

Operating instructions
Betriebsanleitung
Mode d'emploi
Manual de instrucciones

Pressure gauges switch contact model 821, 851 or 830 E:
Magnetic snap-action, reed or electronic contact

EN

Manometer mit Schaltkontakt Typ 821, 851 oder 830 E:
Magnetspring-, Reed- oder Elektronikkontakt

DE

Manomètres avec contact électrique type 821, 851 ou 830 E:
Contact sec magnétique, contact Reed ou contact électronique

FR

Manómetros con contacto eléctrico modelo 821, 851 o 830 E:
Contacto magnético de ruptura brusca, Reed o electrónico

ES



switchGAUGE

Examples for pressure gauges with switch contacts



Model PGS23

Model PGS43

Model DPGS43

Model DPGS43HP



Part of your business

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Prior to starting any work, read the operating instructions!
 Keep for later use!

Vor Beginn aller Arbeiten Betriebsanleitung lesen!
 Zum späteren Gebrauch aufbewahren!

Lire le mode d'emploi avant de commencer toute opération !
 A conserver pour une utilisation ultérieure !

¡Leer el manual de instrucciones antes de comenzar cualquier trabajo!
 ¡Guardar el manual para una eventual consulta!

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Declarations of conformity can be found online at www.wika.com.

1. General information

1. General information

EN

- The instrument described in the operating instructions has been designed and manufactured using state-of-the-art technology. All components are subject to stringent quality and environmental criteria during production. Our management systems are certified to ISO 9001 and ISO 14001.
- These operating instructions contain important information on handling the instrument. Working safely requires that all safety instructions and work instructions are observed.
- Observe the relevant local accident prevention regulations and general safety regulations for the instrument's range of use.
- The operating instructions are part of the product and must be kept in the immediate vicinity of the instrument and readily accessible to skilled personnel at any time. Pass the operating instructions on to the next operator or owner of the instrument.
- Skilled personnel must have carefully read and understood the operating instructions prior to beginning any work.
- The general terms and conditions contained in the sales documentation shall apply.
- Subject to technical modifications.
- Further information:
 - Internet address: www.wika.de / www.wika.com
 - Relevant data sheets:

PV 22.01	Models PGS21.100, PGS21.160
PV 22.02	Models PGS23.100, PGS23.160, PGS26.100, PGS26.160
PV 22.03	Model PGS23.063
PV 24.03	Models PGS43.100, PGS43.160
PV 27.05	Models DPGS43.100, DPGS43.160
PV 27.13	Models DPGS43HP.100, DPGS43HP.160
PM 02.11	Model 232.35
PV 24.07	Models 432.56, 432.36
PM 05.02	Models 532.52, 532.53 and 532.54
PM 06.06	Model 632.51
PM 07.08	Model 736.51

2. Design and function

2. Design and function

EN

2.1 Description

The switch contacts permanently installed in the pressure gauge close or open at set limit values, depending on the switching function. Switching functions are: Normally closed, normally open, change-over contact.

Instruments with switch contact model 821

Model 821 magnetic snap-action contacts are auxiliary current switches which open or close connected electric circuits via a contact arm which is moved by the instrument pointer.

Instruments with switch contact model 851

Model 851 reed contacts are auxiliary current switches which open or close connected electric circuits at the set limit values via a permanent magnet which is moved by the instrument pointer. The reed contacts used are bistable switches, which keep their condition after a signal change up to the next actuation.

Instruments with switch contact model 830 E

The inductive contact with integrated model 830 E switching amplifier can switch small loads directly. This is, for example, the case with applications with programmable logic controllers (PLCs).

The advantages of inductive contacts are the particularly fail-safe contact operation, no wear due to proximity contact operation as well as virtually no effect on the measuring system.

No additional control unit is required.

The electronic contact is a 2- or 3-wire design with PNP output.

2.2 Scope of delivery

Cross-check scope of delivery with delivery note.

3. Safety

3. Safety

3.1 Explanation of symbols

EN



WARNING!

... indicates a potentially dangerous situation that can result in serious injury or death, if not avoided.



WARNING!

