

Ex MANUAL

**Explosion Protection
Intrinsic Safety acc. To IEC/ATEX/UL**

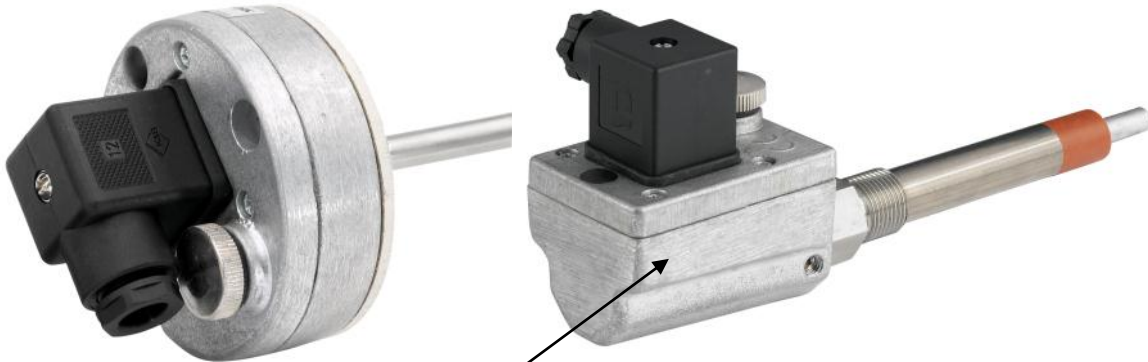


**Long & Shortstroke Position Sensor
Type SA96DX-I/Ex & SLCD-M1/_Ex**

ATEX....IECEX....cULus approved

Longstroke: SA96DX-I/Ex

Shortstroke: SLCD-M1/_Ex



HB Products A/S Bøgekildevej 21 DK-8361 Hasselager	Serial no. / year: type SLCD - M1/25/Ex	0359 II 2G IP65 EEX ib IIC T5 DEMKO 05 ATEX 135657 IECEX ULD 06.0009 Ex ib IIC T5	Class I, DIV. 2, Group A,B,C,D Control Drawing: A038 - cULus Temp. Code: T5, -20°C <Ta< +70°C	 LISTED Process Control Equipment For use in Hazardous Location 35 MHA
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Combined Temp. plate for ATEX....IECEX.....cULus

Important information:

Keep updated by reading our "Index of history" (last page of this manual)

ISO 9001 : 2000



HB

Products

POSITION & LEVEL SENSORS

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Note:

Keep updated by reading our “Index of history” (last page of this manual)



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX ULD 06.0009** Issue No.: **0**
Status: **Current**
Date of Issue: **2006-05-09** Page 1 of 3
Applicant: **HB Products A/S**
Jegstrupvej 34
8361 Hasselager
Denmark
Electrical Apparatus: **Longstroke/Shortstroke Displacement Sensors**
Optional accessory: **None**
Type of Protection: **Intrinsic Safety "I"**
Marking: **IECEX ULD 06.0009**
Ex ib IIC T5
Li: 1mH; Ci: 50nF; Ui: 26,5 V, Ii: 116mA;
Pi: 0.95W
-20 °C < Ta < +70 °C

Approved for issue on behalf of the IECEx
Certification Body:

UL Internationa Demko A/S

Position: *Certification Manager*

Signature: *KARINA CHRISTIANSEN*
(for printed version)

Karin

Date: *18/5-06*

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

UL International DEMKO A/S

Lyskaer 8
P O Box 514
2730 Herlev
Denmark



[1] **EC-TYPE EXAMINATION CERTIFICATE**



[2] **Equipment or Protective System intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

[3] EC-Type Examination Certificate Number: **DEMKO 05 ATEX 135657**

[4] Equipment or Protective System: **Long Stroke/Short Stroke displacement sensor**

[5] Manufacturer: **H.B. Products A/S**

[6] Address: **Jegstrupvej 34, DK-8361 Hasselager**

[7] This equipment or protective system and any acceptable variation there to is specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. 135657

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 50014: 1997 E incl. A1+A2 **EN 50020: 2002E.**

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

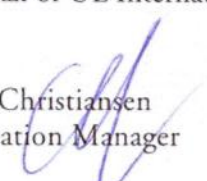
[11] This EC-Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by the certificate.

[12] The marking of the equipment or protective system shall include the following:

Ex II 2 G EEx ib IIC T5

On behalf of UL International Demko A/S

Herlev, 2005-12-07


Karina Christiansen
Certification Manager

Note: This is only page 1 in the Certificate.

