen	Adapter M12 CAN / CANopen / SAE J1939
SAE J1939	
Current output	
Voltage output	Adapter M12 Current / Voltage

Table 1: Selection of necessary adapter cable

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[1] Microsoft and Windows® are registered trade marks of Microsoft Corporation in the USA and in other countries.

4 The ISDControl program

4.1 General notes of operation

4.1.1 Help

When designing the ISDControl program, special attention was devoted to a clear structure and a self-explaining graphical user interface. Many elements of the user interface display detailed explanations when the mouse pointer is moved over a control element (tooltip or status text).

The manual is also supplied in electronic form and can be called up both via the help function and with the F1 key.

4.1.2 Data saving

All measurement, protocol and export data set using the ISDControl program, can be stored in a document with the file extension ".isd". The document can be opened either by double-clicking on the file in the Windows® Explorer or by dragging the file to the program (drag & drop).

4.2 Program structure

The graphical user interface of the ISDControl program includes a toolbar and the views "Sensor Selection", "Sensor Info", "Sensor Configuration", "Sensor 3D-View" and "Sensor Oscilloscope". All views can be freely arranged in the program window or undocked from it.

4.2.1 Toolbar

On the toolbar, the communication parameters of the programming device can be established. These include the sensor interface (CAN / CANopen / SAE J1939 or Current / Voltage), the baud rate and the CAN identifiers, the Node-ID respectively the SAE J1939 address. The baud rate and CAN identifiers for the sensor interface Current/Voltage are fixed and can not be adjusted.
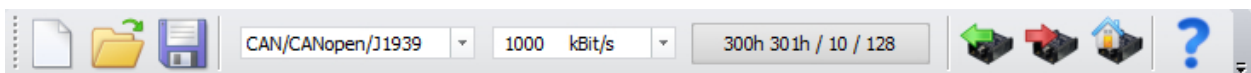

Figure 2: Toolbar

If the sensor is connected to the programming device and has been recognized by the ISDControl program, the complete sensor configuration (see Section **4.2.4 View „Sensor Configuration"**) can be read or written. It is also possible to reset the connected sensor to its default parameter.

4.2.2 View „Sensor Selection"

If a sensor is connected to the programming adapter and recognized, the correct sensor type is selected automatically. All other list entries are disabled and not editable anymore.

If no sensor is connected, you can switch freely between the sensor types. A selection automatically displays the appropriate configuration dialog for setting the parameters (see Section **4.2.4 View „Sensor Configuration"**.
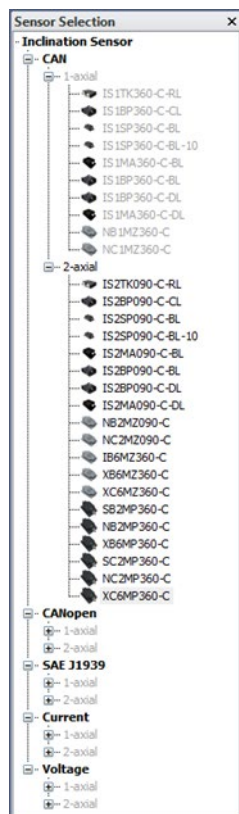
Figure 3: "Sensor Selection

4.2.3 View „Sensor Info"

In this view, basic information (interface, serial number, firmware version, etc.) is displayed about the connected sensor. The sensor status is analyzed by a tooltip when the mouse pointer is moved over the icon that appears behind it.
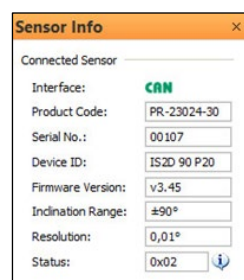

Figure 4: "Sensor Info"