... indicates a potentially dangerous situation that can result in burns, caused by hot surfaces or liquids, if not avoided.



Information

... points out useful tips, recommendations and information for efficient and trouble-free operation.

3.2 Intended use

Wherever the process pressure has to be indicated locally and, at the same time, circuits need to be switched, the switchGAUGE finds its use.

These instruments are used to control process values, to monitor plants and to switch circuits in industrial applications.

This instrument is not permitted to be used in hazardous areas!

Only use the instrument in applications that lie within its technical performance limits (e.g. max. ambient temperature, material compatibility, ...).

→ For performance limits see chapter 9 “Specifications”.

The instrument has been designed and built solely for the intended use described here, and may only be used accordingly.

The manufacturer shall not be liable for claims of any type based on operation contrary to the intended use.

3. Safety

EN

3.3 Improper use



WARNING!

Injuries through improper use

Improper use of the instrument can lead to hazardous situations and injuries.

- ▶ Refrain from unauthorised modifications to the instrument.
- ▶ Do not use the instrument within hazardous areas.
- ▶ Do not use the instrument with abrasive or viscous media.

Any use beyond or different to the intended use is considered as improper use.

Do not use this instrument in safety or emergency stop devices.

3.4 Personnel qualification



WARNING!

Risk of injury should qualification be insufficient!

Improper handling can result in considerable injury and damage to equipment.

- ▶ The activities described in these operating instructions may only be carried out by skilled personnel who have the qualifications described below.

3.5 Skilled personnel

Skilled personnel, authorised by the operator, are understood to be personnel who, based on their technical training, knowledge of measurement and control technology and on their experience and knowledge of country-specific regulations, current standards and directives, are capable of carrying out the work described and independently recognising potential hazards.

3.6 Special hazards



WARNING!

For hazardous media such as oxygen, acetylene, flammable or toxic gases or liquids, and refrigeration plants, compressors, etc., in addition to all standard regulations, the appropriate existing codes or regulations must also be followed.



WARNING!

Residual media in dismantled measuring instruments can result in a risk to persons, the environment and equipment.

Take sufficient precautionary measures.

3. Safety

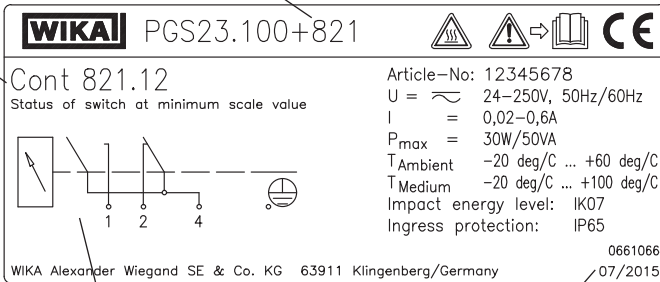
3.7 Labelling / Safety marks

Product label (example)

EN

Switch contact model and switching function

821 Magnetic snap-action contact, model 821
 851 Reed contact, model 851
 830 E Electronic contact, model 830 E



Pin assignment

Date of manufacture

3.8 Explanation of symbols



Before mounting and commissioning the pressure gauge, ensure you read the operating instructions!



Risk of burns!

Potentially dangerous situation caused by hot surfaces.



Protective earth



Instruments bearing this mark on the dial are safety pressure gauges with solid baffle wall per EN 837 (S3).

4. Transport, packaging and storage

4. Transport, packaging and storage

EN

4.1 Transport

Check the instrument for any damage that may have been caused by transport. Obvious damage must be reported immediately.



CAUTION!

Damage through improper transport

With improper transport, a high level of damage to property can occur.

- ▶ When unloading packed goods upon delivery as well as during internal transport, proceed carefully and observe the symbols on the packaging.
- ▶ With internal transport, observe the instructions in chapter 4.2 “Packaging and storage”.

4.2 Packaging and storage

Do not remove packaging until just before mounting.

Keep the packaging as it will provide optimum protection during transport (e.g. change in installation site, sending for repair).