UL International Demko A/S

Lyskaer 8, P.O. Box 514
DK-2730 Herlev, Denmark
Telephone: +45 44856565
Fax: +45 44856500

Certificate: 05 ATEX 135657

This certificate may only be reproduced in its entirety and without any change, schedule included



An Affiliate of
**Underwriters
Laboratories Inc.**

P1

Certificate of Compliance

Certificate Number 160506 - E303865
Report Reference E303865, April 7th, 2006
Issue Date 2006 May 16

Page 1 of 1



Issued to: **HB PRODUCTS AS**
JEGSTRUPVEJ 34
8361 HASSELAGER DENMARK


This is to certify that representative samples of **Class I, Division 2 Group ABCD Hazardous**
Longstroke type SA96DX-I/xxx/Ex and Shortstroke type SLCD-M1/xx/Ex for use in Class I, Division 2 Group ABCD Hazardous Locations when installed in accordance with control drawing No. A038cULus.

Have been investigated by Underwriters Laboratories Inc.® in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: **ANSI/ISA-12.12.01-2000 - Nonincendive Electrical Equipment for use in Class I and II, Division 2 and Class III, Divisions 1 and 2, Hazardous (Classified) Locations**
CSA C22.2 n.213 - Non-incendive Electrical Equipment for use in Class I, Division, Hazardous Locations

Additional Information: **RATINGS:**
For all covered Longstroke and Shortstroke versions of position transmitters
Vi: 26.5V - Ii: 116mA
Pi: 950mW - Ci: 50nF
Li: 1mH

Only those products bearing the UL Listing Mark for the US and Canada should be considered as being covered by UL's Listing and Follow-Up Service meeting the appropriate requirements for US and Canada.

The UL Listing Mark for the US and Canada generally includes: the UL in a circle symbol with "C" and "US" identifiers:  the word "LISTED"; a control number (may be alphanumeric) assigned by UL; and the product category name (product identifier) as indicated in the appropriate UL Directory.

Look for the UL Listing Mark on the product

Issued by: *Ole Olsen*
Ole Olsen, Project Engineer

UL International Demko A/S

Any information and documentation provided to you involving UL Mark services are provided on behalf of Underwriters Laboratories Inc.
For questions in Denmark, you may call +45 44856565.

Reviewed by: *Klaus M. Hansen*
Klaus M. Hansen, Project Engineer

UL International Demko A/S



HB Products A/S
Bøgekildevej 21

DK-8361 Hasselager

VAT (CVR): DK-26693934

Phone: +45 8747 6200

E-Mail: info@hbproducts.dk

Fax: +45 8747 6209

Web: www.hbproducts.dk

DECLARATION OF CONFORMITY

We,

HB Products A/S

declare under our sole responsibility that the product:

Category:.....Instrumentation

Types:.....SA96DX-I/Ex, SLCD-M1/25/Ex, SLCD-M1/70/Ex.

Description:.....Longstroke and Shortstroke transmitters based on inductive measuring principles.

Manufacturer:....Developed and produced by HB Products A/S, Bøgekildevej 21, DK-8361 Hasselager.

to which this declaration relates is in conformity with the ATEX standards noted below:

EN 60079-0: 2009 Electrical apparatus for potentially explosive atmospheres.

EN 60079-11: 2007 Electrical apparatus for potentially explosive atmospheres. Intrinsic safety "i" (2002E).

Conformity Assessment: **EEx ib IIC T5, -20°C <Tamb > +70°C, IP65**

EC-Type Certificate no.: DEMKO 05 ATEX 135657

PQAN: Intertek, ID # 0359

Following the provision of European directives:

94/9/EC European Parliament and Council, 23.March 1994

Together with PEPPERL + FUCHS Safety Isolated Barriers

Type: KFD2-STC4-EX1-Y204907 & KFD2-STC4-EX1-Y2-231387

Guarantee HB Products A/S for using this sensor in hazardous area

Date: 18/10-2012

Signed: 

