CS INSTRUMENTS

Translation of the original assembly instructions

EN

DPS 16 / DPS 50

| PRESSURE |



The completeness and accuracy of this documentation have been carefully checked. We reserve the right to make technical changes at any time. These changes may result in deviations from the information provided in this documentation.

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1 General information

For the sake of simplicity, this documentation refers to the product "DPS 16 / DPS 50," which will be referred to as **product** hereinafter.

1.1 Documentation

This documentation contains safety instructions and guidelines for proper operation.

▷ Read this documentation before commissioning the unit and make sure you understand its contents.

▷ Keep this documentation handy.

1.2 Symbols and labels used

The following markings and symbols are used in this documentation:

Labeling/symbol	Usage
Text	Important text passages are highlighted
2 Security	Cross-reference to text passage, figure or chapter
•	Enumeration, list element
▷	Call to action as part of an instruction. Can also be numbered.
✓	Final or intermediate result of an instruction
✗	Final or intermediate result of an instruction that has not been achieved
ⓘ	Note on an intermediate result

Table 1: Symbols and labels used

1.3 Safety instructions and notes

Safety instructions describe hazards, possible consequences, and protective measures.

▷ Be sure to follow the safety instructions before performing the respective task.



DANGER
Indicates an imminent danger.
Death or very serious injuries may result.



WARNING
Indicates a potentially dangerous situation.
Death or serious injury may result.



CAUTION
Indicates a potentially dangerous situation.
Slight or minor injuries may result.



NOTICE
Indicates a potentially harmful situation.
Material or environmental damage may result.



NOTE
Indicates important information, application tips, and useful information for proper working.

2 Security

The product has been designed, manufactured, and functionally tested in accordance with applicable safety regulations.

To ensure operational safety, please observe the following:

- Chapter "Intended use"
- Chapter "Organizational measures to be taken by the operator"
- Chapter "Residual hazards"

Regardless of the instructions provided in this manual, all applicable country-specific occupational health and safety regulations must be observed.

2.1 Intended use

The operational safety of the product supplied is only guaranteed if it is used as intended.

The product is used to convert the physical quantity of pressure into a digital electrical signal.

Intended use exists in particular if

- the product is operated in suitable measuring media,
- it is regularly calibrated and maintained by qualified personnel.

Any use outside these specifications is considered improper and may result in malfunctions or irreversible damage. This applies in particular if pressure or temperature limits are exceeded, or if liquids or hazardous substances come into contact with the device.

Any use beyond or contrary to these instructions is considered improper. The manufacturer assumes no liability for any resulting damage.

Intended use also includes:

- Adherence to the supplied documentation
- Compliance with all inspection and maintenance requirements specified by the manufacturer

Reasonably foreseeable misuse includes, in particular:

- Contact with vapour, corrosive gases, or hazardous substances (contact with unsuitable media)
- Use as a climbing aid
- Operation outside the technical specifications
- Any modifications to the product, unless they correspond to the intended and described procedures

2.2 Organizational measures of the operator

The operator must ensure that the product is used as intended and only when it is in perfect working order. Damaged or improperly modified products must not be used.

Instructions

The operator must make the instructions available at all times to persons assigned to perform tasks on the product. The operator must ensure that the applicable guidelines for the respective tasks are followed.

Personnel

The operator may only assign persons who possess the knowledge and qualifications required for their tasks. They must be instructed on the hazards involved and the necessary protective measures.

Before starting work, these individuals must have read and understood the sections of the instructions relevant to their tasks. This also applies to individuals who work on the product only occasionally.

Safety regulations

The operator must ensure compliance with the safety and occupational safety regulations applicable at the site of use. In doing so, the specific requirements of the respective application as well as hazards posed by the equipment, the environment, and, where applicable, any substances used must be taken into account.

2.3 Residual risks



DANGER

Risk of injury due to insufficiently qualified personnel

Improper handling of the product can lead to serious personal injury and damage to property. All work described in these instructions may only be carried out by qualified specialists.

Qualified personnel are persons with appropriate training and in-depth knowledge of measurement, control, regulation and compressed air technology. They must also be familiar with the applicable national regulations, standards and directives and be able to assess risks independently.



DANGER

Risk of injury from escaping fluid and unsecured equipment components

Media escaping under pressure and system components coming loose can cause serious or fatal injuries.

