

Pressure Measurement

Single-range transmitters for general applications

SITRANS LH100 Transmitter for hydrostatic level

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Measuring point setup, generally with junction box 7MF1572-8AA and 7MF1572-8AB cable hanger

Technical specifications

Pressure transmitter SITRANS LH100 (submersible sensor)

Mode of operation

Measuring principle piezo-resistive

Input

Measured variable Hydrostatic level

Measuring range

Measuring range	Max. permissible operating pressure
• 0 ... 3 mH ₂ O (0 ... 9 ftH ₂ O)	• 1.5 bar (21.8 psi) (corresponds to 15 mH ₂ O (45 ftH ₂ O))
• 0 ... 4 mH ₂ O (0 ... 12 ftH ₂ O)	• 1.5 bar (21.8 psi) (corresponds to 15 mH ₂ O (45 ftH ₂ O))
• 0 ... 5 mH ₂ O (0 ... 15 ftH ₂ O)	• 1.5 bar (21.8 psi) (corresponds to 15 mH ₂ O (45 ftH ₂ O))
• 0 ... 6 mH ₂ O (0 ... 18 ftH ₂ O)	• 1.5 bar (21.8 psi) (corresponds to 15 mH ₂ O (45 ftH ₂ O))
• 0 ... 10 mH ₂ O (0 ... 30 ftH ₂ O)	• 3.0 bar (43.5 psi) (corresponds to 30 mH ₂ O (90 ftH ₂ O))
• 0 ... 20 mH ₂ O (0 ... 60 ftH ₂ O)	• 5.0 bar (72.5 psi) (corresponds to 50 mH ₂ O (150 ftH ₂ O))
• 0 ... 0.3 bar	• 1.5 bar
• 0 ... 0.4 bar	• 1.5 bar
• 0 ... 0.5 bar	• 1.5 bar
• 0 ... 0.6 bar	• 1.5 bar
• 0 ... 1 bar	• 3.0 bar
• 0 ... 2 bar	• 5.0 bar

Output

Output signal 4 ... 20 mA

Measuring accuracy

According to IEC 60770-1

Error in measurement at limit setting including hysteresis and reproducibility

0.3% of full-scale value (typical)

Measuring range

• 0 ... 3 mH ₂ O (0 ... 9 ftH ₂ O bzw. 0 ... 0.3 bar)	0.5 % of full-scale value (typical) 1.0% of full-scale value (maximum)
• For all other measuring ranges	0.3 % of full-scale value (typical) 0.6% of full-scale value (maximum)

Influence of ambient temperature

Measuring range

• 3 mH ₂ O (9 ftH ₂ O or 0.3 bar)	Zero and span 0.5 %/10 K of full-scale value
• 4 ... 6 mH ₂ O (12 ... 18 ftH ₂ O or 0.4...0.6 bar)	0.45 %/10 K of full-scale value
• > 6 mH ₂ O (> 18 ftH ₂ O or > 0.6 bar)	0.3 %/10 K of full-scale value

Long-term stability

Measuring range

• 3 mH ₂ O (9 ftH ₂ O or 0.3 bar)	Zero and span 0.4 % of full-scale value/year
• 4 ... 6 mH ₂ O (12 ... 18 ftH ₂ O or 0.4...0.6 bar)	0.25% of full-scale value/year
• > 6 mH ₂ O (> 18 ftH ₂ O or > 0.6 bar)	0.2 % of full-scale value/year

Rated conditions

Ambient conditions

- Process temperature -10 ... +80 °C (14 ... 176 °F)
- Storage temperature -40 ... +80 °C (-40 ... +176 °F)