4.2.4   View „Sensor Configuration"

Switching between the sensor types in view "Sensor Selection" (see Section **4.2.2 View „Sensor Selection "**) auto-matically displays the appropriate configuration dialog for setting the parameters. The parameters set in the docu-ment are compared with those in the sensor. Differences between the document and the sensor data are high-lighted. The transfer of the document data into the sensor can be done with the red arrow button (➡). A reading of the sensor data in the document is possible by pressing the green arrow button (⬅). Alternatively, the docu-ment and sensor data are updated through the tool bar (see Section **4.2.1 Toolbar**).
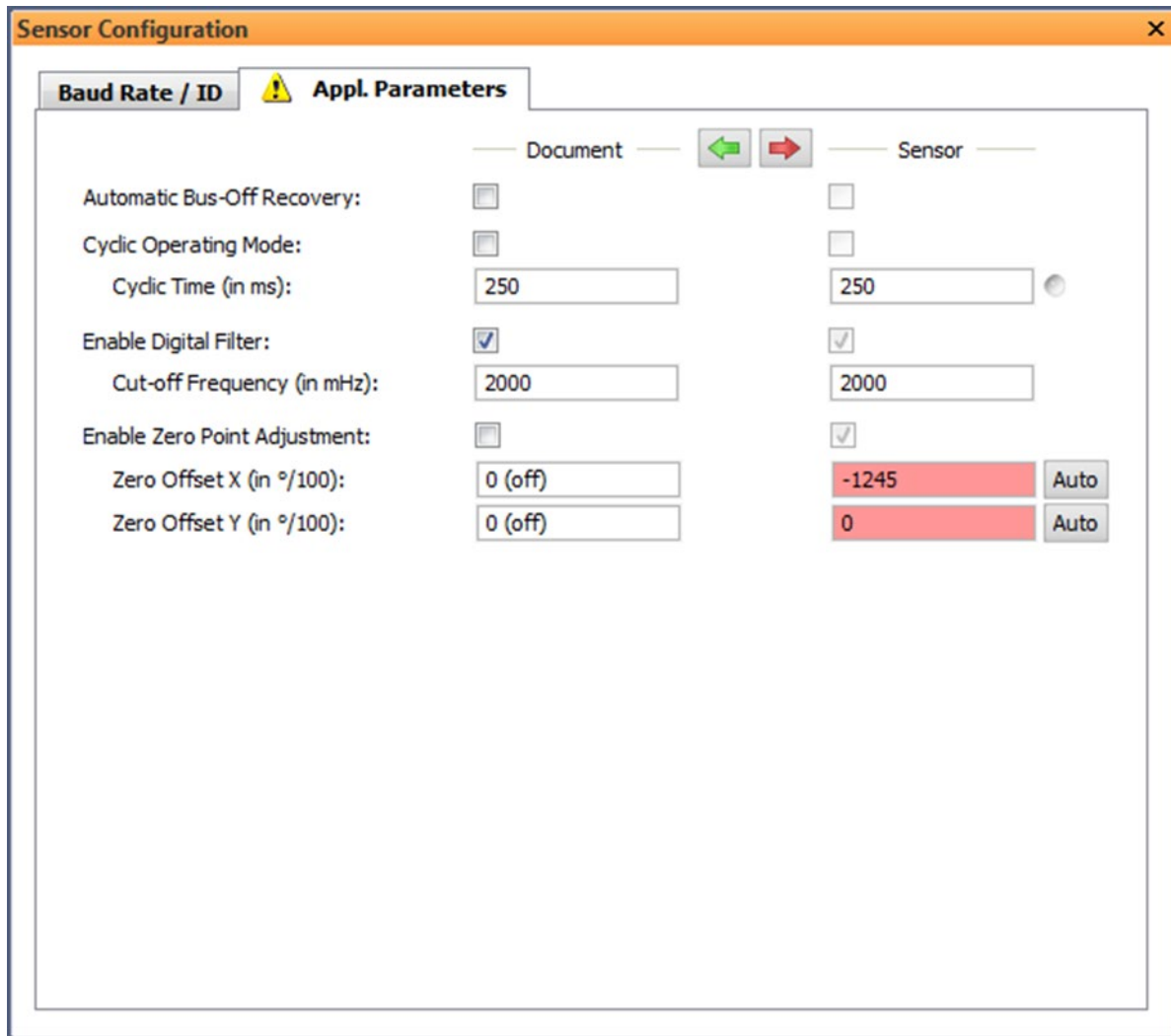

Figure 5: Numerical configuration of an inclination sensor

For inclination sensors with current or voltage interface, the parametrization can be graphically. This applies partic-ularly to the configuration of the analog outputs for channel A and B.
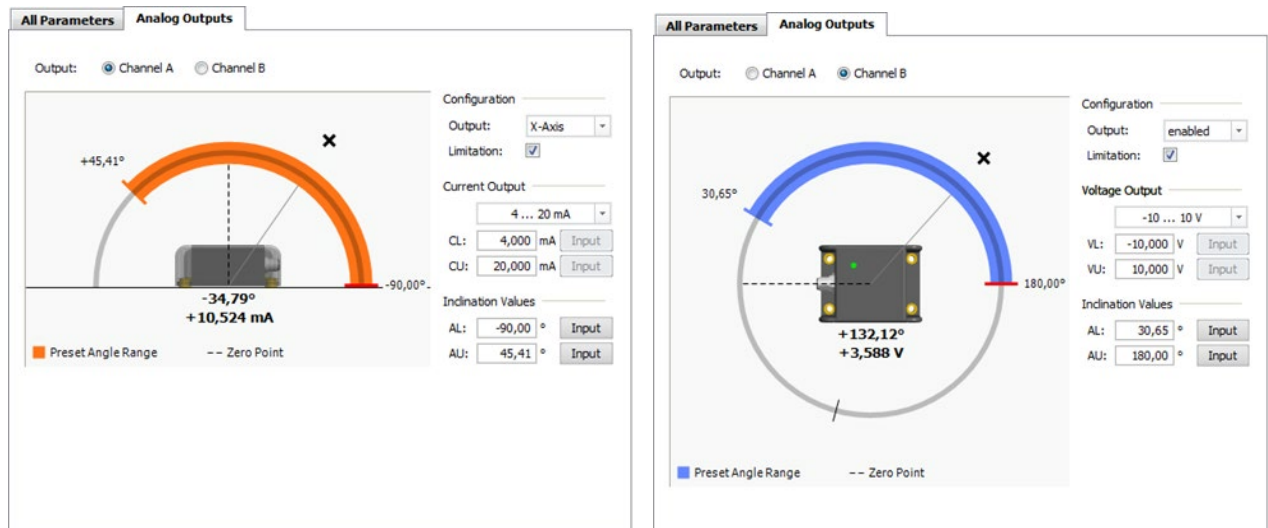
Figure 6: Graphical configuration of the analog outputs of an inclination sensor

