

HOTTINGER BALDWIN MESSTECHNIK



**Electrical
measurement
of mechanical
quantities**

Mounting instructions

**Pressure transmitter
P15**

Contents	Page
Safety instructions	4
1 List of components supplied	7
2 Application	7
3 Mechanical assembly	7
4 Electrical connection	8
5 Load-carrying capacity (measuring dynamic pressure)	8
6 Technical Data	9
7 Dimensions	10
8 Copy of Declaration of Conformity	11

Safety instructions

Use in accordance with the regulations

The P15RVA1 pressure gauge transducer is to be used only for the purpose of pressure measurement and directly related control tasks. Use for any other purpose is deemed not to be in accordance with the regulations.

To ensure safe operation, the pressure gauge transducer should only be used as specified in the user manual. In addition, the appropriate legal and safety regulations for each application must be observed during use. This applies with equal force to the use of accessories.

The pressure gauge transducer is not a safety device as understood within the context of use in accordance with the regulations. Operating this pressure gauge transducer in perfect safety assumes an appropriate method of transport, as well as technically correct storage, installation and assembly, combined with careful operation and maintenance.

Overall dangers from failing to comply with the safety instructions

The P15RVA1 pressure gauge transducer corresponds to the state of the art and is safe to operate. There can be remaining dangers from the pressure gauge transducer if it is used and operated inappropriately by untrained personnel.

Everyone entrusted with the installation, commissioning, maintenance or repair of the pressure gauge transducer must have read and understood the user manual and in particular the technical safety instructions.

Remaining dangers

The list of features and components provided by the pressure gauge transducer tells only part of the measurement technology story. Equipment planners, installers and operators also have to plan, carry out and respond to the safety engineering considerations of measurement technology in such a way that residual risks are minimised. Appropriate current regulations have to be observed. Notice must be given of residual dangers connected with measurement technology.

This manual draws attention to residual dangers with the following symbols:



Symbol:  *Meaning:* Danger to personnel

This symbol warns that severe physical injury or death can result from failing to follow the safety instructions.




Symbol:  *Meaning:* Danger to property

This symbol warns that possible damage to property (destruction of equipment components) can result from failing to follow the safety instructions.

Hints



Symbol:  *Meaning:* Hint

This symbol advises that a useful additional piece of information is given at this point.

Conversions and modifications

The pressure gauge transducer must not be modified from the structural or safety engineering point of view without our express agreement. In the event of any modification we shall be excluded from liability for any resultant damage.

In particular, repairs, soldering work on the motherboards and component exchanges are forbidden. Repairs shall only be carried out by HBM.

Qualified personnel

The pressure gauge transducer is to be used or applied by qualified personnel only, exclusively in accordance with the technical data related to the safety provisions and regulations set out below. In addition, the appropriate legal and safety regulations for each application must be observed during use. This applies with equal force to the use of accessories.

Qualified personnel are persons who are entrusted with installing, assembling, commissioning and operating products and who possess qualifications relevant to their profession.

Accident prevention

Even though the pressure specified as being in the destructive range is a multiple of the final value of the measuring range, the accident prevention regulations supported by the relevant trade safety association must be observed. This means, for example, that if there are any conditions that are not fully limitable, the transducer shall be fitted with a fail-safe rupture panel.

1 List of components supplied

The list of components supplied for the standard version includes the following:

- 1 Pressure gauge transducer
- 1 USIT-Ring U 8.5x5x13,4x1
- 1 USIT-Ring U 22.7x30x2
- 1 User manual P15RAV1

2 Application

Gauge pressure transducers are suitable for measuring static and dynamic pressures of liquids and gases.

3 Mechanical assembly

Before assembling or dismantling the P15RVA1, check that there is no pressure in the line.

The transducer is screwed into a prepared connection piece on the **SW27 hexagon** above the threaded connector.

The P15RVA1 is dust-proof and hose-proof, so that it complies with protection type IP65 in accordance with IEC 529.

