

Translation of the Original Operating Manual

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Digital pressure gauge

DIM 30



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READ THOROUGHLY BEFORE USING THE DEVICE
KEEP FOR FUTURE REFERENCE

ID: 900.100.0843 | Version: 11.2019.0

1.2 Staff Qualification

Qualified persons are persons that are familiar with the mounting, installation, putting into service, operation, maintenance, removal from service, and disposal of the product and have the appropriate qualification for their activity.

This includes persons that meet at least one of the following three requirements:

- They know the safety concepts of metrology and automation technology and are familiar therewith as project staff.
- They are operating staff of the measuring and automation systems and have been instructed in the handling of the systems. They are familiar with the operation of the devices and technologies described in this documentation.
- They are commissioning specialists or are employed in the service department, and have completed training that qualifies them for the repair of the system. In addition, they are authorized to put into operation, to ground, and to mark circuits and devices according to the safety engineering standards.

All work with this product must be carried out by qualified persons!

1.3 Intended Use

The devices are used to convert the physical parameter of pressure into an electric signal.

The DIM 30 digital pressure gauge is suited for mobile electronic pressure measurement.

The user must check whether the device is suited for the selected use. In case of doubt, please contact our sales department (info@afriiso.com | Fon: +49 7135 102-211). AFRISO assumes no liability for any wrong selection and the consequences thereof!

The fluids that can be measured are gases and liquids that are compatible with the materials in contact with the fluids, described in the data sheet. For application, it must additionally be ensured that the fluid is compatible with the parts in contact with the fluid.

1.4 Limitation of Liability and Warranty

Failure to observe the instructions or technical regulations, improper use and use not as intended, and alteration of or damage to the device will result in the forfeiture of warranty and liability claims.

1.5 Safe Handling

NOTE – Treat the device with care both in the packed and unpacked condition!

NOTE – The device must not be altered or modified in any way.

NOTE – Do not throw or drop the device!

NOTE – Excessive dust accumulation (over 5 mm) and complete coverage with dust must be prevented!

The device is state-of-the-art and is operationally reliable. Residual hazards may originate from the device if it is used or operated improperly.

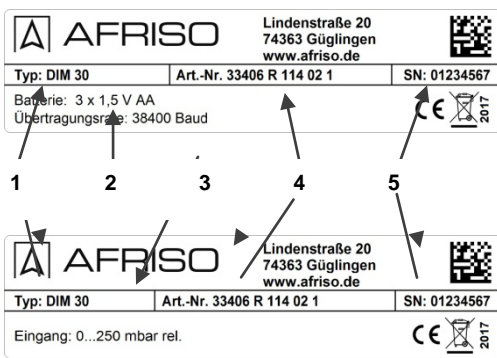
1.6 Scope of Delivery

Check that all parts listed in the scope of delivery are included free of damage, and have been delivered according to your purchase order:

The batteries have already been inserted. The electric circuit has been interrupted by an insulating foil. Please remove this prior to commissioning; to do so, refer to the "Battery Change" section.

2. Product Identification

The device can be identified by means of the type plate with order code. The most important data can be gathered therefrom.

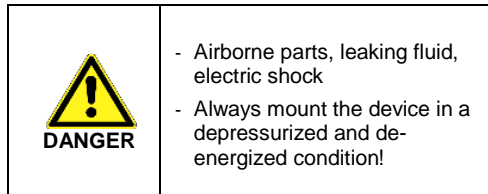


- 1 Type designation
- 2 Supply
- 3 Inlet
- 4 Article number
- 5 Serial number

Fig. 1: Type plate

3. Mounting

3.1 Mounting and Safety Instructions



NOTE – Treat any unprotected diaphragm with utmost care; this can be damaged very easily.

NOTE –When installing the device, avoid high mechanical stresses on the pressure port! This will result in a shift of the characteristic curve or to damage, in particular in case of very small pressure ranges and devices with a pressure connection/port made of plastic.

NOTE – In hydraulic systems, arrange the device such that the pressure port points upwards. (venting)

NOTE – If the device is installed with the pressure port pointing upwards, ensure that no liquid drains off on the device. This could result in humidity and dirt blocking the gauge reference in the housing, and could lead to malfunctions. If necessary, dust and dirt must be removed from the edge of the screwed joint of the electrical connection.