- ▷ Before performing installation or maintenance work, disconnect the affected system components from all power sources. Safely discharge any stored energy and verify that the system is de-energized. Secure the system components against unintentional energization.
- ▷ Use installation materials suitable for the medium and operating pressure, as well as appropriate, serviceable tools.
- ▷ Inspect the system components for damage and ensure that all screw connections are tight. Tighten any loose screw connections in accordance with the specified tightening torques.
- ▷ Lay and secure piping properly.
- ▷ Open valves and shut-off devices in a controlled manner to prevent sudden changes in pressure or flow.
- ▷ Ensure that any escaping medium does not endanger people or damage property.
- ▷ Avoid transmitting excessive vibrations, oscillations, and impacts to the product.
- ▷ Before commissioning, perform a leak test in accordance with the specifications for the system.



WARNING

Danger during operation outside the specified limit values

Exceeding or falling below the permissible operating, storage or transportation limits can endanger people and property. There is a risk of malfunctions and operating faults as well as falsified measurement results.

- ▷ Only operate the product within the limit values specified on the rating plate and in the technical data.
- ▷ Observe the permissible storage and transportation conditions.



WARNING

Risk of injury due to unauthorized modifications

Unauthorized modifications to the product may cause injury and result in the loss of the approval. The product may only be operated using original components.

- ▷ Unauthorized modifications are not permitted and lead to the exclusion of any warranty and liability by the manufacturer (CS INSTRUMENTS).



CAUTION

Danger due to malfunction of the product

Incorrect installation or inadequate maintenance can lead to malfunctions that impair the function of the product and can lead to dangerous misinterpretations.

- ▷ Observe all applicable national regulations and safety regulations during installation and operation.



NOTICE

Measurement errors and product damage caused by liquids and contaminants

Aerosols, liquids, condensate, and solid contaminants in the measured medium can contaminate or damage the sensor and distort the measured values.

- ▷ Use only the measurement media approved for the specific version of the product.
- ▷ Install a suitable compressed air filter upstream of the product to trap aerosols and liquids.
- ▷ Ensure that no condensate can enter the product.

3 DPS 16 / DPS 50

This product is a digital pressure transducer with an RS-485 interface for communication via Modbus. It converts the measured pressure into a digital signal.

3.1 Product overview

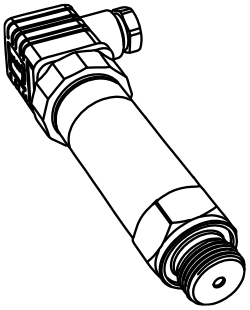


Figure 1: DPS 16 / DPS 50 (example)

3.2 Type plate

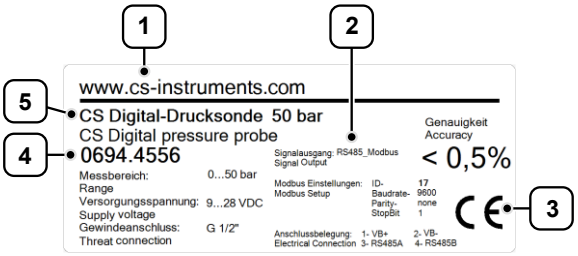


Figure 2: Type plate (example)

1	Manufacturer information	**4**	Part number
2	Technical specifications	**5**	Product name
3	Conformity/Certification marking		

3.3 Scope of delivery

The package includes the following items:

- DPS 16 / DPS 50
- Translation of the original assembly instructions

4 Transportation and storage

NOTE

Improper transport, improper storage, or improper commissioning may cause damage to or malfunctions in the product, for which the manufacturer, (CS INSTRUMENTS), assumes no liability and provides no warranty.

4.1 Delivery

Transport damage

▷ Check the delivered components for any visible transportation damage.

▷ Report any transportation damage to the following parties immediately:

- the carrier
- the manufacturer's customer service (CS INSTRUMENTS)

▷ Ensure that the product is handled properly during transportation.

Packaging

▷ Keep the original packaging for any future transportation or storage.

4.2 Storage

To prevent damage caused by environmental factors, the product must be stored properly when not in use.

▷ If possible, store the product in its original packaging.

▷ Store the product in dry, dust-free rooms.

▷ Keep the product away from direct sunlight, heat sources, and corrosive or aggressive chemicals.