Name: Michael Elstrom, Managing Director

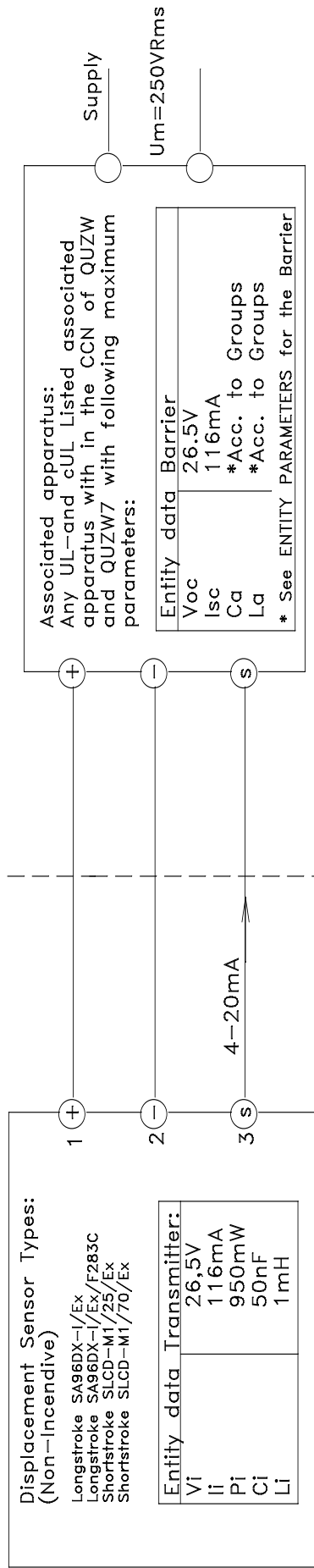
Declaration of Conformity - HB Products - Long and Shortstroke sensors.doc

Control Drawing no. A038-CDcULus

Hazardous Area Location

Nonhazardous Area

Class I Division 2. Groups A,B,C,D
 Operating Temperature Code: T5
 Maximum ambient temp.: 70C



Installation must be performed in accordance with the National Electric Code, NFPA 70, Article 501.10


Note:
 The sum of capacitance and inductance of cable and intrinsic safe equipment must be less or equal to Ca and La acc. to the installation groups A, B, C & D. Voc and Isc have to be less than or equal to Vmax (Vi) and Imax (Ii) for the displacement Sensor and the Listed values of Ca and La for the associated apparatus are greater than Ci + Ccable and Li + Lcable, respectively, for the displacement Sensor.

History:
 30-04-09, change of PEPPERL+FUCHS Barrier
 Old type is KFD2-CR-CX1.30300
 New type is Any UL-and cUL Listed associated Barrier

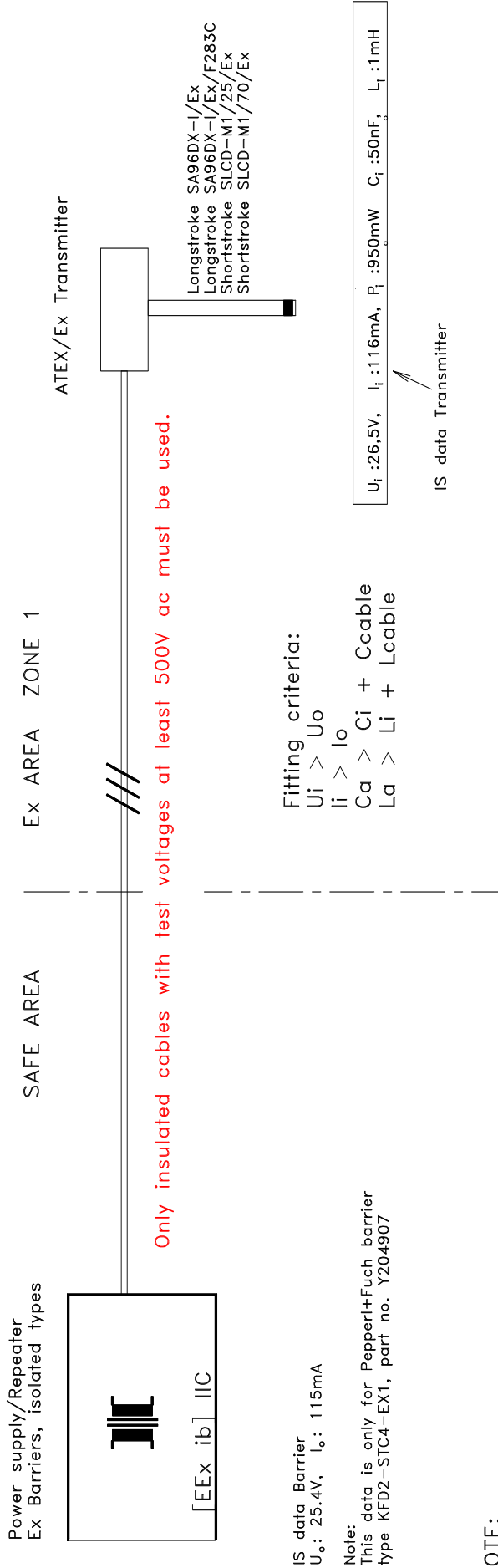
Note:
 HB Products have tested and recommend PEPPERL+FUCHS Barrier type "KFD2-STC4-EX1, part no. Y204907"