NOTE – Provide for a cooling section if the device is used in a steam line.

NOTE – Do not remove the packaging or protective caps of the device until shortly before the mounting procedure, in order to exclude any damage to the diaphragm and the threads!

Protective caps must be kept! Dispose of the packaging properly!

NOTE – The specified tightening torques must not be exceeded!

NOTE – Do NOT use the display module to tighten or loosen the mechanical connection of the pressure sensor module!

3.2 Mounting Steps for Connections According to DIN 3852

NOTE –Do not use any additional sealing material such as tow, hemp or Teflon tape!

- ✓ The O-ring is undamaged and seated in the designated groove.
 - ✓ The sealing face of the mating component has a flawless surface. (R_Z 6.3).
- 1 Screw the device into the mating thread by hand.
 - 2 Devices equipped with a knurled ring: only tighten by hand.
 - 3 Devices with a wrench flat must be tightened using a suitable open-end wrench. Wrench flat made of steel: G1/4: approx. 5 Nm; G1/2: approx. 10 Nm.

3.3 Mounting Steps for Connections According to EN 837

- ✓ A suitable seal for the measured fluid and the pressure to be measured is available. (e.g. a copper seal).
 - ✓ The sealing face of the mating component has a flawless surface. (R_Z 6.3).
- 1 Screw the device into the mating thread by hand.
 - 2 Then tighten the connection using an open-end wrench: G1/4: approx. 20 Nm; G1/2: approx. 50 Nm.

3.4 Mounting Steps for NPT Connections

- ✓ Suitable fluid-compatible sealing material, e.g. PTFE tape, is available.
- 1 Screw the device into the mating thread by hand
 - 2 Then tighten the connection using an open-end wrench: 1/4" NPT: approx. 30 Nm; 1/2" NPT: approx. 70 Nm

4 Connection of Display with Pressure Transmitter Module

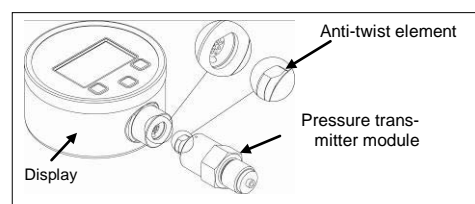


Fig. 2: Anti-twist element

- 1 Join the display and the pressure transmitter module.
- 2 Pay attention to the anti-twist element!
- 3 Push the display onto the pressure transmitter module until it snaps into place.

5. Power Supply / Battery Change

If the "battery" indication is shown in the display, perform the battery change as follows:

- 1 Remove the fastening screws using a suitable screwdriver.
- 2 Remove the cover and replace the 3 batteries (1.5V AA) (remove the insulating foil prior to commissioning).
- 3 Then fasten the cover again properly by means of the screws.

NOTE – If the batteries are used incorrectly, fluid may leak out and damage the digital pressure gauge.

NOTE – Do not combine batteries of different types or new and used batteries!

NOTE – Always insert the batteries into the dedicated battery compartment according to the indicated polarity.

NOTE – Do not recharge the batteries!

NOTE – Do not take the batteries apart!

NOTE – Do not short-circuit the batteries!

NOTE – Avoid the contact with heat or open flames!

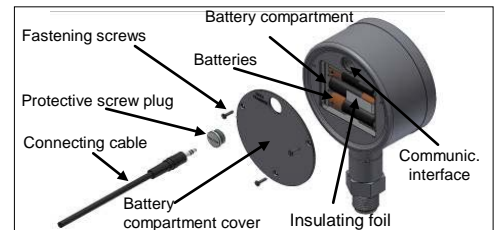


Fig. 3: Battery compartment and communication

6. Data logger

The battery-powered digital pressure gauge has an integrated data logger. The measured values stored in the device can be read out by software (included in the scope of delivery) via the communication interface.

6.1 PC Connection

Connect the digital pressure gauge to a computer as follows:

- Remove the protective screw plug of the communication interface by means of a suitable flat-tip screwdriver.
- Insert the plug connector of the connection cable (included in the scope of delivery) into the interface socket of the digital pressure gauge. Connect the cable end with the USB connector to a free USB port on the computer.
- Install the COM driver and data logger software which are available on CD (included in the scope of delivery).
- After usage, disconnect and remove the connection and screw in the protective screw plug again properly.