4.3 Storage

Permissible conditions at the place of storage

Storage temperature: -20 ... +70 °C

Humidity: ≤ 80 % relative humidity (no condensation)

Avoid exposure to the following factors:

- Direct sunlight or proximity to hot objects
- Mechanical vibration, mechanical shock (putting it down hard)
- Soot, vapour, dust and corrosive gases
- Hazardous environments, flammable atmospheres



WARNING!

Before storing the instrument, any residual media must be removed. This is of particular importance if the medium is hazardous to health, e.g. caustic, toxic, carcinogenic, radioactive, etc.

5. Commissioning, operation

5. Commissioning, operation

5.1 Mechanical connection

EN

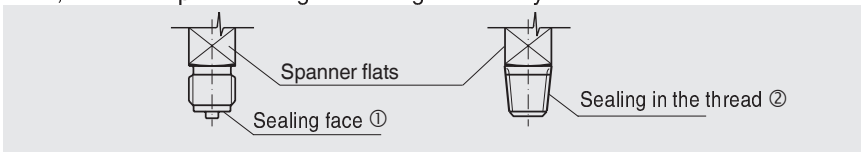
In accordance with the general technical regulations for pressure gauges (e.g. EN 837-2 "Selection and installation recommendations for pressure gauges").

When screwing the instruments in, the force required for sealing must not be applied through the case, but only through the spanner flats provided for this purpose, and using a suitable tool.



For parallel threads, use flat gaskets, lens-type sealing rings or WIKA profile sealings at the sealing face ①. With tapered threads (e.g. NPT threads), sealing is made in the threads ②, using a suitable sealing material (EN 837-2).

The torque depends on the sealing used. In order to orientate the measuring instrument so that it can be read as well as possible, a connection with clamp socket or union nut should be used. When a blow-out device is fitted to an instrument, it must be protected against being blocked by debris and dirt.



5.1.1 Installation

- Nominal position per EN 837-3 / 9.6.6 figure 7: 90° (⊥)
- Process connection lower mount
- With filled versions the vent valve at the top of the case must be opened before commissioning!
- For outdoor applications, the selected installation location has to be suitable for the specified ingress protection, so that the instrument is not exposed to impermissible weather conditions.

5. Commissioning, operation

EN

- In order to avoid any additional heating, the instruments must not be exposed to direct solar irradiation while in operation!
- To ensure that the pressure can be safely vented in the case of failure, instruments with blow-out device or blow-out back must keep a minimum distance of 20 mm from each object.

5.1.2 Requirements for the installation point

If the line to the measuring instrument is not adequately stable, an instrument mounting bracket should be used for fastening. If vibrations cannot be avoided by means of suitable installation, filled instruments should be used. The instruments should be protected against coarse dirt and wide fluctuations in ambient temperature.

5.1.3 Permissible vibration load at the installation site

The instruments should always be installed in locations free from vibration. If necessary, it is possible to isolate the instrument from the mounting point, e.g. by installing a flexible connection line between the measuring point and the instrument and mounting the instrument on a suitable bracket. If this is not possible, the following limit values must not be exceeded:

Frequency range < 150 Hz
Acceleration < 0.5 g (5 m/s²)

5.1.4 Level check

For filled instruments, the level must be checked on a regular basis. The liquid level must not drop below 75 % of the instrument diameter.

5.1.5 Manual reset of reed switch, model 851

In rare cases an actuation of the reed switches can occur due to an impermissibly high shock or vibration. To reset the reed switches, it is necessary to move the instrument pointer over the set switch point of the reed switch.

5.1.6 Test connection

In specific applications (e.g. steam boilers) the shut-off fittings must have a test connection, so that the instrument can be tested without being dismantled.

5. Commissioning, operation

5.1.7 Temperature load

The installation of the instrument should be made in such a way that the operating temperature, also considering the effects of convection and thermal radiation, neither exceeds nor falls below the permissible limits. Thus the instrument and the shut-off device must be protected by sufficiently long measuring lines or syphons. The influence of temperature on the indication and measurement accuracy must be observed.

EN



WARNING!