Degree of protection according to IEC 60529

IP68

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Design	
Weight	
• Pressure transmitter	≈ 0.2 kg (≈ 0.44 lb)
• Cable; maximum cable length 100 m (330 ft)	0.025 kg/m (≈ 0.015 lb/ft)
Electrical connection	Cable with 3 conductors, vent pipe and integrated humidity filter
Material	
• Seal diaphragm	Al ₂ O ₃ ceramic, 96%
• Enclosure	Stainless steel, mat. no. 1.4404/316L
• Gasket	FPM (standard)
	EPDM (optional)
• Connecting cable	PE-HD (standard)
	PE-LD (in the case of versions with EPDM seal, suitable for drinking water)
Auxiliary power	
Terminal voltage on pressure transmitter U_B	10 ... 33 V DC 10 ... 30 V DC for transmitter with intrinsic safety explosion protection
Certificates and approvals	
Drinking water approval (ACS)	Applied for
Drinking water approval (WRAS)	1403525
EAC	№ TC RU C-DE.ГБ05.В.00732 ОС НАИИО «ЦСВЭ»
Underwriters Laboratories (UL)	2014-11-17 - E344532
The transmitter is not subject to the pressure equipment directive (PED 2014/68/EU)	
Explosion protection	
• Intrinsic safety "i"	IECEX SEV 14.0003 SEV 14 ATEX 0109
- Marking	II 1 G Ex ia IIC T4 Ga

Junction box	
Application	for connecting the transmitter cable
Design	
Weight	0.2 kg (0.44 lb)
Electrical connection	2 x 3-way (28 to 18 AWG)
Cable entry	2 x Pg 9
Enclosure material	polycarbonate
Vent pipe for atmospheric pressure	
Rated conditions	
Degree of protection according to IEC 60529	IP65
Cable hanger	
Application	for mounting the transmitter
Design	
Weight	0.16 kg (0.35 lb)
Material	Galvanized steel, polyamide

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Selection and ordering data	Article No.	Order code
Pressure transmitter SITRANS LH100 (submersible sensor) For measurement of the hydrostatic level through submersion, two-wire system, 4...20 mA, enclosure material mat. no. 1.4404 (316L), measuring cell Al ₂ O ₃ ceramic, with permanently mounted PE cable ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	7MF1572-	A
Measuring range Cable length 0 ... 3 mH ₂ O ¹⁾ 10 m 0 ... 4 mH ₂ O 10 m 0 ... 5 mH ₂ O 10 m 0 ... 6 mH ₂ O 10 m 0 ... 10 mH ₂ O 20 m 0 ... 20 mH ₂ O 30 m 0 ... 9 ftH ₂ O ¹⁾ 33 ft 0 ... 12 ftH ₂ O 33 ft 0 ... 15 ftH ₂ O 33 ft 0 ... 18 ftH ₂ O 33 ft 0 ... 30 ftH ₂ O 66 ft 0 ... 60 ftH ₂ O 98 ft 0 ... 0.3 bar ¹⁾ 10 m 0 ... 0.4 bar 10 m 0 ... 0.5 bar 10 m 0 ... 0.6 bar 10 m 0 ... 1 bar 20 m 0 ... 2 bar 30 m Special versions: Measuring ranges for special versions between 0 ... 3 mH ₂ O and 0 ... 30 mH ₂ O or 0 ... 9 ftH ₂ O and 0 ... 100 ftH ₂ O or 0 ... 0.3 bar and 0 ... 3 bar possible. Special cable length/Special measuring range Please add „-Z“ to Article No. and specify Order code and plain text. Note: Indication of measuring range Y0T is always necessary. For evaluation of the maximum possible cable length following data have to be regarded: Transmitter: $C_i = 0 \mu\text{F}$, $L_i = 0 \mu\text{H}$ Cable: $C_k = 0.19 \text{ nF}$ per meter cable $L_k = 1.5 \mu\text{H}$ per meter cable The maximum permitted data of the transmitter's power supply have to be considered! 3 m (10 ft) 5 m (16 ft) 7 m (23 ft) 10 m (33 ft) 15 m (49 ft) 20 m (66 ft) 25 m (82 ft) 30 m (98 ft) 40 m (131 ft) 50 m (164 ft) 60 m (198 ft) ¹⁾ 70 m (231 ft) ¹⁾ 80 m (264 ft) ¹⁾ 90 m (297 ft) ¹⁾ 100 m (330 ft) ¹⁾		1 C 1 D 1 E 1 F 1 H 1 K 2 C 2 D 2 E 2 F 2 H 2 K 3 C 3 D 3 E 3 F 3 H 3 K 9 A H . . + Y 0 T