Ca > Ci + Ccable
 La > Li + Lcable

Date:	03-05-06	Rev.no:	01
Rev. Date:	30-04-09	Rev. no:	02
Rev. Date:			

	
CONTROL DRW.: SA96DX-I/xxx/Ex, SLCD-M1/xx/Ex	
Const: ME	Drawing no. A038cULus
Page: 1	Page: 1
Manufacturer: HB Products A/S Bøgekildevej 21 DK-8361 Hasselager	

Installation example in Ex area zone 1



NOTE:

POWER SUPPLY/AMPLIFIER HAS TO MEET FOLLOWING DATA:

SUPPLY VOLTAGE : 12-26,5V DC

SHORT-CIRCUIT CURRENT : min. 50mA

TRANSFORMER TYPE: Isolated

APPROVAL: ATEX

When used in Ex-area the installation has to be carried out according to standards in force for the country in question.

The Equipment must be electrically connected via an approved and certified galvanically isolated interface barrier placed outside the hazardous area.

History:

26-02-07, IP rating change from IP20 to IP65.

21-04-08, Company address change to Bøgekildevej 21.

01-09-08, Change of PEPPERL+FUCH Barrier

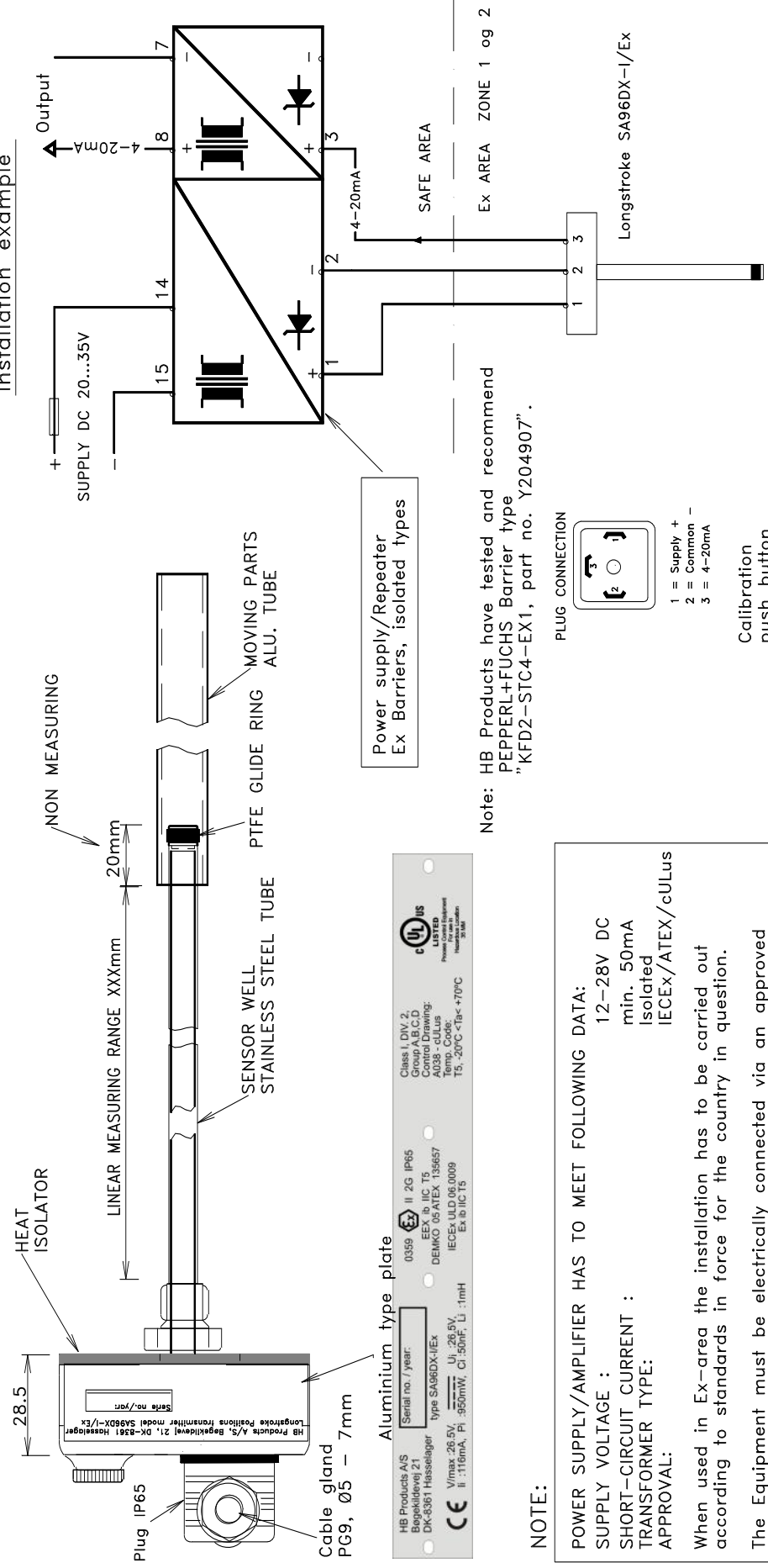
Old type is KFD2-CR-CX1.30300

New type is KFD2-STC4-EX1, part no. Y204907

ATEX log: SA96DX-I	HB Products A/S Bøgekildevej 21 DK-8361 Hasselager	INSTALLATION: SA96DX-I/F283C/SLCD-M1___/Ex
No. A002 page 2	Const: ME	Drawing no. SA96EX02
		Page: 2 of 2