The actual maximum surface temperature depends not on the equipment itself, but mainly on the operating conditions. With gaseous substances, the temperature may increase as a result of compression warming. In these cases it may be necessary to throttle the rate of change of pressure or reduce the permissible medium temperature.

5.1.8 Commissioning of pressure compensating valve

Instruments which are fitted with a pressure compensating valve must, following installation, be vented for internal pressure compensation.

Tool: Open-ended spanner SW 9

1. Remove plastic casing
2. Loosen the threaded connection above the valve body
3. Screw the valve body tight, turned through 180°, with ≤ 4.5 Nm

Before commissioning



After commissioning



5.1.9 Protection of the pressure elements from overload

If the medium is subject to rapid changes in pressure, or pressure surges are expected, then these must not act directly on the pressure element. The action of the pressure surges must be damped, for example with the fitting of a throttle section (reduction in cross-section in the pressure channel) or through the addition of an adjustable throttling device.

5.1.10 Pressure tapping point

The pressure tapping point should be arranged with as large a bore as possible (≥ 6 mm) via a shut-off device, so that the pressure tap is not distorted by a flow in the medium. The measuring line between the pressure tapping points and the instrument should have a large enough internal diameter to prevent blockage and lag in the pressure transmission.

5.1.11 Measuring line

The measuring lines must be as short as possible and should be arranged without sharp radii in order to avoid any disruptive time lags. With the installation, a continuous inclination of approx. 1:15 is recommended.

5. Commissioning, operation







The measuring line should be designed and installed so that the loads occurring due to expansion, vibration and thermal effects can be absorbed. With gaseous media, a drain should be provided at the lowest point; with liquid media, a vent should be provided at the highest point.

The measuring instruments must be mounted in the common mounting position per EN 837-1, with a max. permissible incline of 5° on all sides.

EN

5.1.12 Measuring assemblies

Proven measuring assemblies for various types of media.

Filling of the measuring line	Liquid media			Gaseous media		
	liquid	liquid with vapour	completely vapourised	gaseous	partially condensed (damp)	completely condensed
Examples	condensate	boiling liquids	"liquid gases"	dry air	moist air flue gases	Steam
Pressure gauge above the tapping point						
Pressure gauge below the tapping point						

5. Commissioning, operation

5.2 Electrical connection

The electrical connection must only be made by qualified skilled personnel. Connection details and switching functions are given on the product label. Connection terminals and ground terminal are appropriately marked.

EN

For power ratings (see “Specifications”) and for circuit protection for inductive and capacitive loads see chapter 5.3 “Contact protection measures”.

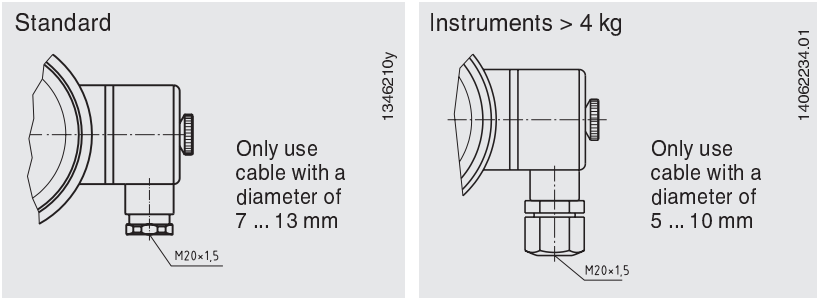
Safety instructions for installation

- Install instruments in accordance with the manufacturer's instructions and the valid standards and regulations.
- Only connect circuits with the same voltage and type of protection to the switch contacts and connecting cables.
- Only for switch contact models 821 and 851: Limit the maximum current, using external measures, to a value of ≤ 1 A per circuit.
- Size the connecting cables for the largest current strength in the circuits and ensure sufficient UV resistance and mechanical stability.
- Voltages greater than AC 50 V or DC 120 V:
 - Do not connect circuits simultaneously with extra-low voltage circuits or with safety extra-low voltage (SELV) or protected extra-low voltage (PELV).
 - Circuits must offer a device, external to the measuring instrument, that enables the instrument to be isolated from the electrical supply. This must be easily accessible and be marked as the isolation device for the instrument.
 - Cables for the circuit must fulfil the isolation requirements and conform to, for example, IEC 60227 or IEC 60245.
 - For protection against electric shock, connect the protective conductor connection to the protective earth.
- With flexible connecting cables, use isolated end splices. Max. permissible conductor cross-section 1.5 mm².
- Connecting cables must be suited to the ambient temperature range of the application.
- The connecting cables must also be suitable for the supplied cable gland (for diameter range, see below).

