

Betriebsanleitung  
Instruction Manual  
Manuel d'instructions

## ***Pressure Transmitter***

### **LHCR-51, LHCS-51**

**4 mA to 20 mA HART, PROFIBUS PA**

**ATEX      II 3G Ex ic IIC T6...T4 Gc**

**IECEX     Ex ic IIC T6...T4 Gc**



**SI004940-C**

**DE** – Sicherheitshinweise für elektrische Betriebsmittel für explosionsgefährdete Bereiche, siehe Seite 5

**EN** – Safety instructions for electrical apparatus for explosion-hazardous areas, see page 9

**FR** – Conseils de sécurité pour matériels électriques destinés aux zones explosibles, regardez à la page 13

SI004940-C/98/A3/16.17  
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## BG

Правила за техниката на безопасност за електрически средства за производство във взривоопасни зони. Ако не разбирате езика на това ръководство има възможност да си поръчате при нас едно ръководство, преведено има езика на Вашата страна.

## ЕС декларация за съответствие

Производителът Pepperl+Fuchs декларира с това заявление за съответствие и с предявяването на сертификата CE, че този продукт отговаря на изискванията на съответните европейски директиви. Прилаганите директиви, норми и документи са указани в заявлението за съответствие.

## CS

Bezpečnostní pokyny pro elektrické přístroje v místech s nebezpečím výbuchu. Pokud nemáte možnost přečíst si tento návod, můžete si u nás objednat návod přeložený do svého jazyka.

## EU prohlášení o shodě

Společnost Pepperl+Fuchs prohlašuje prostřednictvím tohoto prohlášení a použitím značky CE, že tento výrobek vyhovuje příslušným evropským směrnici. Zmíněné směrnice, normy a dokumenty jsou uvedeny v Prohlášení o shodě.

## DA

Sikkerhedsforskrifter for elektriske apparater certificeret til brug i eksplosionsfarlige områder. Hvis du ikke forstår denne manual, kan en oversat kopi af den på dit eget sprog bestilles fra os.

## EU-overensstemmelseserklæring

Med denne overensstemmelseserklæring og tilføjelsen af CE-mærket sikrer producenten Pepperl+Fuchs, at produktet er i overensstemmelse med relevante europæiske direktiver. Dokumentation for overensstemmelsen gives i de anførte direktiver, standarder og dokumenter.

## EL

Οδηγίες ασφαλείας ηλεκτρικών συσκευών για επικίνδυνες για έκρηξη περιοχές. Σε περίπτωση που δεν μπορείτε να διαβάσετε αυτές τις οδηγίες, τότε μπορείτε να παραγγείλετε ένα αντίστοιχο μεταφρασμένο στη γλώσσα σας.

## Δήλωση συμμόρφωσης ΕΕ

Με αυτή τη δήλωση πιστότητας και την τοποθέτηση του σήματος CE ο κατασκευαστής Pepperl+Fuchs δηλώνει, ότι αυτό το προϊόν συμμορφώνεται με τις ευρωπαϊκές οδηγίες που πρέπει να εφαρμοστούν. Οι οδηγίες, τα πορότυπα και τα έγγραφα που εφαρμόστηκαν αναφέρονται στη δήλωση πιστότητας.

## ES

Instrucciones de seguridad de aparatos eléctricos homologados para su utilización en áreas expuestas a riesgos de deflagración. Si no entiende este manual, puede pedir un ejemplar en su idioma.

## Declaración UE de conformidad

Por la presente declaración y la inclusión de la marca CE, el fabricante Pepperl+Fuchs, declara que el producto cumple con las directivas europeas pertinentes. Las directivas, normas y documentos de aplicación se indican en la declaración de conformidad.

## ET

Ohutusjuhised plahvatusohtlikus keskkonnas kasutatavate elektriseadmete kohta. Kui Te ei saa käesolevast juhendist aru, võite meilt tellida Teie riigikeelde tõlgitud juhendi.