Selection and ordering data	Article No.	Order code
Pressure transmitter SITRANS LH100 (submersible sensor) For measurement of the hydrostatic level through submersion, two-wire system, 4...20 mA, enclosure material mat. no. 1.4404 (316L), measuring cell Al ₂ O ₃ ceramic, with permanently mounted PE cable Sealing material between sensor and enclosure • FPM (Standard) • EPDM (for drinking water applications) Explosion protection • without • With ATEX II1 G Ex ia IIC T4 Ga and IECEx Ex ia IIC T4 Ga Additional versions Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2, add "-Z" to article no. and add order code. Indication of measuring range (only at special cable lengths) in "... to ... mH ₂ O" or "... to ... ftH ₂ O" or "... to ... bar" Accessories/spare parts Junction box for connecting the transmitter cable Cable hanger for securing the pressure transmitter Protective caps as spare parts (10-pack) Humidity filters as spare parts (10-pack)	7MF1572-	A
		1 2 0 1 Order code C11 Y01 Article No. 7MF1572-8AA 7MF1572-8AB 7MF1572-8AD 7MF1572-8AE

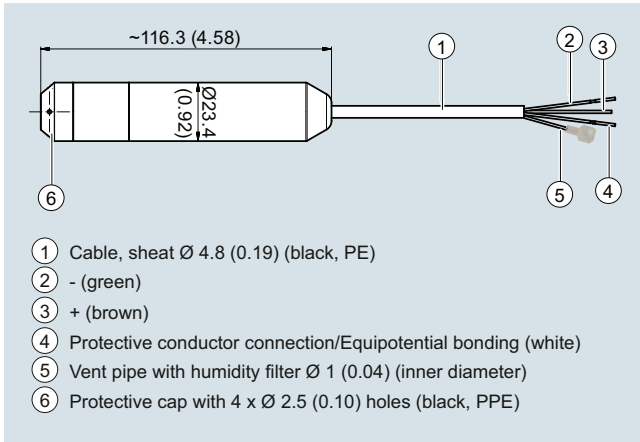
1) Approvals pending.

Pressure Measurement

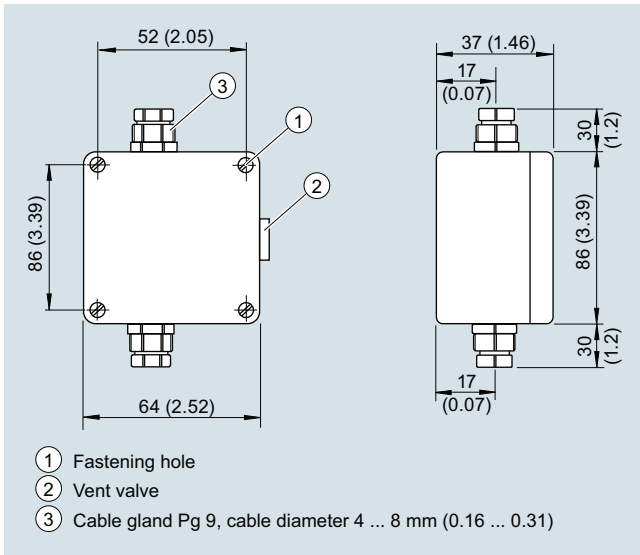
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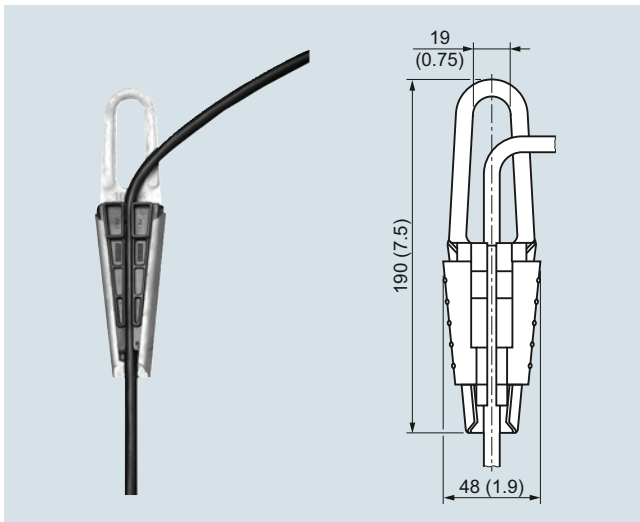
Dimensional drawings