5. Commissioning, operation

- Seal the cable entry with the appropriate approved cable glands.

Cable gland design



EN

- Install the connection cables securely.

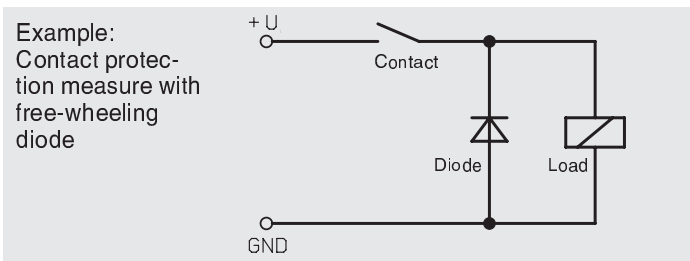
5.3 Contact protection measures

Mechanical contacts must not exceed the specified electrical values for switching current, switching voltage and switching power independent of each other, not even for a short time only.

For capacitive or inductive loads we recommend one of the following protective circuits:

Inductive load with DC voltage

With DC voltage the contact protection can be achieved via a free-wheeling diode, connected in parallel to the load. The polarity of the diode must be arranged so that it closes when the operating voltage is on.



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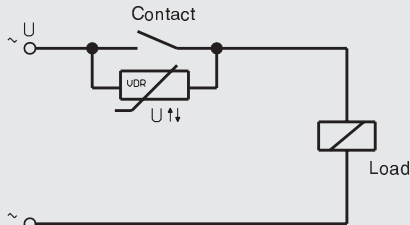
5. Commissioning, operation

Inductive load with AC voltage

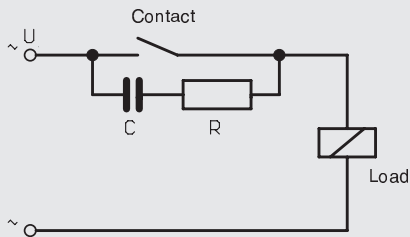
With AC voltage two protection measures are possible:

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Example:
Contact protection
measure with
voltage-de-
pendent resistor
VDR



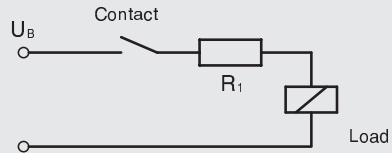
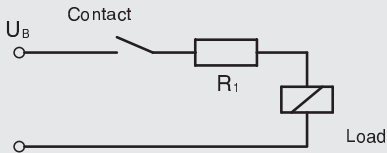
Example:
Contact protec-
tion measure
with RC element



Capacitive load

With capacitive loads elevated make currents arise. These can be reduced by series-connecting resistors in the supply line.

Examples: Contact protection measure with current-limiting resistor

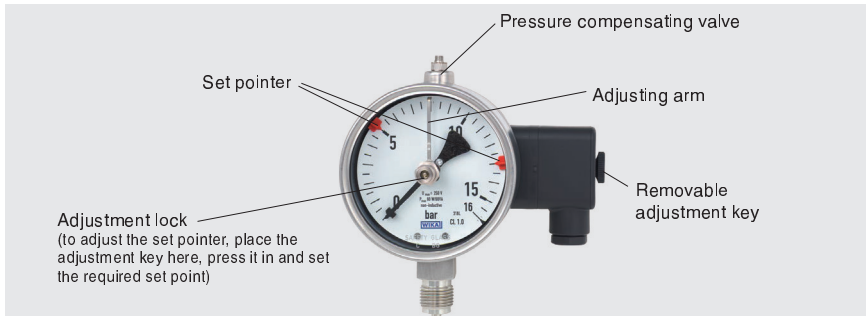


5. Commissioning, operation

EN

5.4 Adjusting the set pointers of contact model 851

The adjustment of the set points is achieved using the adjustment lock in the



window with the aid of the adjustment key (included in delivery; found in standard instruments on the side of the cable socket).