## ELI vastavusdeklaratsioon

Tootja Pepperl+Fuchs kinnitab juurdelisatud vastavusdeklaratsiooni esitamise ja CE-märgise kandmisega tootele, et käesolev toode vastab kohaldatavate Euroopa Liidu direktiivide nõuetele. Kohaldatavad direktiivid, standardid ja dokumendid on ära toodud vastavusdeklaratsioonis.

## FI

Turvallisuusohjeita sähkölaitteille, jotka on vahvistettu käytettäväksi räjähdysvaarallisilla alueilla. Jos et ymmärrä tätä käsikirjaa, voit tilata meiltä käännoksen omalla kansallisella kielelläsi.

## EU-vaatimustenmukaisuusvakuutus

Valmistaja Pepperl+Fuchs vakuuttaa täällä vaatimustenmukaisuustodistuksella ja CE-merkin kiinnittämisellä, että tämä tuote täyttää sovellettavien EU-direktiivien määräykset. Sovellettavat direktiivit, normit ja dokumentit on merkitty vaatimustenmukaisuustodistukseen.

## HR

Sigurnosni naputci za elektromaterijal u sredini u kojoj prijeti opasnost od eksplozije. Ako Vam nije moguće čitati ovaj naputak, onda imate mogućnost da kod nas naručite naputak sastavljen na Vašem materinskom jeziku.

## EU izjava o skladnosti

Dobavljajući Pepperl+Fuchs jamči ovom izjavom i stavljanjem oznake CE da ovaj proizvod udovoljava zahtjevima europskih direktiva koje su na snazi. U izjavi o usuglašenosti se navode direktive, norme i dokumenti koji su na snazi.

## HU

Biztonsági információk robbanásveszélyes területre való elektromos eszközökhöz. Amennyiben nem tudja elolvasni ezt az útmutatót, akkor megrendelheti az Ön anyanyelvére lefordítva is.

## EU-megfelelőségi nyilatkozat

Az Pepperl+Fuchs mint gyártó jelen megfeleléségi nyilatkozattal és a CE-jelzés felhelyezésével kijelenti, hogy ez a termék megfelel az alkalmazandó európai irányelveknek. Az alkalmazott irányelvek, szabványok és dokumentumok a megfeleléségi nyilatkozatban fel vannak tüntetve.

## IT

Istruzioni di sicurezza per apparecchiature elettriche certificate per l'utilizzo in aree con pericolo di esplosione. Se il presente manuale non risulta comprensibile potete ordinarne una copia tradotta nella vostra lingua.

## Dichiarazione di conformità UE

Con questa dichiarazione e con l'applicazione del marchio CE, il costruttore Pepperl+Fuchs, assicura che il prodotto è conforme alle direttive europee vigenti. Prova della conformità è fornita dall'osservanza delle direttive, delle norme e dei documenti elencati.

## LT

Elektros įrenginio saugumo nurodymai, susiję su sprogimo zonomis. Jeigu negalite perskaityti šios instrukcijos, kreipkitės į mus, kad užsisakytumėte į jus gimąją kalbą išverstą instrukciją.

## ES atitikties deklaracija

Gaminiojas Pepperl+Fuchs šia atitikties deklaracija ir CE ženkliniu patvirtina, kad gaminyas atitinka taikytinas ES direktyvas. Taikomos direktyvos, normos ir dokumentai yra pateikiami atitikties deklaracijoje.

## LV

Drošības norādījumi elektrisko darba instrumentu lietošanai apgabalos, kas pakļauti sprādzienbīstamībai. Ja Jums nav iespēju izlasīt šos norādījumus, Jūs varat pasūtīt pie mums tulkojumu Jūsu valsts valodā.

## ES atbilstības deklarācija

Ražotājs Pepperl+Fuchs ar šo atbilstības apliecinājumu un CE zīmola lietojumu apstiprina, ka produkts izgatavots saskaņā ar atbilstošajām Eiropas vadlīnijām. Piemērotās vadlīnijas, normas un dokumenti atrunāti atbilstības apliecinājumā.