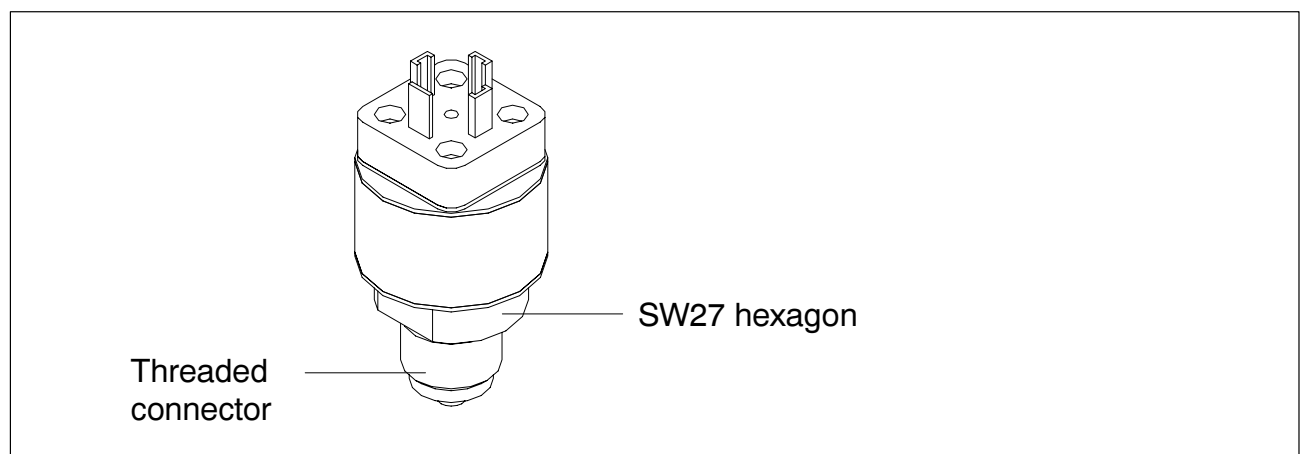


Fig. 1.1: Assembling the pressure gauge transducer



In order to prevent an air-bulge during dynamic measurements, assemble the pressure gauge transducer upside down.

4 Electrical connection

Gauge pressure transducers are fitted with DIN 43 650 plug connectors.