Instruments with switch contact model 821 or 830 E



The set pointers for the limit switches are freely adjustable over the full scale range. For reasons of switching accuracy, switching reliability and service life of the mechanical measuring systems, the switch points should be between 10 % and 90 % of the measuring span.

Instruments with switch contact model 851

The set pointers of the limit switches are freely adjustable between 10 % and 90 % of the scale range; the distance between the two set pointers is approx. 10 % of the scale range (corresponds to approx. 30 mm). With nominal size 160 measuring instruments it has to be ensured that the adjusting arm is pushed down exclusively in the area of the set pointer to be adjusted. Otherwise damage to the instrument pointer or a misadjustment of the zero point cannot be excluded.

5.5 Commissioning

Pressure surges must be avoided at all costs, open the shut-off valves slowly.

6. Faults

6. Faults

EN



CAUTION!

Physical injuries and damage to property and the environment
If faults cannot be eliminated by means of the listed measures, the instrument must be taken out of operation immediately.

Ensure that pressure or signal is no longer present and protect against accidental commissioning.

Contact the manufacturer.

If a return is needed, please follow the instructions given in chapter 8.2 "Return".



WARNING!

Physical injuries and damage to property and the environment caused by hazardous media

Upon contact with hazardous media (e.g. oxygen, acetylene, flammable or toxic substances), harmful media (e.g. corrosive, toxic, carcinogenic, radioactive), and also with refrigeration plants and compressors, there is a danger of physical injuries and damage to property and the environment.

Should a failure occur, aggressive media with extremely high temperature and under high pressure or vacuum may be present at the instrument.

For these media, in addition to all standard regulations, the appropriate existing codes or regulations must also be followed.

Wear the requisite protective equipment (see chapter 3.6 "Personal protective equipment").



For contact details see chapter 1 "General information" or the back page of the operating instructions.

6. Faults / 7. Maintenance and cleaning

Faults	Causes	Measures
Contact is no longer switching in line with the specification.	Electrical connection is interrupted.	Carry out a continuity test on the electrical connection lines.
	Electrical load unsuitable for the switch contact model.	Maintain the permissible electrical loads for the switch contact model.
	Contact contaminated.	
Residual current protection device for the circuit is tripped.	Insulation failure	Replace instrument
Contact chatter (repeated, short-duration opening and closing).	Vibrations	Decouple the instrument mechanically.
Switching state remains unchanged despite reaching the switch point/reset point.	Contacts defective (e.g. fused contact zone).	Replace instrument Before recommissioning the new instrument, provide a protective circuit for the contact.
No pointer movement despite change in pressure.	Movement blocked.	Replace instrument

EN

For the exchange of the instrument chapters 8 “Dismounting, return and disposal” and 5 “Commissioning, operation” must be observed.

7. Maintenance and cleaning

The instruments are maintenance-free.

The indicator and switching function should be checked once or twice every year.

For this the instrument must be disconnected from the process to check with a pressure testing device.

Repairs must only be carried out by the manufacturer.

Clean the instrument with a moist cloth.

8. Dismounting, return and disposal

8. Dismounting, return and disposal

EN



WARNING!

Physical injuries and damage to property and the environment through residual media

Residual media in the dismantled instrument can result in a risk to persons, the environment and equipment.

- ▶ Wear the requisite protective equipment (see chapter 3.6 “Personal protective equipment”).
- ▶ Observe the information in the material safety data sheet for the corresponding medium.
- ▶ Wash or clean the dismantled instrument, in order to protect persons and the environment from exposure to residual media.

8.1 Dismounting



WARNING!

Risk of burns

During dismantling there is a risk of dangerously hot media escaping.

- ▶ Let the instrument cool down sufficiently before dismantling it!



DANGER!