## NL

Veiligheidsinstructies voor elektrisch materieel in explosiegevaarlijke omgeving. Wanneer u deze handleiding niet kunt lezen, kunt u een in uw landstaal vertaalde handleiding bij ons bestellen.

## EU-conformiteitsverklaring

De leverancier Pepperl+Fuchs waarborgt met deze verklaring en het aanbrengen van het CE-teken, dat dit product overeenstemt met de geldende Europese richtlijnen. De geldende richtlijnen, normen en documenten zijn aangegeven in de conformiteitsverklaring.

## PL

Wskazówki dot. bezpieczeństwa dla urządzeń elektrycznych stosowanych w obszarze zagrożonym wybuchem. Jeśli niniejsza instrukcja napisana jest w języku, którym się nie posługujesz, możesz zamówić u nas przetłumaczony dokument.

## Deklaracja zgodności UE

Producent Pepperl+Fuchs w niniejszej deklaracji zgodności wraz z nadaniem znaku CE oświadcza, że produkt ten jest zgodny z obowiązującą Europejską Dyrektywą. Zastosowane wytyczne, normy oraz dokumenty podane są w deklaracji zgodności.

## PT

Instruções de segurança para dispositivos eléctricos certificados para utilização em áreas de risco de incêndio. Se não compreender este manual, pode encomendar-nos directamente uma cópia na sua língua.

## Declaração UE de conformidade

Com esta declaração de conformidade e a aplicação da marca CE, o fabricante Pepperl+Fuchs, garante que o produto obedece às directivas europeias a aplicar. As directivas, normas e documentos são apresentadas na declaração de conformidade.

## RO

Indicații de siguranță pentru mijloacele de producție electrice pentru zonele periclitare de explozie. Dacă nu puteți citi aceste instrucțiuni, atunci puteți comanda la noi instrucțiunile traduse în limba țării dumneavoastră.

## Declarația UE de conformitate

Producătorul Pepperl+Fuchs declară prin declarația de conformitate alăturată și prin aplicarea semnului CE că acest produs corespunde directivelor europene aplicabile. Directivele, normele aplicate și documentele sunt menționate în declarația de conformitate.

## SK

Bezpečnostné pokyny pre elektrické zariadenie prevádzkované v priestoroch s nebezpečenstvom výbuchu. Ak nemáte možnosť 'prečítať' si tento návod, môžete si u nás objednať návod preložený do svojho jazyka.

## EÚ vyhlásenie o zhode

Spoločnosť Pepperl+Fuchs vyhlasuje prostredníctvom tohto vyhlásenia o konformite a použitím značky CE, že tento výrobok vyhovuje príslušným európskym smerniciam. Zmienené smernice, normy a dokumenty sú uvedené vo Vyhlásení o konformite.

## SL

Varnostni napotki glede električne opreme, namenjene za uporabo v eksplozivnih območjih. Če teh navodil ne morete razumeti, lahko pri nas naročite prevod v vaš jezik.

## Izjava EU o skladnosti

Proizvajalec Pepperl+Fuchs s to izjavo o skladnosti in navedbo oznake CE izjavlja, da je ta izdelek skladen s predpisanimi evropskimi smernicami. Upoštewane smernice, standardi in dokumenti so navedeni v izjavi o skladnosti.

## SV

Säkerhetsföreskrifter för elektrisk utrustning certifierad för användning i explosionsfarliga områden. Om du inte förstår denna manual, kan en översatt kopia på ditt eget språk beställas från oss.

## EU-försäkran om överensstämmelse

Pepperl+Fuchs försäkrar med vidstående försäkran om överensstämmelse och med CE-märkningen att denna produkt överensstämmer med de tillämpbara europeiska riktlinjerna. De tillämpade riktlinjerna, normerna och dokumenten anges i försäkran om överensstämmelse.