7. Commissioning

- ✓ The device has been installed properly.
- ✓ The device does not have any visible defect.

Remove the insulating foil from the battery compartment!

8. Operation

8.1 Control and Display Elements

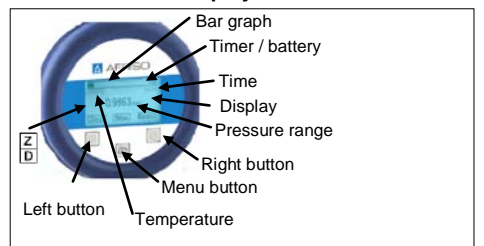
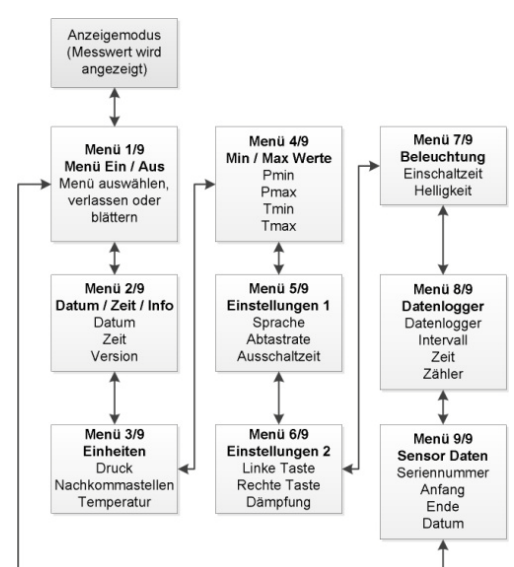


Fig. 4: Display and control panel

The display of the measured value and the configuration of the individual parameters is performed through the menu via an LCD that is capable of graphic representation. The individual functions can be set by means of three buttons arranged on the front of the device.

The menu system is a closed system. This enables scrolling both forth and back through the individual set-up menus to navigate to the desired setting item.

8.2 Menu System Structure



1. General and Safety-Related Information on This Operating Manual

This operating manual enables safe and proper handling of the product, and forms part of the device. It should be kept in close proximity to the place of use, accessible for staff members at any time.

All persons entrusted with the mounting, installation, putting into service, operation, maintenance, removal from service, and disposal of the device must have read and understood the operating manual and in particular the safety-related information.

The following documents are an important part of the operating manual:

- Data sheet

For specific data on the individual sensors, please refer to the respective data sheet.

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In addition, the applicable accident prevention regulations, safety requirements, and country-specific installation standards as well as the accepted engineering standards must be observed.

1.1 Symbols Used

	- Type and source of danger - Measures to avoid the danger
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Warning word	Meaning
	- Imminent danger! - Non-compliance will result in death or serious injury.
	- Possible danger! - Non-compliance may result in death or serious injury.
	- Hazardous situation! - Non-compliance may result in minor or moderate injury.

NOTE – draws attention to a possibly hazardous situation that may result in property damage in case of non-compliance.