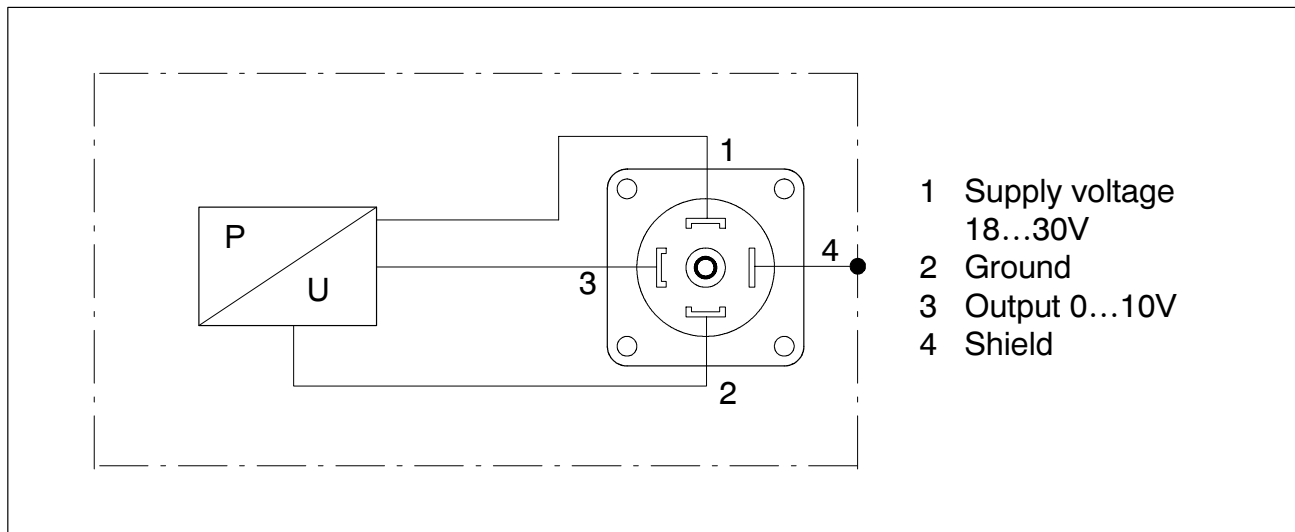


Fig. 1.2: Pin assignment P15RAV1



The gauge pressure transducer has a one-way fitting and is therefore protected against transposition of the supply voltage. If the supply voltage is actually connected to the output (3), this can lead to the electronics being destroyed.

5 Load-carrying capacity(measuring dynamic pressure)

The calibration for static pressures also applies to the measurement of dynamic pressures. It should be noted that in the case of measurement frequencies in the region of the natural frequency, amplitude reinforcement can be expected.

As a rule, design limits imposed on dead volumes, and the volume of gas or liquid in the customer's application, serve to reduce the natural frequency.

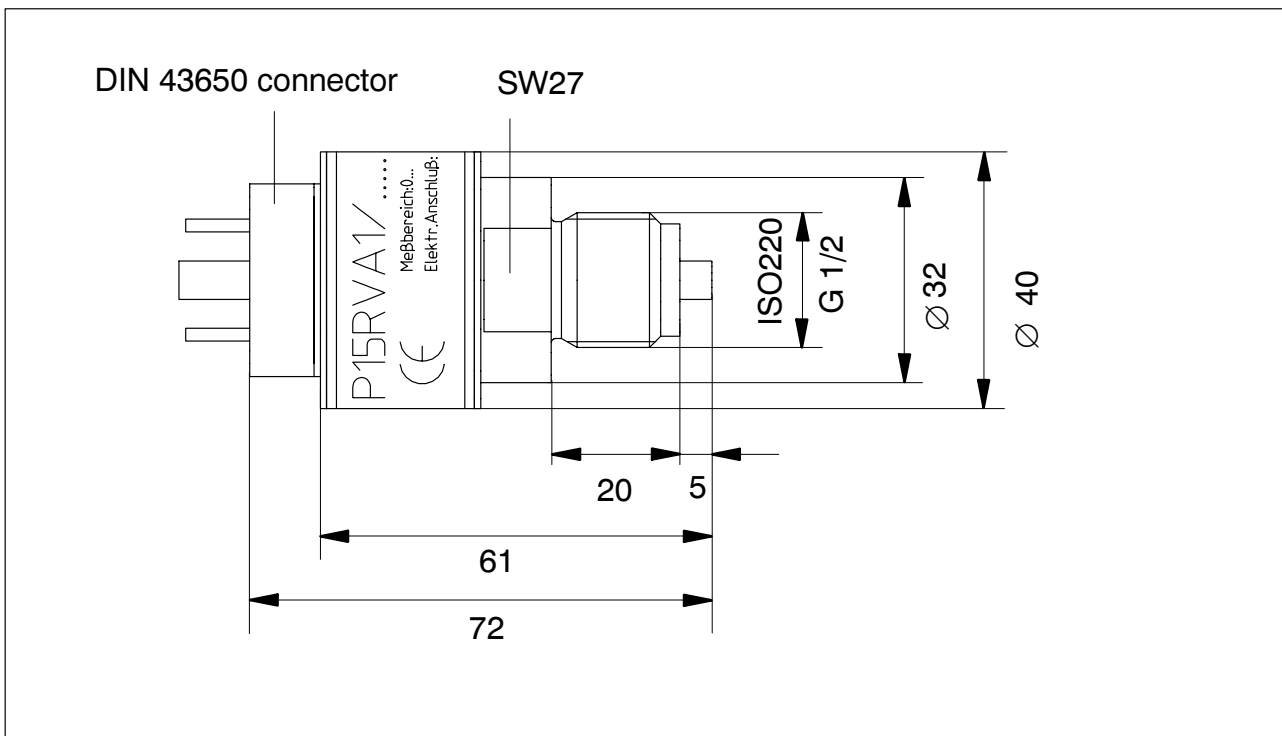
In the case of dynamic loading, peak pressure should not exceed rated pressure. Depending on the measuring range, the peak-to-peak oscillation bandwidth of permitted pressure fluctuations should not exceed 60–95% of the full range value of the measuring range (see Technical Data Page 9).