		Approved by: <i>UL-Demko</i>

Date:	26-02-07	Rev. no.	1.0
Rev. date:	21-04-08	Rev. no.	1.1
Rev. date:	01-09-08	Rev. no.	1.1
Rev. date:		Rev. no.	

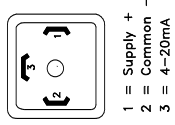
Installation example



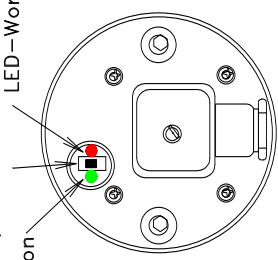
Power supply/Repeater
Ex Barriers, isolated types

Note: HB Products have tested and recommend
PEPPERL+FUCHS Barrier type
"KFD2-STC4-EX1, part no. Y204907".

PLUG CONNECTION



Calibration
push button



NOTE:

POWER SUPPLY/AMPLIFIER HAS TO MEET FOLLOWING DATA:
 12-28V DC
 min. 50mA
 Isolated
 IECEx/ATEX/cULus

When used in Ex-area the installation has to be carried out according to standards in force for the country in question.

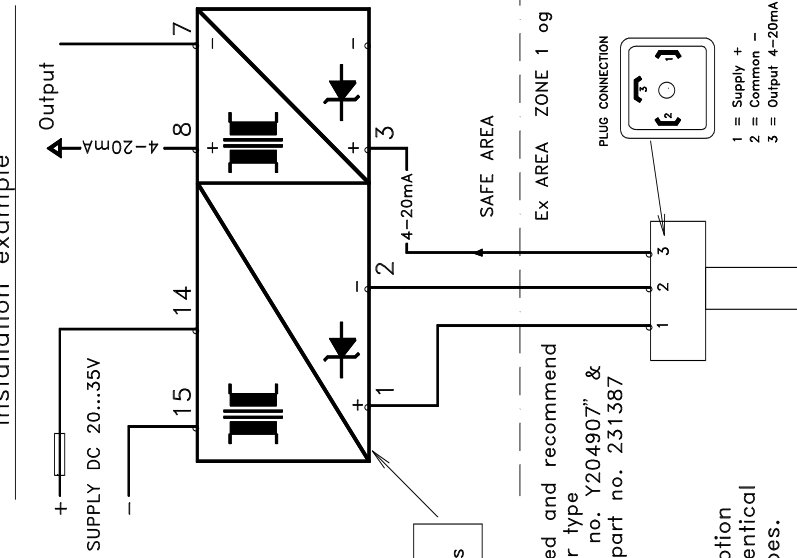
The Equipment must be electrically connected via an approved and certified galvanically isolated interface barrier placed outside the hazardous area.

History:
 26-02-07, IP rating change from IP20 to IP65.
 21-04-08, Company address change to Bøgekildevej 21.
 01-09-08, Change of PEPPERL+FUCH Barrier.
 New type is KFD2-STC4-EX1, part no. Y204907.
 24-04-12, Combined marking/temp. plate.
 18-10-12, Change of PEPPERL+FUCH Barrier.
 New type is KFD2-STC4-EX1-Y2, part no. 231387.