**EU-Konformitätserklärung/EU-Declaration of conformity/  
Déclaration UE de conformité**

EU-Declaration of conformity

en/de

EU-Konformitätserklärung

2011/65/EU (RoHS)  
(L174/88-110)

EN 50581:2012-09

■ **Affixed CE Marking / Angebrachte CE-Kennzeichnung**



■ **Signatures / Unterschriften**

Mannheim, 27. Juni 2017

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No. / Nr.: DOC-0250B  
Date / Datum: 2017-06-27

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■ **Declaration of conformity / Konformitätserklärung**

We, Pepperl+Fuchs GmbH declare under our sole responsibility that the products listed below are in conformity with the listed European Directives and standards.

Die Pepperl+Fuchs GmbH erklärt hiermit in alleiniger Verantwortung, dass die unten gelisteten Produkte den genannten Europäischen Richtlinien und Normen entsprechen.

■ **Productfamily / Produktfamilie**

Productfamily / Produktfamilie	Description / Beschreibung
LHCR-51XXXXXXXX-XXXXXXXX-E3	Hydrostatic pressure sensor
LHCS-51XXXXXXXX-XXXXXXXX-E3	Hydrostatic pressure sensor

The „X“ marked letters of the type code are placeholders and replaced by the code described in ANNEX TYPE CODE.

Die mit „X“ markierten Stellen im Typenschlüssel sind Platzhalter und können durch den Schlüssel ersetzt werden der in ANNEX TYPE CODE beschrieben ist.

■ **Directives and Standards / Richtlinien und Normen**

EU-Directive EU-Richtlinie	Standards Normen
2014/30/EU (EMC) (L96/79-106)	EN 61326-1:2006 EN 61326-2-3:2006 EN 61326-2-5:2006
2014/34/EU (ATEX) (L96/309-356)	EN 60079-0:2012 + A11:2013 EN 60079-11:2012

■ **ANNEX TYPE CODE**

The „X“ marked letters of the type code are placeholders and replaced by the following code:

Die mit „X“ markierten Stellen im Typenschlüssel sind Platzhalter und können durch folgenden Schlüssel ersetzt werden:

All products listed above / Alle oben gelisteten Produkte													
LHCR-51 LHCS-51	XXX	X	X	XXX-	X	X	X	X	X	XX	X	X-	E3
Product family	Sensor Range	Cal. and Units	Ref. Accuracy	Process Connection	Probe Connection, Material	Material of Diaphragm	Fill Fluid	Seal	Housing	Output	Electr. Connection	Display, Operation	Certificates

■ **ANNEX ATEX**

We, Pepperl+Fuchs GmbH declare that the products are only affected by minor or formal changes in respect to the new edition of the standards. These changes are not relevant for compliance with the EHSRs and consequently the products still comply with the ATEX Directive.

Die Pepperl+Fuchs GmbH erklärt hiermit, dass die Produkte nur von kleineren oder formalen Änderungen in Bezug auf die neue Ausgabe der Normen betroffen sind. Diese Änderungen sind nicht relevant für die Konformität mit den EHSRs, weshalb die Produkte nach wie vor die ATEX-Richtlinie erfüllen.

The Type-Examination and the marking as category 3 G equipment was performed in accordance with the following standards:

Die Baumusterprüfung und die Kennzeichnung als Kategorie 3 G Betriebsmittel wurden nach den folgenden Normen durchgeführt:

EN 60079-0:2012  
EN 60079-11:2012

■ **Marking and Certificates / Kennzeichnung und Zertifikate**

Products / Produkte	All products listed above / Alle oben gelisteten Produkte	
Marking Kennzeichnung	Certificate Zertifikat	Issuer ID Aussteller ID
Ex II 3 G	PF 13 CERT 2899	PF

■ **Key for Issuer ID / Schlüssel zur Aussteller ID**

ID	Issuer / Aussteller
PF	Pepperl + Fuchs GmbH Lilienthalstraße 200 68307 Mannheim Germany



# Pressure Transmitter LHCR-51, LHCS-51

4 mA to 20 mA HART, PROFIBUS PA

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EN

**Associated documentation**

This document is an integral part of the following documents:

- BA00382O (HART)
- BA00383O (PROFIBUS PA)

The documents which are supplied and correspond to the device type apply.