5 Installation and commissioning



DANGER

Risk of injury from flying parts, escaping medium or electric current

Death or serious injury due to electric shock or mechanical impact.

▷ Only carry out the installation in a depressurized and de-energized state.



CAUTION

Danger from commissioning a damaged product

If a damaged product is installed or put into operation, it may result in functional failures, electrical hazards, or mechanical risks.

▷ Before each commissioning, inspect the product, accessories, and all supply lines for visible damage, loose parts, or missing components.

▷ Immediately take any defective product out of operation immediately.

5.1 Assemble product



WARNING

Risk of injury due to pressure overload

Pressure overload can cause pressure-bearing components to fail. Leaking fluid can cause serious injury.

▷ Never exceed the overload pressure limit specified in the technical data, even during brief pressure spikes.

Installing the product

▷ Before installation, verify that the product's measuring range, model, and wetted materials are suitable for the intended operating conditions.

▷ Screw the product into the mounting thread by hand.

▷ Tighten the product using a suitable open-end wrench.

5.2 Complete the installation work

Check installation

▷ After installation, check the system for leaks and ensure that it is securely fastened.

▷ Ensure that the product can be operated as intended.

▷ After installation, ensure that the system is clean and free of contaminants.

5.3 Connect product



DANGER

Danger to life due to electrical voltage

During installation, maintenance, or in the event of a malfunction, conductive parts that can be touched may carry dangerous voltages. Contact with live parts can result in serious injury or death.

▷ Perform work on electrical connections only when the power supply is turned off.

▷ Secure the product against accidental restarting.

▷ Work on electrical systems or equipment may only be performed by qualified electricians or by trained personnel under the direction and supervision of a qualified electrician.

▷ Check all electrical connections before commissioning and regularly during operation.

Connecting the product to a power source

▷ Follow the country-specific electrical safety regulations.

▷ Connect the product according to the following pin assignment.

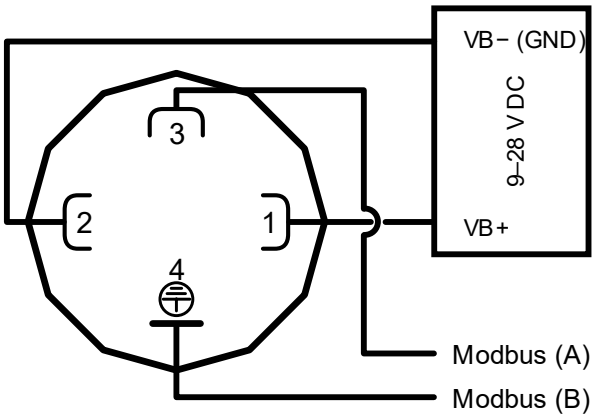
Designation	Pin assignment	Wiring diagram
Angled connector	Pin 1 (VB+ (positive power supply)) Pin 2 (VB- (negative power supply, GND)) Pin 3 (Modbus (A)) Pin 4 (Modbus (B))	

Table 2: Pin assignment

5.4 Putting the product into service and turning it on/off

Turning the product on and off

Prerequisite

- The product has been properly installed and electrically connected.

▷ To turn on the product, connect it to the power supply.

▷ To turn off the product, disconnect it from the power supply.

6 Configuration

6.1 Set interface parameters

Configuring Modbus communication

Prerequisite

- The product is properly installed and electrically connected.

▷ Select the "Modbus" sensor type on the connected data logger.

▷ Set the device address on the connected data logger according to the type plate.

▷ Set the communication parameters on the data logger to match the product.

▷ Configure the reading of the pressure value on the connected data logger according to the register mapping.

ⓘ For further information, see chapter 9.3 Register assignment.

▷ Check whether a plausible pressure value is displayed and whether the set pressure unit is correctly assigned.

Parameter	Factory setting
Baud rate	9600 Bd
Parity	none
Stop bits	1

Table 3: Factory settings for communication parameters

7 Maintenance and servicing

NOTICE

Danger due to improper maintenance

Improper maintenance can lead to damage and malfunctions.

- ▷ The product must only be serviced by a qualified technician.
- ▷ Work on the product's electrical components may only be performed by qualified electricians or by trained personnel under the direction and supervision of a qualified electrician in accordance with electrical safety regulations.
- ▷ Use only replacement parts that meet the manufacturer's technical requirements.