SITRANS LH100 pressure transmitter, dimensions in mm (inch)



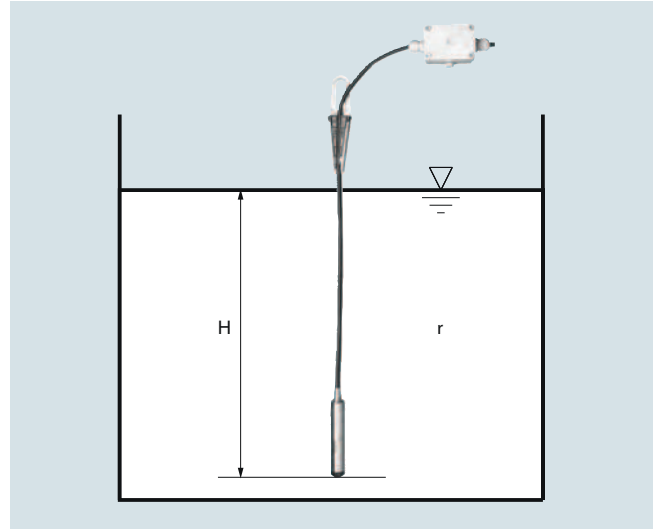
Junction box, dimensions in mm (inch)



Cable hanger, dimensions in mm (inch)

More information

Establishing the measuring range for water as process medium



Calculation of the measuring range:

$$p = \rho \times g \times H$$

with:

ρ = density of medium

g = local acceleration due to gravity

H = maximum level

Example:

Medium: Water, $\rho = 1\,000\text{ kg/m}^3$

Acceleration due to gravity: 9.81 m/s^2

Start-of-scale: 0 m

Maximum level: 6.0 m

Cable length: 10 m

Calculation:

$$p = 1\,000\text{ kg/m}^3 \times 9.81\text{ m/s}^2 \times 6.0\text{ m}$$

$$p = 58\,860\text{ N/m}^2$$

$$p = 589\text{ mbar}$$

Transmitter to be ordered:

7MF1572-1FA10

Plus, if required, junction box 7MF1572-8AA and cable hanger 7MF1572-8AB

EU Declaration of Conformity EU-Konformitätserklärung EU-Déclaration de Conformité



No. A5E33701319A/003

Manufacturer: Siemens AG
Hersteller: Process Industries and Drives
Fabricant: Process Automation
Address: DE-76181 Karlsruhe
Anschrift:
Adresse:

Product description: **Pressure transmitter / Druckmessumformer**
Produktbezeichnung: SITRANS LH100 Type / Typ 7MF1572-abAcD-Z
Identificateur: JUNCTION BOX Type / Typ 7MF1572-e

The product described above in the form as delivered is in conformity with the provisions of the following European Directives:

Das bezeichnete Produkt stimmt in der von uns in Verkehr gebrachten Ausführung mit den Vorschriften folgender Europäischer Richtlinien überein:

Le produit mentionné ci-dessus, tel qu'il est livré, est conforme aux dispositions des Directives Européennes suivantes :

2014/30/EU	Directive of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to electromagnetic compatibility <i>Richtlinie des Europäischen Parlaments und des Rates zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit</i> <i>Directive du parlement Européen et du conseil relative à l'harmonisation des législations des États membres concernant la compatibilité électromagnétique</i>
EMC	
2014/34/EU	Directive of the European Parliament and the Council on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres <i>Richtlinie des Europäischen Parlaments und des Rates zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten für Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen</i> <i>Directive du parlement Européen et du conseil relative à l'harmonisation des législations des États membres concernant les appareils et les systèmes de protection destinés à être utilisés en atmosphères explosibles</i>
ATEX	
2011/65/EU	Directive of the European Parliament and the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
RoHS	<i>Richtlinie des Europäischen Parlaments und des Rates zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten.</i> <i>Directive du parlement Européen et du conseil relative à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques</i>