**Supplementary documentation**

Explosion protection compendium

**Manufacturer's certificates**

**EU-Declaration of conformity**

see page 3

**ATEX certificate**

Certificate number: PF 13 CERT 2899

List of applied standards: see page 3

**IEC certificate**

Certificate number: IECEx DEK 13.0056

Affixing the certificate number certifies conformity with the following standards (depending on the device version).

- IEC 60079-0:2011
- IEC 60079-11:2011+ Corr. 1:2012

**Manufacturer address**

Pepperl+Fuchs GmbH  
Lilienthalstraße 200, 68307 Mannheim, Germany  
Internet: www.pepperl-fuchs.com

**Other standards**

Among other things, the following standards shall be observed for proper installation:

- IEC/EN 60079-14:2012: "Explosive atmospheres - Part 14: Electrical installations design, selection and erection"
- EN 1127-1:2011: "Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology"

**Extended order code**

The extended order code is indicated on the nameplate, which is affixed to the device in such a way that it is clearly visible. Additional information about the nameplate is provided in the associated manual.

Structure of the extended order code

Device type		Basic specifications		Optional specifications
LHCR-51	-	XXXXXXXXXXXX-XX	+	X.XXXX
LHCS-51	-	XXXXXXXXXXXX-XX	+	X.XXXXX

X = Placeholder

At this position, an option (number or letter) selected from the specification is displayed instead of the placeholders.

**Basic specifications**

The features that are absolutely essential for the device (mandatory features) are specified in the basic specifications. The number of positions depends on the number of features available.

The selected option of a feature can consist of several positions.

**Optional specifications**

The optional specifications describe additional features for the device (optional features). The number of positions depends on the number of features available.

More detailed information about the device is provided in the following tables. These tables describe the individual positions and IDs in the extended order code which are relevant to hazardous locations.

**Basic specifications**

Output		
Position	Option	Description
LHCR-51-XXXXXXXXXX-XXX-XX	H	4 mA ... 20 mA HART
LHCS-51-XXXXXXXXXX-XXX-XX	P	PROFIBUS-PA

Approval		
Position	Option	Description
LHCR-51-XXXXXXXXXXXX-XX	E3	ATEX II 3G Ex ic IIC T6...T4 Gc
LHCS-51-XXXXXXXXXXXX-XX	IE	IECEX Ex ic IIC T6...T4 Gc

**Optional specifications**

No options specific to hazardous locations are available.

**Safety instructions:**  
**General**

- Comply with the installation and safety instructions in the manual.
- Staff must meet the following conditions for mounting, electrical installation, commissioning and maintenance of the device:
  - Be suitably qualified for their role and the tasks they perform
  - Be trained in explosion protection
  - Be familiar with national regulations
- Install the device according to the manufacturer's instructions and national regulations.
- Only use the device in media to which the wetted materials have sufficient durability.
- Avoid electrostatic charging:
  - Of plastic surfaces (e. g. housing, sensor element, special varnishing, attached additional plates, ...)
  - Of isolated capacities (e. g. isolated metallic plates)

**Safety instructions:**  
**Special conditions**

- In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
- For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
- In the event of additional or alternative special varnishing on the housing or other metal parts:
  - Observe the danger of electrostatic charging and discharge.
  - Do not rub surfaces with a dry cloth.