Date:	01-09-08	Ver. no.	01
Ver. date:	04-02-10	Ver. no.	01
Ver. date:	16-09-10	Ver. no.	01
Ver. date:	24-04-12	Ver. no.	01
Ver. date:	18-10-12	Ver. no.	01

ATEX log: SA96DX-I		INSTALLATION SA96DX-I/Ex	
No. A 002		Const: ME	
HB Products A/S Bøgekildevej 21 DK-8361 Hasselager		Drawing no. SA96DXEX	
Approved by: UL-Demko		Page:	

Installation example

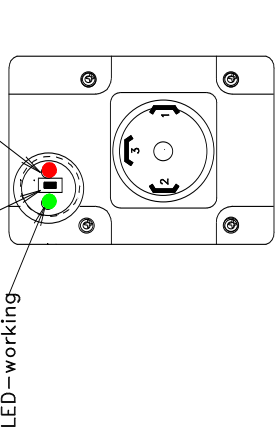


Note:
 HB Products have tested and recommend
 PEPPERL+FUCHS Barrier type
 "KFD2-STC4-EX1, part no. Y204907" &
 "KFD2-STC4-EX1-Y2, part no. 231387"

Note:
 Calibration instruction/description
 is on next page, and it's identical
 for Short and Longstroke types.

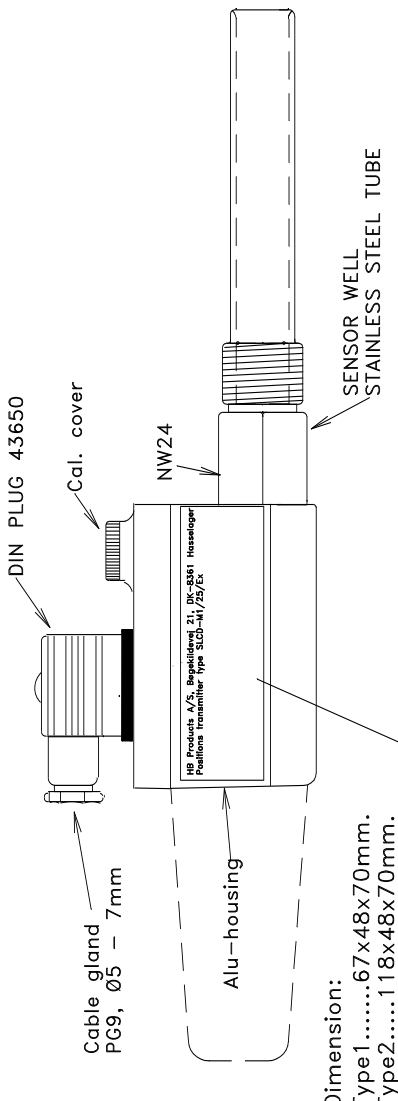
Shortstroke type 1, 25mm: SLCD-M1/25/Ex
 Shortstroke type 2, 70mm: SLCD-M1/70/Ex

Date:	30-04-09	Ver. no.	1.0
Rev. date:	16-04-10	Ver. no.	1.0
	16-09-10	Ver. no.	1.0
	24-04-12	Ver. no.	1.0
	18-10-12	Ver. no.	1.0
Approved by:		UL-Demko	



INSTALLATION SLCD-M1/xx/Ex	
Const: ME	Drawing no. SLCDEX01
Page: 5	

ATEX log: SA96DX-1	HB Products A/S Bøgekildevej 21 DK-8361 Hasselager
No. A003	



Aluminium type plate: 1xW. 90x20mm

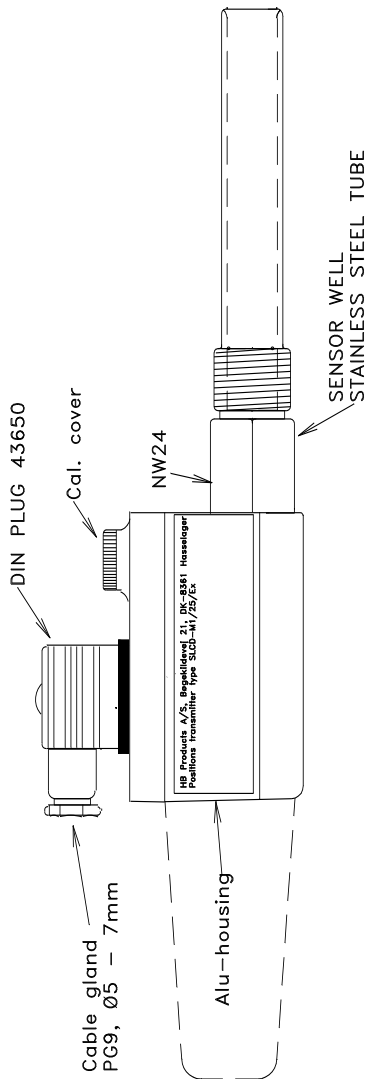
HB Products A/S Bøgekildevej 21 DK-8361 Hasselager	Serial no. / year:	0359	Class I, DIV. 2, Group A,B,C,D
CE	Type SLCD - M1/25/Ex	EX II 2G IP65	ES, b, IC, TS
Vmax: 26.5V	Ui: 26.5V	DEMKO 05/ATEX 135657	AG38 - cULus
II: 116mA, PI: 950mW, CI: 50mF, LI: 1mH	IECEx ULD 06.0009	Temp. Code:	Temp. Code:
	Ex Ib IIC T5	T5: -20°C <Tbc <+70°C	