- ✓ Precondition of an action

8.3 Menu System

Activation	Activation is possible by means of any button (left button, menu button, right button).
Menu 1/9 On / Off	By pressing the menu button, the control (operator) mode is selected / exited ("Menu" / "Exit").
Menu 2/9 Date / time / info	In this menu, the current time and date are set, and the software version is displayed.
Menu 3/9 Unit	<p>Setting the pressure unit Units that can be set: [bar], [mbar], [PSI], [inHg], [cmHg], [mmHg], [hPa], [kPa], [MPa], [inH2O], [mmH2O], [mH2O], [kg/cm²] or [user] (the user-defined unit can only be programmed by means of the BD LOG software); the conversion of all pressure-related parameters is made automatically</p> <p>Setting of decimal places Adjustable decimal places: standard [hour], [+1], [+2]</p> <p>Setting of temperature unit The unit is set to [°C] by the factory and cannot be changed</p>
Menu 4/9 Min/Max values	<p>Display of minimum/maximum values P_{min} – Minimum pressure indication: The minimum pressure applied during the measuring period is displayed. P_{max} – Maximum pressure indication: The maximum pressure applied during the measuring period is displayed. T_{min} – Minimum temperature indication: The minimum temperature present during the measuring period is displayed. T_{max} – Maximum temperature indication: The maximum temperature present during the measuring period is displayed. Possible options: Deletion of value [Clear ?]. (Deletion of a value: Select the menu item using the "Edit" button → Press the button ">>". The question "Clear?" will appear. → Press the button ">>" again. "Sure?" will appear. Additional confirmation query whether the value is to be reset → repeated acknowledgement by pressing the button ">>" will adopt the currently applied pressure as minimum value.)</p>
Menu 5/9 Settings 1	<p>Language: Selection of the user language: German [DE] or English [EN] Scanning rate: The recording of measured values is set here [1/s] or [2/s] Shut-off time: Setting of the automatic shut-off in minutes. Automatic shut-off can be configured in steps of [1 min], [2 min], [3 min], [4 min] or [5 min] (30 sec prior to the shut-off, the timer is activated and shown in the display) or deactivated by the option [Off]. After the deactivation, the digital precision pressure gauge is in continuous operating mode.</p>
Menu 6/9 Settings 2	<p>Button configuration: left button / right button Left button: Configuration of the functions: [Min], [Light], [Zero], [Reset] Right button: Configuration of the functions: [Max], [Light], [Zero], [Reset] Description of the functions: - [Min] / [Max] The minimum/maximum pressure is displayed - [Light] The display lighting is activated - [Zero] The zero point is set automatically; [E] will appear in the display - [Reset] The set zero point is reset; [E] will disappear Damping: The damping can be set in 1-sec steps between [1 s] and [10 s] or deactivated by the option [Off]</p>
Menu 7/9 Lighting	<p>Setting of display lighting On-period: The lighting period can be set in 1-sec steps between [1 s] and [10 s] or deactivated by the option [Off] Light intensity: The light intensity can be set in 5%-steps between [0%] and [100%]</p>
Menu 8/9 Data logger	<p>Data logger configuration Data logger: The following settings are possible: linear [Linear] (value recording until the counter reading of 8500 is reached), cyclic [Ring] (after reaching the value of 8500, the data logger restarts recording the values, while overwriting the old values), or [Off] ([E] will appear in the display when the data logger is activated, and will disappear when the data logger is deactivated) Recording intervals: Intervals for storing the measured values (pressure / temperature): second [1–99 sec], minute [1–99 min], hour [1–99 Std.] or day [1–99 days] Time: Recording of measured values: at what time the measured values are to be recorded (only effective for the setting "daily"). Counter: The number of recorded measured values is displayed. Maximum value: 8500 (Counter reading reset: Select the menu item using the "Edit" button → Press the button "Next" four times → Press the button ">>". The question "Clear?" will appear. → Press the button ">>" again. "Sure?" will appear. Additional confirmation query whether the value is to be deleted → repeated acknowledgement by pressing the button ">>" will delete the recorded measured values. Indication in the display: "Counter: 0/8500")</p>
Menu 9/9 Sensor data	<p>[SN:] The serial number is displayed [End] End of measuring range [Start] Start of measuring range [Date] Date of manufacture The values are set by the factory and cannot be adjusted.</p>
Error	Indication "No sensor": Display and pressure sensor module have been separated.



- **Left button:** is a function button and can be configured in menu 6. The function Light, Zero, Reset or Min can be assigned to the button. The configured function will be active in the display mode. To activate the function, hold the button depressed for approx. 2 seconds. In the control operator mode, you will move back in the menu system "<<" or reduce the setting value.
- **Right button:** is a function button and can be configured in menu 6. The function Light, Zero, Reset or Max can be assigned to the button. To activate the function, hold the button depressed for approx. 2 seconds. In the control operator mode, you will move forward in the menu system ">>" or increase the setting value.
- **Menu button:** By pressing this "Menu" button you will enter the control operator mode; additionally, the button is used to select the individual "Edit" menu items or to acknowledge the values set "Next".

In order to configure the individual menu items, the desired menu item must be set by means of the left button "<<" or the right button ">>". Then acknowledge this with the "Edit" menu button; the menu item will be highlighted, and the configuration can be started.