Danger to life caused by electric current

Upon contact with live parts, there is a direct danger to life.

- ▶ The dismantling of the instrument may only be carried out by skilled personnel.
- ▶ Remove the instrument once the system has been isolated from power sources.



WARNING!

Physical injury

When dismantling, there is a danger from aggressive media and high pressures.

- ▶ Observe the information in the material safety data sheet for the corresponding medium.
- ▶ Dismount the instrument when there is no pressure.

If necessary, the measuring line must have strain relief. For diaphragm pressure gauges, the clamping bolts of the upper and lower flange must not be loosened.

8. Dismounting, return and disposal

EN

8.2 Return

Strictly observe the following when shipping the instrument:

All instruments delivered to WIKA must be free from any kind of hazardous substances (acids, bases, solutions, etc.) and must therefore be cleaned before being returned.



WARNING!

Physical injuries and damage to property and the environment through residual media

Residual media in the dismantled instrument can result in a risk to persons, the environment and equipment.

- ▶ With hazardous substances, include the material safety data sheet for the corresponding medium.
- ▶ Clean the instrument, see chapter 8.2 "Cleaning".

When returning the instrument, use the original packaging or a suitable transport packaging.



Information on returns can be found under the heading "Service" on our local website.

8.3 Disposal

Incorrect disposal can put the environment at risk. Dispose of instrument components and packaging materials in an environmentally compatible way and in accordance with the country-specific waste disposal regulations.

9. Specifications

9. Specifications

9.1 Operating conditions for models 821 and 851 per low voltage directive

EN The insulation values (air gaps and creepage distances) are sized for the following ambient conditions in accordance with EN 61010-1:2010:

- Altitude up to 2,000 m
- Overvoltage category II
- Pollution degree 2
- Relative humidity 0 ... 95 % non-condensing (per DIN 40040)

The strength of the measuring instruments (enclosing non-metallic components) was tested with a reduced impact energy of 2 J corresponding to IK07 per EN 61010-1:2010. The IK code is included on the respective product label.

The data for the operating temperature ranges and the IP ingress protection may vary, depending on the instrument model and version, and are also included on the product label.



WARNING!

None of the limit values for voltage, current and power are to be exceeded!

We recommend the following load values to ensure safe, continuous operation.

Limit values, recommended contact load for model 821

The limit values for the contact load of the model 821 magnetic snap-action contact, for resistive loads, depend on various factors; such as measuring range, number of switch contacts, instrument version without or with liquid filling.

Each instrument version therefore contains individual data on the product label:

- U permissible switching voltage
- I permissible switching current
- P_{max.} maximum switching power

These data are included on the respective product label.

9. Specifications

Recommended contact load for the magnetic snap-action contact model 821

Voltage (DIN IEC 38)	Magnetic snap-action contact model 821					
	Unfilled instruments			Filled instruments		
DC / AC	resistive load		inductive load $\cos \varphi > 0.7$ mA	resistive load		inductive load $\cos \varphi > 0.7$ mA
V	DC mA	AC mA		DC mA	AC mA	
230	100	120	65	65	90	40
110	200	240	130	130	180	85
48	300	450	200	190	330	130
24	400	600	250	250	450	150

EN



Because of switching reliability, the switching current should not fall below a value of 20 mA, and the switching voltage should not fall below 24 V. For higher loads, and for instruments with liquid-filled cases, we recommend using WIKA model 905.1x contact protection relays.

Limit values for the contact load with model 851

Switching voltage AC/DC: ≤ 250 V
 Switching current: ≤ 1 A
 Maximum switching power: 60 VA/W