NOTE:
 POWER SUPPLY/AMPLIFIER HAS TO MEET FOLLOWING DATA:
 SUPPLY VOLTAGE : 12-26.5V DC
 SHORT-CIRCUIT CURRENT : min. 50mA
 TRANSFORMER TYPE: Isolated
 APPROVAL: IECEx/ATEX/cULus

When used in Ex-area the installation has to be carried out according to standards in force for the country in question.

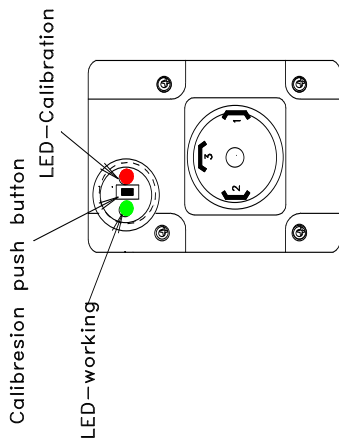
The Equipment must be electrically connected via an approved and certified galvanically isolated interface barrier placed outside the hazardous area.

History:
 26-02-07, IP rating change from IP20 to IP65.
 21-04-08, Company address change to Bøgekildevej 21.
 01-09-08, Change of PEPPERL+FUCH Barrier.
 New type is KFD2-STC4-EX1, part no. Y204907.
 16-04-10, Electrical connection is change to show only standard type.
 24-04-2012, Combined marking/temp. plate.
 18-10-2012, Change of PEPPERL+FUCH Barrier.
 New type is KFD2-STC4-EX1-Y2, part no. 231387.



IECEX, ATEX, cULus types:

To save power, the LED's switch OFF after 5min.
To activate the LED push once on the push button.



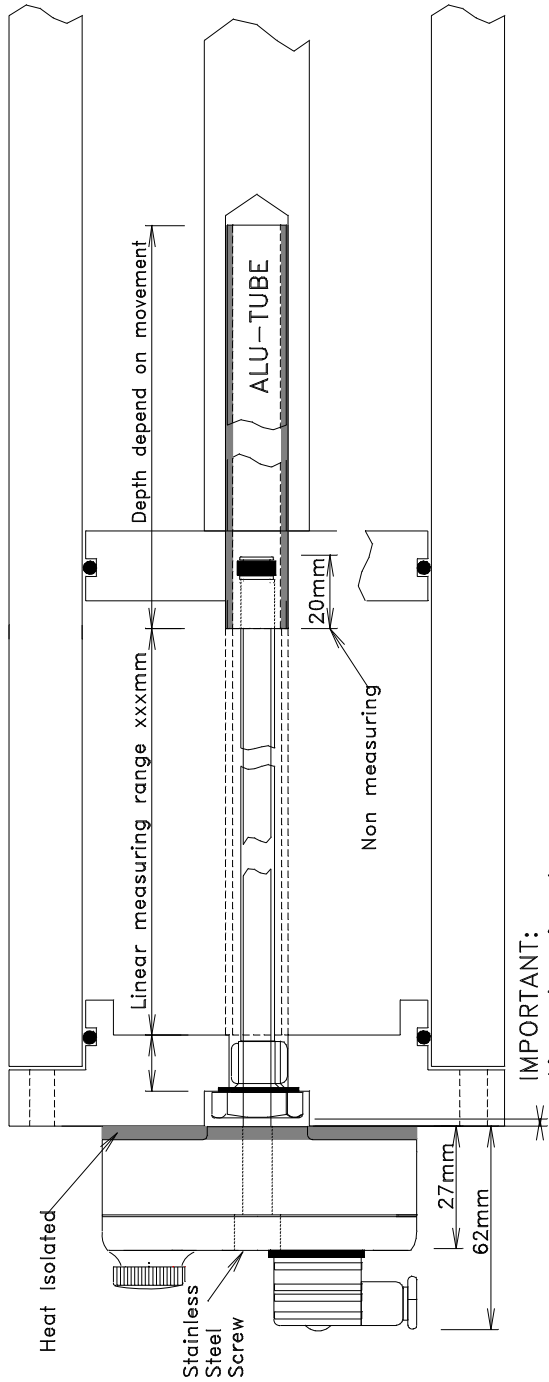
* Reverse on mA output is done automatically when you select/chose the 0% point (4mA).