6 Technical Data (in accordance with DIN 16086)

Type	P15RVA1						
Class of accuracy	1						
Mechanical input characteristics							
Gauge pressure , measurement span Initial value: ambient air pressure	bar	10	20	50	100	200	500
Fundamental resonance frequency of diaphragm	kHz approx.	12	19	29	45	65	85
Overload limits at 23°C	%	200					
Test pressure	%	200					
Destructive range	%	>200					
With dynamic loading	%	100					
permitted pressure	%	100					
permitted oscillation bandwidth (in accordance with DIN 50 100)	%	70	85	85	95	95	60
Material of parts in contact with measurement medium		1.4542 stainless steel					
Dead volume	mm ³	700					
Dead volume alteration	mm ³	2	2	2	0.6	0.5	0.3
Output characteristics							
Output span	V	0...10 ±0.2					
Zero signal	V	0.4 ±0.3					
Temperature coefficient of the zero signal per 10K in rated temperature range	%	<±1; typ. ±0.5					
Temperature coefficient of the output span per 10K in rated temperature range	%	<±0.5; typ. ±0.2					
Characteristic curve deviation, zero setting	%	< ±1; typ. ±0.5					
Highest measurement frequency (-3dB)	kHz	2					
Supply energy							
Supply voltage rated range	V	18...30					
Maximum load resistance	Ohm	900					
Maximum current consumption	mA	30					
Ambient conditions							
Rated temperature range	°C [°F]	-20...+70 [-5...+160]					
Operating temperature range	°C [°F]	-25...+70 [-15...+160]					
Storage temperature range	°C [°F]	-40...+85 [-40...+185]					

Maximum medium temperature when assembled horizontally or hanging downwards, i.e. cooling due to ambient air with max. ambient temperature of +60 >°C	°C [°F]	105 [220]
Impact resistance (type approval in accordance with DIN IEC 68) Impact acceleration	m/s ²	650
Vibration acceleration (frequency range 10Hz...100Hz)	m/s ²	150
EMC (in accordance with IEC801-3)	V/m	10
Protection type (in accordance with DIN 40050, IEC 529)		IP65
External surface materials		1.4301
Weight (with cable socket unplugged)	kg	0.19

7 Dimensions



8 Copy of Declaration of Conformity



**HOTTINGER
BALDWIN
MESSTECHNIK**

HOTTINGER BALDWIN MESSTECHNIK GMBH
Im Tiefen See 45 - D-64293 Darmstadt
Tel. ++49/6151/803-0, Fax. ++49/6151/894896

Konformitätserklärung

Declaration of Conformity

Déclaration de Conformité

Document: 032/04.1995

Wir,

We,

Nous,

Hottinger Baldwin Messtechnik GmbH, Darmstadt

erklären in alleiniger Verantwortung, daß das Produkt

declare under our sole responsibility that the product

déclarons sous notre seule responsabilité que le produit

Druckaufnehmer der Typenreihe P15

auf das sich diese Erklärung bezieht, mit der/den folgenden Norm(en) oder normativen Dokument(en) übereinstimmt (siehe Seite 2) gemäß den Bestimmungen der Richtlinie(n).

to which this declaration relates is in conformity with the following standard(s) or other normative document(s) (see page 2) following the provisions of Directive(s)

auquel se réfère cette déclaration est conforme à la (aux) norme(s) ou autre(s) document(s) normatif(s) (voir page 2) conformément aux dispositions de(s) Directive(s)