4.2.5 View „Sensor 3D-View"

By the program integrated 3D view, the position of the sensor in space can be visualized. The orientation of the camera is variable. There is a full-screen mode available.

Figure 7: 3D imaging and display of the current angle

4.2.6 View „Sensor Oscilloscope"

The inclination sensor offers the possibility to suppress the influence of external disturbing vibrations. The internal lowpass digital filter (Butterworth, 8th order) is programmable. The cut-off frequency is adjustable between 0.3 and 25 Hz.

In the oscilloscope display, the influence of the adjustable digital filter can be controlled directly. Time base of the view, and amplitude and offset can be set analog to the operation of an oscilloscope.
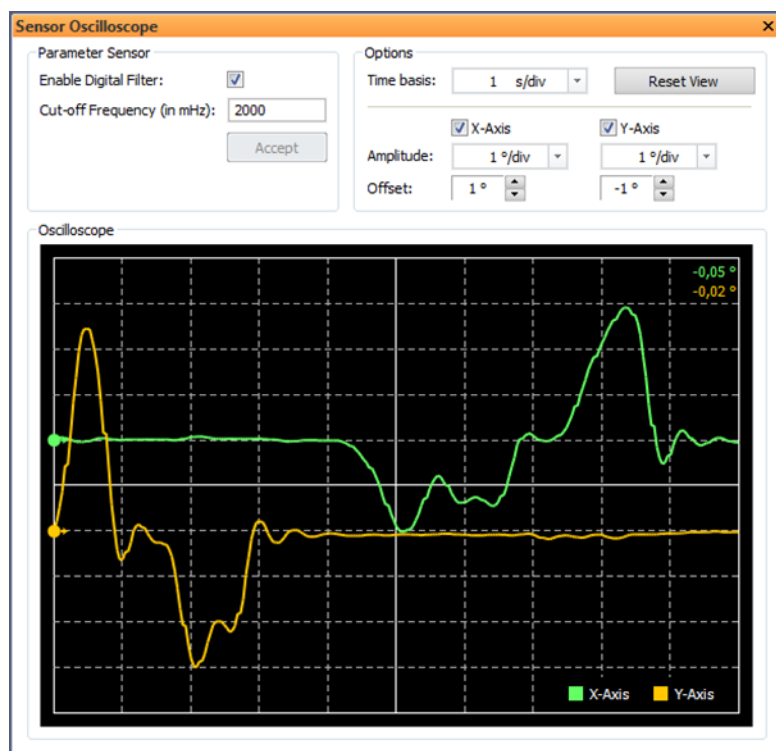
Figure 8: Oscilloscope display of the current angle

5 Customer service

5.1 Customer service

5.1.1 Reshipment

Reshipment of the sensor programming adapter for repairing purposes must be executed in the original packaging or an equivalent packaging. Please indicate a short error description and your phone number for further inquiries.

5.1.2 Support

Please indicate the serial number of your sensor programming adapter for technical support.

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5.1.3 Warranty and limitation of liability

We will assume a warranty of 24 months for the sensor programming adapter, commencing from the date of delivery. Any repairs which are required during this time and fall under the manufacturer's obligation to give a warranty will be performed free of charge. Any damage resulting from improper use of the device or from exceeding of the specified technical parameters is not covered by the manufacturer's obligation to give a warranty.

GEMAC Chemnitz GmbH will only be liable for consequential damage resulting from use of the product in case of deliberate action or gross negligence on its own part.

The General Terms and Conditions of GEMAC Chemnitz GmbH apply.

6   Ordering Information

Article Number	Description
PR-23999-10	Sensor programming adapter ISPA2 (consisting of programming adapter ISPA2, Adapter cable M12 for digital sensors (CAN/CANopen/SAE J1939), Adapter cable M12 for analog sensors (Current/Voltage) and PC software) The ISDControl software can be downloaded from the following link: Download

Table 2: Ordering Information

Note: A USB cable (USB-A to USB-B-Mini) is required for connection to the PC. This is not included in the scope of delivery.