Calibration must be done before operation:

1. Before connecting voltage to the sensor, check wiring connections are correct on the plug as per connection drawing at top right of this page.
2. Apply supply voltage for a minimum of 1 minute before calibration.
3. Enable calibration mode by pressing the calibration button for 5 seconds.
4. Move slide valve to 0% position and push calibration button ONCE. The red LED will light up constantly (ON) for some seconds. When the red LED flashes it will indicate that the unit is ready for 100% calibration.
5. Now move the slide valve to 100% position and push the calibration button TWICE. The red LED will flash rapidly. When the red LED goes off the calibration procedure is complete.
6. The red and green LED's will remain working for a further 2 to 4 minutes, power safe mode will switch the LEDs off.

ATEX log: SLCDEX01	HB Products A/S Bøgekildevej 21 DK-8361 Hasselager		INSTALLATION SLCD-M1 / xx/Ex		Date: 24-04-12	Ver. no. 1.0
	No. A003, page 2	Const: ME	Drawing no. SLCDEX02	Page: 2		
				Approved by: UL-Demko		

Mounting Instruction for all Longstroke Transmitters type SA96DX-I/xxx/Ex



NOTE:

Heat isolator should be mounted between kompressor and alu-housing, fixed with M6 stainless steel Head Cap Screw, to avoid heat transmission from the kompressor to the transmitter housing.

IECEx, ATEX and cULus types:

To save power on the EX type the LED's switch OFF after 5min.
To activate the LED push once on the push button.

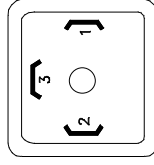
Calibration must be done before operation:

1. Apply Supply voltage min. 5 min. before Calibration.
2. Push the Cal. switch for 5 sek. to get the transmitter in Calibration mode the red LED change from normal flash to OFF.
3. Move the Slide valve to 0% position, and then push the calibration's button once, the red LED is now constantly ON, when the red LED switch OFF its ready for 100% calibration.
4. Now move the Slide valve to 100% position, and push the calibration button twice, the red LED flash quickly, when the red LED flash normally the calibration is done.

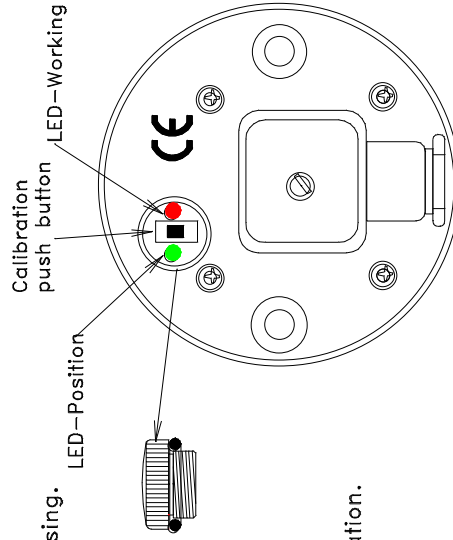
* The green LED indicate end position.

- <1% = green LED flash.
- >99% = green LED ON.

PLUG CONNECTION



- 1 = SUPPLY +
- 2 = COMMON -
- 3 = OUT 4-20mA



History:
16-04-10, Electrical connection is change to show only standard type.

Index of history

History:

26-02-2007, IP rating changes from IP20 to IP65.

21-04-2008, Company address changes to Bøgekildevej 21, DK-8361 Hasselager

01-09-2008, change of PEPPERL+FUCHS Barrier, new type is
"KFD2-STC4-EX1, part no. Y204907"

Old type, "KFD2-CR-CX1.30300"

18-10-2012, change of PEPPERL+FUCHS Barrier, new type is

" KFD2-STC4-EX1-Y2, part no. 231387".

Old type, " KFD2-STC4-EX1, part no. Y204907"

Note: This position sensor is tested to work with a PEPPERL+FUCHS special barrier type KFD2-STC4-EX1, part no. Y204907 & KFD2-STC4-EX1-Y2, part no. 231387, both types is exclusive made for HB Products A/S.

We recommend that you buy this barrier together with the Ex sensor.