89/336/EWG - Richtlinie des Rates vom 3. Mai 1989 zur Angleichung der Rechtsvorschriften der Mitgliedsstaaten über die elektromagnetische Verträglichkeit, geändert durch 91/263/EWG, 92/31/EWG und 93/68/EWG

73/23/EWG - Richtlinie des Rates vom 19. Februar 1973 zur Angleichung der Rechtsvorschriften der Mitgliedsstaaten betreffend elektrische Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen, geändert durch 93/68/EWG

Die Absicherung aller produkt-spezifischen Qualitätsmerkmale erfolgt auf Basis eines von der DQS (Deutsche Gesellschaft zur Zertifizierung von Qualitätsmanagementsystemen) seit 1986 zertifizierten Qualitätsmanagementsystems nach DIN ISO 9001 (Reg.Nr. DQS-10001). Die Überprüfung der sicherheits-relevanten Merkmale (Elektromagnetische Verträglichkeit, Sicherheit elektrischer Betriebsmittel) führt ein von der DATech erstmals 1991 akkreditiertes Prüflaboratorium (Reg.Nr. DAT-P-006 und DAT-P-012) unabhängig im Hause HBM durch.

All product-related features are secured by a quality system in accordance with DIN ISO 9001, certified by DQS (Deutsche Gesellschaft zur Zertifizierung von Qualitätsmanagementsystemen) since 1986 (Reg. No. DQS-10001). The safety-relevant features (electromagnetic compatibility, safety of electrical apparatus) are verified at HBM by an independent testing laboratory which has been accredited by DATech in 1991 for the first time (Reg. Nos. DAT-P-006 and DAT-P-012).

Chez HBM, la détermination de tous les critères de qualité relatifs à un produit spécifique est faite sur la base d'un protocole DQS (Deutsche Gesellschaft zur Zertifizierung von Qualitätsmanagementsystemen) certifiant, depuis 1986, notre système d'assurance qualité selon DIN ISO 9001 (Reg.Nr. DQS-10001). De même, tous les critères de protection électrique et de compatibilité électromagnétique sont certifiés par un laboratoire d'essais indépendant et accrédité depuis 1991 (Reg.Nr. DAT-P-006 et DAT-P-012).

Darmstadt, 18.5.95

Seite 2 zu

Page 2 of

Page 2 du

Document: 032/04.1995

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Richtlinien, beinhaltet jedoch keine Zusicherung von Eigenschaften.
Die Sicherheitshinweise der mitgelieferten Produktdokumentation sind zu beachten.

This declaration certifies conformity with the Directives listed above, but is no asseveration of characteristics.
Safety directions of the delivered product documentation have to be followed.

Cette déclaration atteste la conformité avec les directives citées mais n'assure pas un certain caractère.
S.v.p. observez les indications de sécurité de la documentation du produit ajoutée.

Folgende Normen werden zum Nachweis der Übereinstimmung mit den Vorschriften der Richtlinie(n) eingehalten:

The following standards are fulfilled as proof of conformity with the provisions of the Directive(s).

Pour la démonstration de la conformité aux disposition de(s) Directive(s) le produit satisfait les normes:

EN 50082-1 : 1992

Elektromagnetische Verträglichkeit (EMV); Fachgrundnorm Störfestigkeit; Teil 1: Wohnbereich, Geschäfts- und Gewerbebereiche sowie Kleinbetriebe; Deutsche Fassung

prEN 50082-2 : 1992

Elektromagnetische Verträglichkeit (EMV); Fachgrundnorm Störfestigkeit; Teil 2: Industriebereich; Deutsche Fassung



HOTTINGER BALDWIN MESSTECHNIK GMBH
Postfach 10 01 51, D-64201 Darmstadt
Im Tiefen See 45, D-64293 Darmstadt
Tel.: +49 / 61 51 / 8 03-0; Fax: +49 / 61 51 / 89 48 96
Internet: <http://www.hbm.de>

Modifications reserved.
All details describe our products in general form only. They are not to be understood as express warranty and do not constitute any liability whatsoever.

im - d 02.97 - pod