Karlsruhe, 08.06.2016
Siemens Aktiengesellschaft

Dr. Holger von Both,
Research & Development / Entwicklung
(Name, function / Funktion)

Jürgen Pflaum,
Quality / Qualität
(Name, function / Funktion)

signature / Unterschrift

signature / Unterschrift

Annex A is integral part of this declaration.
Anhang A ist integraler Bestandteil dieser Erklärung.
L'annexe A fait partie intégrante de la présente déclaration

This declaration certifies the conformity to the specified directives but contains no assurance of properties.
The safety documentation accompanying the product shall be considered in detail.
Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Richtlinien, ist jedoch keine Beschaffenheits- oder Haltbarkeitsgarantie nach §443 BGB.
Die Sicherheitshinweise der mitgelieferten Produktdokumentation sind zu beachten.
La présente déclaration atteste la conformité aux Directives citées. Elle n'est pas assimilable à un descriptif justifiant certaines propriétés.
La documentation relative à la sécurité accompagnant le produit doit être examiné en détail.

Siemens Aktiengesellschaft: Chairman of the Supervisory Board: Gerhard Cromme; Managing Board: Joe Kaeser, Chairman, President and Chief Executive Officer; Roland Busch, Lisa Davis, Klaus Helmrich, Janina Kugel, Siegfried Russwurm, Ralf P. Thomas; Registered offices: Berlin and Munich, Germany; Commercial registries: Berlin Charlottenburg, HRB 12300, Munich, HRB 6684; WEEE-Reg.-No. DE 23691322

Annex A to the EU Declaration of Conformity
Anhang A zur EU-Konformitätserklärung
Annexe A de la Déclaration de conformité

No. A5E33701319A/003

Product description: Pressure transmitter / Druckmessumformer
Produktbezeichnung: SITRANS LH100 Type / Typ 7MF1572-abAcd-Z
Identificateur: JUNCTION BOX Type / Typ 7MF1572-e

Conformity to the Directives indicated on page 1 is assured through the application of the following standards (depending on versions):

Die Konformität mit den auf Blatt 1 angeführten Richtlinien wird nachgewiesen durch die Einhaltung folgender Normen (variantenabhängig):

La conformité aux Directives indiquées sur la page 1 est garantie par l'application des normes suivantes (selon les versions):

Directive Richtlinie Directive	Standard / Reference number Norm / Referenznummer Norme / référence	Edition Ausgabedatum Edition	a=	b=	c=	d=	e=
2014/30/EU	EN 61326-1 *	2013	1, 2, 3, 9	A, D, E F, H, K	1, 2	0, 1	8AA
2014/30/EU	EN 61326-2-3 *	2013					
2014/30/EU	EN 55011	2009/A1:2010					
2014/34/EU	EN 60079-0	2012/A1:2013				1	
2014/34/EU	EN 60079-11	2012					
2014/34/EU	EN 60079-26	2007					

Note 1: The manufacturer declares that this product complies with the requirements of the new editions of the standards. The changes of the new editions have been checked and do not affect this product.

* all environments included / beinhaltet alle Umgebungen / dans tout type d'environnement

Certificates:

Zertifikate:

Certificat:

EC-type examination certificate EG-Baumusterprüfbescheinigung Certificat évaluation de type	Marking Kennzeichnung Marquage
SEV 14 ATEX 0109	II 1 G

Inspection / Surveillance:

Kontrolle / Überwachung:

Contrôle / Supervision:

Directive Richtlinie Directive		Notified Body Product Quality Assurance Benannte Stelle Qualitätssicherung Produktion Organisme notifié	No.:
2014/34/EU	ATEX	Sira Certification Service, CSA Group Testing UK Ltd – Unit 6, Hawarden Industrial Park, Hawarden, Deeside, CH5 3US, United Kingdom	0518