NOTICE

Measurement errors and product damage caused by liquids and contaminants

Aerosols, liquids, condensate, and solid contaminants in the measured medium can contaminate or damage the sensor and distort the measured values.

- ▷ Use only the measurement media approved for the specific version of the product.
- ▷ Install a suitable compressed air filter upstream of the product to trap aerosols and liquids.
- ▷ Ensure that no condensate can enter the product.

NOTE

Unless expressly described otherwise, only begin maintenance and servicing work after

- the product has been disconnected from the power supply,
- the product has been switched off and secured against being switched on again.

7.1 Clean the product

WARNING

Risk of injury from hazardous measurement media and residual measurement media

Leaking hazardous or corrosive measurement media can cause severe poisoning or chemical burns. Even after disassembly, hazardous residues of the measured substance may remain in the product.

- ▷ Wear personal protective equipment suitable for the measured medium.
- ▷ Avoid contact with measurement media and residues, and avoid inhaling any released gases or vapours.
- ▷ Safely contain any leaking measurement media and dispose of them, along with any residual measurement media, in accordance with applicable regulations.

Cleaning the product

- ▷ Clean the exterior surfaces of the product as needed with a slightly damp, lint-free cloth.
- ▷ If necessary, use a solvent-free cleaning agent that is suitable for the materials and surfaces.
- ▷ Inspect the product for visible damage and corrosion.

7.2 Perform calibration

Have a factory calibration carried out

The offset or span value may change over the course of the device's service life. This results in a deviating output signal in relation to the set measuring range start or end value. If this behavior occurs after a long period of operation, a factory recalibration is recommended.

▷ Send the product to the manufacturer (CS INSTRUMENTS).

ⓘ For further information, see chapter "7.3 Customer service".

ⓘ An identical replacement product should be kept in stock for use in critical systems.

7.3 Customer service

Contact customer service

▷ When contacting us, please have the following information ready, if available:

- Part number from the type plate
- Serial number from the type plate
- Product model
- Device software version
- Error message displayed
- Relevant operating and environmental conditions
- Time and frequency of the error

▷ Describe the problem as accurately as possible and list any recent changes made to the product, its configuration, or its operating conditions.



WARNING

Risk of injury from hazardous measurement media and residual measurement media

Leaking hazardous or corrosive measurement media can cause severe poisoning or chemical burns. Even after disassembly, hazardous residues of the measured substance may remain in the product.

▷ Wear personal protective equipment suitable for the measured medium.

▷ Avoid contact with measurement media and residues, and avoid inhaling any released gases or vapours.

▷ Safely contain any leaking measurement media and dispose of them, along with any residual measurement media, in accordance with applicable regulations.

Returning products

▷ Clean the product carefully and pack it in break-proof packaging.

▷ After disassembly, close all mechanical connections with protective caps to prevent contamination or damage.

▷ Enclose a return declaration with a detailed description of the error.

▷ Contact customer service if necessary.

8 Decommissioning and disposal



WARNING

Risk of injury from hazardous measurement media and residual measurement media

Leaking hazardous or corrosive measurement media can cause severe poisoning or chemical burns. Even after disassembly, hazardous residues of the measured substance may remain in the product.

- ▷ Wear personal protective equipment suitable for the measured medium.
- ▷ Avoid contact with measurement media and residues, and avoid inhaling any released gases or vapours.
- ▷ Safely contain any leaking measurement media and dispose of them, along with any residual measurement media, in accordance with applicable regulations.

Decommissioning

If the product is taken out of service temporarily or permanently, it must be safely decommissioned, disassembled, and, if necessary, stored.

ⓘ For further information, see chapter "4.2 Storage."

Waste disposal

The product and its packaging contain recyclable materials and must not be disposed of with general waste.

- ▷ Before passing on or disposing of the device, delete any stored data, if present.
- ▷ Dispose of the product and packaging via the designated disposal channels in accordance with applicable local disposal regulations and waste codes. If necessary, hire a licensed waste disposal company.

ⓘ For information on proper disposal, contact your local authorities or a specialized waste management company.

ⓘ Alternatively, you can return the product to the manufacturer for proper disposal.