9. Specifications

9.2 Specifications, model 830 E

EN

Specifications	Model 830 E
Range of operating voltage	DC 10 ... 30 V
Residual ripple	max. 10 %
No-load current	≤ 10 mA
Switching current	≤ 100 mA
Residual current	≤ 100 μ A
Switching function	Normally closed, normally open
Type of output	PNP transistor
Voltage drop (with $I_{max.}$)	≤ 0.7 V
Reverse polarity protection	conditional UB (the output 3 or 4 switch must never be set directly to minus)
Anti-inductive protection	1 kV, 0.1 ms, 1 k Ω
Oscillator frequency	approx. 1,000 kHz
Electromagnetic compatibility (EMC)	per EN 60947-5-2
Ambient conditions and temperature	depending on the pressure gauge model (see relevant data sheet)
Permissible ambient temperatures	-25 ... +70 °C depending on the pressure gauge model (see relevant data sheet)
Installation	installed directly in the measuring instrument at the factory, up to 3 switch contacts per measuring instrument
Ingress protection	depending on the pressure gauge model (see relevant data sheet)

For further specifications see the corresponding product label, WIKA data sheet and order documentation.

9. Specifications

Models PGS21.100, PGS21.160

Pressure limitation	
- Steady	Full scale value
- Fluctuating	0.9 x full scale value
- Short time	1.3 x full scale value
Temperature effect	When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. $\pm 0.4\%$ /10 K of full scale value

EN

For further specifications see data sheet PV 22.01

Models PGS23.100, PGS23.160, PGS26.100, PGS26.160

Pressure limitation	
- Steady	Full scale value
- Fluctuating	0.9 x full scale value
- Short time	1.3 x full scale value
Temperature effect	When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. $\pm 0.4\%$ /10 K of full scale value

For further specifications see data sheet PV 22.02

Model PGS23.063

Pressure limitation	
- Steady	3/4 x full scale value
- Fluctuating	2/3 x full scale value
- Short time	Full scale value
Temperature effect	When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. $\pm 0.4\%$ /10 K of full scale value

For further specifications see data sheet PV 22.03

Models PGS43.100, PGS43.160

Pressure limitation	
- Steady	Full scale value
- Fluctuating	0.9 x full scale value
- Short time	5 x full scale value, however max. 40 bar
Temperature effect	When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. $\pm 0.8\%$ /10 K of full scale value

For further specifications see data sheet PV 24.03

9. Specifications

Models DPGS43.100, DPGS43.160

Pressure limitation	
- Steady	Full scale value
- Fluctuating	0.9 x full scale value
- Overpressure safety	minimum 10 x full scale value, max. 25 bar
Temperature effect	When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. $\pm 0.5\%$ /10 K of full scale value

For further specifications see data sheet PV 27.05

Models DPGS43HP.100, DPGS43HP.160

Pressure limitation	
- Steady	Full scale value
- Fluctuating	0.9 x full scale value
- Overpressure safety	40, 100, 250 or 400 bar
Temperature effect	When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. $\pm 0.5\%$ /10 K of full scale value

For further specifications see data sheet PV 27.13

Model 232.35

Pressure limitation	
- Steady	3/4 x full scale value
- Fluctuating	2/3 x full scale value
- Short time	Full scale value
Temperature effect	When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. $\pm 0.4\%$ /10 K of full scale value

For further specifications see data sheet PM 02.11

Models 432.56, 432.36

Pressure limitation	
- Steady	Full scale value
- Fluctuating	0.9 x full scale value
- Overpressure safety	40, 100 or 400 bar
Temperature effect	When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. $\pm 0.8\%$ /10 K of full scale value

For further specifications see data sheet PV 24.07

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9. Specifications

Models 532.52, 532.53 and 532.54

Pressure limitation	
- Steady	Full scale value
- Fluctuating	0.9 x full scale value
- Overpressure safety	Minimum 1 bar absolute pressure (atmospheric pressure), in addition 10 x full scale value, max. 25 bar absolute pressure
Temperature effect	When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. $\pm 0.8 \%$ /10 K of full scale value

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For further specifications see data sheet PM 05.02

Model 632.51

Pressure limitation	
- Steady	Full scale value
- Fluctuating	0.9 x full scale value
- Overpressure safety	50 x full scale value
Temperature effect	When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. $\pm 0.6 \%$ /10 K of full scale value

For further specifications see data sheet PM 06.06

Model 736.51

Pressure limitation	
- Steady	Full scale value
- Fluctuating	0.9 x full scale value
- Overpressure safety	\ominus side: 200 mbar

For further specifications see data sheet PM 07.08



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