**Safety instructions:**  
**Installation**

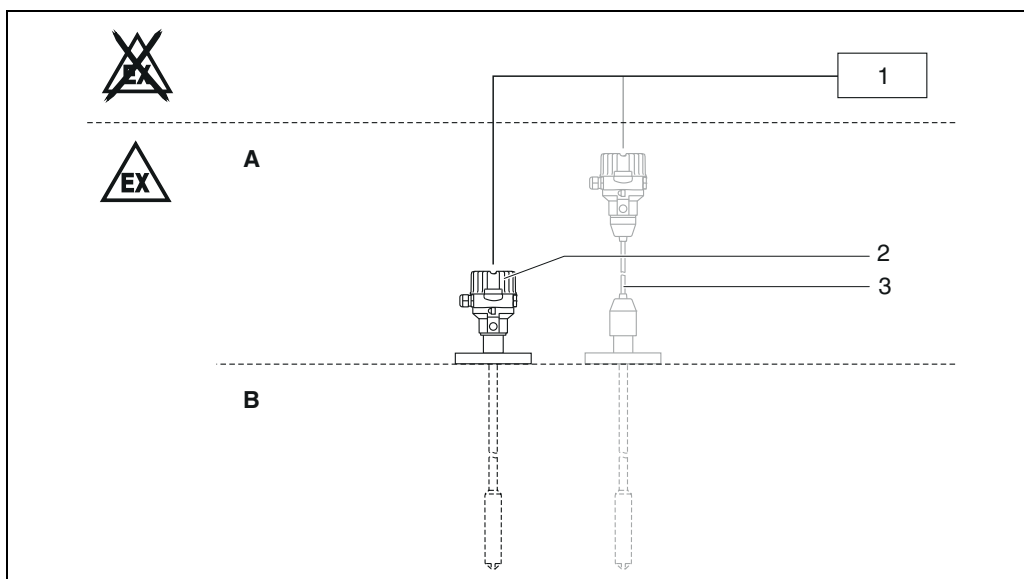


Figure 1

- A Zone 2, Electronic
- B Zone 2, Process
- 1 Certified associated apparatus
- 2 LHCR-51, LHCS-51
- 3 Option: separate housing

**Device type LHCR-51**

Mechanically fix probes which are more than 3 m (e. g. using guy ropes).

**Device type LHCS-51**

- Avoid electrostatic charging of the cable.
- Secure probes against swinging.

**Intrinsic safety**

The intrinsically safe input power circuit of the device is isolated from ground. The dielectric strength is at least 500 V<sub>rms</sub>.

**Service connection**

Basic specification, feature output, option H

- For service operations a field communicator can be connected to the display socket.
- Comply with the safety instructions of the field communicator.

**Temperature tables**

**Device type LHCR-51**

Type of protection	Temperature class	Process temperature T <sub>p</sub>	Ambient temperature T <sub>amb</sub> (housing)
Ex ic IIC T6...T4 Gc	T6	≤ 80 °C	-40 °C to +40 °C
	T4	≤ 85 °C	-40 °C to +70 °C

- Do not exceed the max. ambient temperature at the housing.
- The process temperatures refer to the temperature at the rod.

**Device type LHCS-51**

Type of protection	Temperature class	Process temperature T <sub>p</sub>	Ambient temperature T <sub>amb</sub> (housing)
Ex ic IIC T6...T4 Gc	T6	≤ 80 °C	-40 °C to +40 °C
	T4	≤ 80 °C	-40 °C to +70 °C

- Do not exceed the max. ambient temperature at the housing.
- The process temperatures refer to the temperature at the cable.

**Connection data**

Basic specification, feature output, option H

Power supply	
U <sub>i</sub>	≤ 45 V DC
I <sub>i</sub>	≤ 300 mA
P <sub>i</sub>	≤ 1 W
C <sub>i</sub>	≤ 10 nF
L <sub>i</sub>	= 0

Basic specification, feature output, option P

Power supply			
FISCO	Entity		
U <sub>i</sub>	≤ 17.5 V DC	U <sub>i</sub>	≤ 32 V DC
I <sub>i</sub>	≤ 500 mA	I <sub>i</sub>	≤ 250 mA
P <sub>i</sub>	≤ 5.5W	P <sub>i</sub>	≤ 1.2 W
C <sub>i</sub>	≤ 5 nF	C <sub>i</sub>	≤ 5 nF
L <sub>i</sub>	≤ 10 μH	L <sub>i</sub>	≤ 10 μH







With regard to the supply of products, the current issue of the following document is applicable: The General Terms of Delivery for Products and Services of the Electrical Industry, published by the Central Association of the "Elektrotechnik und Elektroindustrie (ZVEI) e.V." including the supplementary clause: "Erweiterter Eigentumsvorbehalt".

# PROCESS AUTOMATION – PROTECTING YOUR PROCESS



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09/2017