9 Appendix

9.1 Technical data

Parameter	DPS 16	DPS 50	Unit
Power supply	9…28	9…28	V DC
Electrical connection	Angled connector per EN 175301-803, Type A Wire cross-section: max. 1.5 mm² Cable diameter: 6–8 mm	Angled connector per EN 175301-803, Type A Conductor cross-section: max. 1.5 mm² Cable diameter: 6–8 mm	
Measuring range	0...16	0...50	bar
Overload pressure limit	25	100	bar
Pressure type	Relative pressure	Relative pressure	
Electrical output	RS-485 Modbus RTU	RS-485 Modbus RTU	
Measurement accuracy (at room temperature)	Depending on the model: • ±0.5 • ±1	Depending on the model: • ±0.5 • ±1	%
Long-term stability	±0.2	±0.2	% of full scale per year
Mounting thread	Depending on the model: • G ½" • ½" NPT	Depending on the model: • G ½" • ½" NPT	
Seal material	Fluorocarbon rubber (FKM)	Fluorocarbon rubber (FKM)	
Degree of protection	IP65	IP65	
Device address	See type plate	See type plate	
Baud rate	9600 Bd	9600 Bd	
Parity	None	None	
Stop bit	1	1	
Housing material	Stainless steel 1.4404 (AISI 316L)	Stainless steel 1.4404 (AISI 316L)	
Wetted materials	Stainless steel 1.4404 (AISI 316L)	Stainless steel 1.4404 (AISI 316L)	
Medium temperature	-30...+80	-30...+80	°C

Table 4: Technical data | DPS 16 / DPS 50

9.2 Dimensions

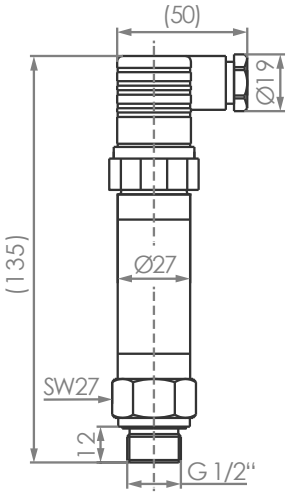


Figure 3: Dimensions | DPS 16 / DPS 50 (measurements in mm)

9.3 Register assignment

Function	Register address	Register type	Data type	Byte order
Read output value	36 (decimal)	Holding register	float, 32-bit (R4)	C-D-A-B
Read the set pressure unit	0x03 (hexadecimal)	Holding register	uInt16	A-B

Table 5: Register for reading the pressure value and pressure unit

Code	Unit
0x00	kPa
0x01	MPa
0x02	mH_2O
0x03	bar
0x04	psi
0x05	mbar
0x06	kgf/cm²
0x07	cmHg
0x08	atm
0x09	Pa
0x0A	in H_2O
0x0B	inHg

Table 6: Available pressure units

9.4 EU Declaration of Conformity

CS INSTRUMENTS GmbH & Co. KG

KONFORMITÄTSERKLÄRUNG

DECLARATION OF CONFORMITY

Wir / We: CS Instruments GmbH & Co.KG
Zindelsteiner Straße 15, 78052 VS-Tannheim

Erklären in alleiniger Verantwortung, dass das Produkt
Declare under our sole responsibility that the product

Digitale Druckmessumformer DPS 16 und DPS 50 mit RS485-RTU Schnittstelle
Digital pressure transmitters DPS 16 and DPS 50 with RS485-RTU interface

den Anforderungen folgender Richtlinien entsprechen:
We hereby declare that above mentioned components comply with requirements of the following EU directives:

Elektromagnetische Verträglichkeit Electromagntic compatibility	2014/30/EU 2014/30/EC
RoHS (Restriction of certain Hazardous Substances)	2011/65/EC

Angewandte harmonisierte Normen:
Harmonised standards applied:

EMV-Anforderungen EMC requirements	**EN 61326-1: 2013**

Das Produkt ist mit dem abgebildeten Zeichen gekennzeichnet.
The product is labelled with the indicated mark.

CE

Tannheim, den 26.11.2025

Wolfgang Blessing Geschäftsführer



CS INSTRUMENTS GmbH & Co. KG

Zindelsteiner Str. 15 | 78052 VS-Tannheim | GERMANY

Tel. +49 7705 978 99 0 | info@cs-instruments.com

www.cs-instruments.com