To store a set value, the "Next" menu button must also be pressed. To exit the menu, press the menu button repeatedly until the highlighting of the individual menu items has disappeared; then select the menu 1 using the left button "<<" or right button ">>" and press the menu button again "Exit". The control operator mode will also be exited automatically after approx. 1 minute.

NOTE – Changes will only become effective after pressing the menu button "Next" and after leaving/exiting the menu item. When the entire menu system is exited, the set parameters are checked again in dependency to each other and in relation to the characteristic data of the device. When the pressure unit has been configured, the measuring range will be converted only after exiting the menu system. Depending on the pressure range, it is also possible that not all units can be used.

9. Maintenance

	<ul style="list-style-type: none"> - Airborne parts, leaking fluid, electric shock - Always service the device in a depressurized and de-energized condition!
	<ul style="list-style-type: none"> - due to aggressive fluids - Wear suitable protective clothing, e.g. gloves, safety goggles.

In principle, the device requires no maintenance. If necessary, clean the housing of the device using a moist cloth and a non-aggressive cleaning solution.


Cleaning of the diaphragm:
Deposits or contamination may occur on the diaphragm in case of certain fluids. It is recommended to establish appropriate maintenance intervals for checking purposes, combined with a functional check.

Clean the diaphragm cautiously using a non-aggressive cleaning solution and a soft paintbrush or sponge.

If the diaphragm is calcified, it is recommended to have the decalcification performed by AFRISO. Please note the chapter "Service/Repair" with regard to this.



NOTE – Wrong cleaning may damage the measuring cell beyond repair. Do not use any sharp or pointed item.

10. Troubleshooting

	<ul style="list-style-type: none"> - Airborne parts, leaking fluid, electric shock - If malfunctions cannot be resolved, put the device out of service and proceed according to sections 8 and 10!
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In case of malfunction, it must be checked whether the device has been correctly installed mechanically. Check the batteries if the display does not function.

11. Removal from Service

	<ul style="list-style-type: none"> - Airborne parts, leaking fluid, electric shock - Always dismantle the device in a depressurized and de-energized condition!
	<ul style="list-style-type: none"> - due to aggressive fluids. - Wear suitable protective clothing, e.g. gloves, safety goggles.

NOTE – After dismantling, mechanical connections must be fitted with protective caps.

12. Service/Repair


Information on service / repair:

- www.afriso.com
- info@afriso.com
- Service phone: +49 7135 102-211

12.1 Recalibration

The offset value or range value may shift during the life of the device. In this case, a deviating signal value in relation to the set lower or upper measuring range value is output. If one of these two phenomena occurs after extended use, a recalibration in the factory is recommended. Please note the chapter "Service/Repair" with regard to this.


12.2 Return

	<ul style="list-style-type: none"> - due to pollutants - Wear suitable protective clothing, e.g. gloves, safety goggles
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For every return shipment, whether for recalibration, decalcification, alteration or repair, the device must be cleaned thoroughly and packed in a break-proof manner. A return declaration with a detailed fault description must be added to the defective device. If your device has come into contact with pollutants, a declaration of decontamination is additionally required. . Appropriate templates can be found on our homepage. Download these by accessing www.afriso.com or request them by e-mail or phone: info@afriso.com | Fon: +49 7135 102-211

In case of doubt regarding the fluid used, devices without a declaration of decontamination will only be examined after receipt of an appropriate declaration.

13. Disposal

	<ul style="list-style-type: none"> - due to pollutants - Wear suitable protective clothing, e.g. gloves, safety goggles
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The device must be disposed of according to the European Directive 2012/19/EU (WEEE – Waste electrical and electronic equipment). Waste equipment must not be disposed of in household waste!



NOTE –Dispose of the device properly!

14. Warranty Terms

The warranty terms are subject to the legal warranty period of 24 months, valid from the date of delivery. If the device is used improperly, modified or damaged, we will rule out any warranty claim. Any damaged diaphragm will not be accepted as a warranty case. Likewise, there shall be no entitlement to any warranty claim if the defects have arisen due to normal wear and tear.

15. EU Declaration of Conformity / CE

The delivered device meets the legal requirements. The applied Directives, harmonized standards and documents are listed in the EU Declaration of Conformity valid for the product. It can be found under <http://www.afriso.com>. In addition, the operational safety of the device is confirmed by the CE sign on the type plate.