IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx BAS 09.0080X**

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Status: **Current**

Issue No: 10

Date of Issue: 2023-09-14

Applicant: **Topworx Incorporated**
3300 Fern Valley Road
Louisville
Kentucky 40213
United States of America

Equipment: **Series 7 Proximity Switches**

Optional accessory:

Type of Protection: **Intrinsic Safety**

Marking:

Ex ia IIC T6/T4/T3 Ga

Ex ia IIIC T_{200}85°C / T_{200}135°C / T_{200}200°C Da

See Certificate Annex for actual markings & associated ambient temperature range

Certificate history:

Issue 9 (2020-08-28)
Issue 8 (2020-02-26)
Issue 7 (2019-03-20)
Issue 6 (2017-07-31)
Issue 5 (2015-07-10)
Issue 4 (2012-08-06)
Issue 3 (2012-04-17)
Issue 2 (2011-05-27)
Issue 1 (2010-06-08)
Issue 0 (2010-03-03)

Approved for issue on behalf of the IECEx Certification Body: **R S Sinclair**

Position: **Technical Manager**

Signature:
(for printed version)

Date:
(for printed version)

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2. This certificate is not transferable and remains the property of the issuing body.
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Certificate issued by:

SGS UK Limited
Rockhead Business Park
Staden Lane
Buxton, Derbyshire SK17 9RZ
United Kingdom

IECEx Certificate of Conformity

Manufacturer: **Topworx Incorporated**
3300 Fern Valley Road
Louisville
Kentucky
40233
United States of America

Manufacturing locations:

Topworx Incorporated
3300 Fern Valley Road
Louisville
Kentucky
40233
United States of America

Asco Valve (Shanghai) Co. Limited
No.480, Xin Miao No.3 Road
Xiao Qiao Town
Song Jiang District
Shanghai 201612
China

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

GB/BAS/ExTR09.0113/00
GB/BAS/ExTR10.0128/00
GB/BAS/ExTR11.0100/00
GB/BAS/ExTR12.0098/00
GB/BAS/ExTR12.0197/00
GB/BAS/ExTR15.0188/00
GB/BAS/ExTR17.0174/00
GB/BAS/ExTR19.0031/00
GB/BAS/ExTR20.0115/00
GB/BAS/ExTR22.0193/00

Quality Assessment Reports:

GB/SIR/QAR07.0025/11
GB/SIR/QAR07.0041/10

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The **Series 7 Proximity Switches** are a range of magnetically operated proximity switches which are actuated by the presence of an external ferrous body. The range includes a number of different switch configurations with single pole, double throw or double pole, double throw switches within the switch body.

The proximity switches comprise a tubular stainless steel enclosure in a variety of body styles, with differing external male threads and a thin section wall at the front end.

The rear end of the tubular enclosure is a hexagonal section with the field wiring to the switches. The integral connection leads for the switches, exit the tubular enclosure via a potted seal assembly and must be terminated within an enclosure provided with protection suitable for the zone of installation. Some variants of the equipment have the option of external connections via a 3-pin, 4-pin or 5-pin polarised plug connection.

The switches are rated up to 30V peak a.c. or d.c., 0.25A and may be used to switch a circuit from a certified Ex ia IIC intrinsically safe source. Both sides of each double throw switch and each pole of a double pole switch, within one proximity switch, must form part of the same intrinsically safe circuit. The switched circuit is capable of withstanding a 500V test to earth.

The proximity switches do not require a connection to earth for safety purposes, but an earth connection is provided which is directly connected to the metallic enclosure and must be used with care in any intrinsically safe system.

See the Certificate Annex for details of the model range, certification markings and input parameters.

SPECIFIC CONDITIONS OF USE: YES as shown below:
1. Both contacts of the Double Throw and the separate poles of the Double Pole switch, within one proximity switch must form part of the same intrinsically safe circuit.

2. The proximity switches do not require a connection to earth for safety purposes, but an earth connection is provided which is directly connected to the metallic enclosure. Normally an intrinsically safe circuit may be earthed at one point only. If the earth connection is used, the implications of this must be fully considered in any installation. i.e. by the use of a galvanically isolated interface.

3. The switch must be supplied from a certified Ex ia IIC intrinsically safe source.

4. The flying leads must be terminated in a manner suitable for the zone of installation.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Variation 10.1

To confirm compliance to the requirements of IEC 60079-0 Edition 7.

Variation 10.2

Updating the marking and Annex to reflect new marking requirements for EPL Da.

Variation 10.3

Introduction of alternative marking plate. Updating product matrix to account for introduced model.

ExTR: **GB/BAS/ExTR22.0193/00**	File Reference: **21/0357**

Annex:

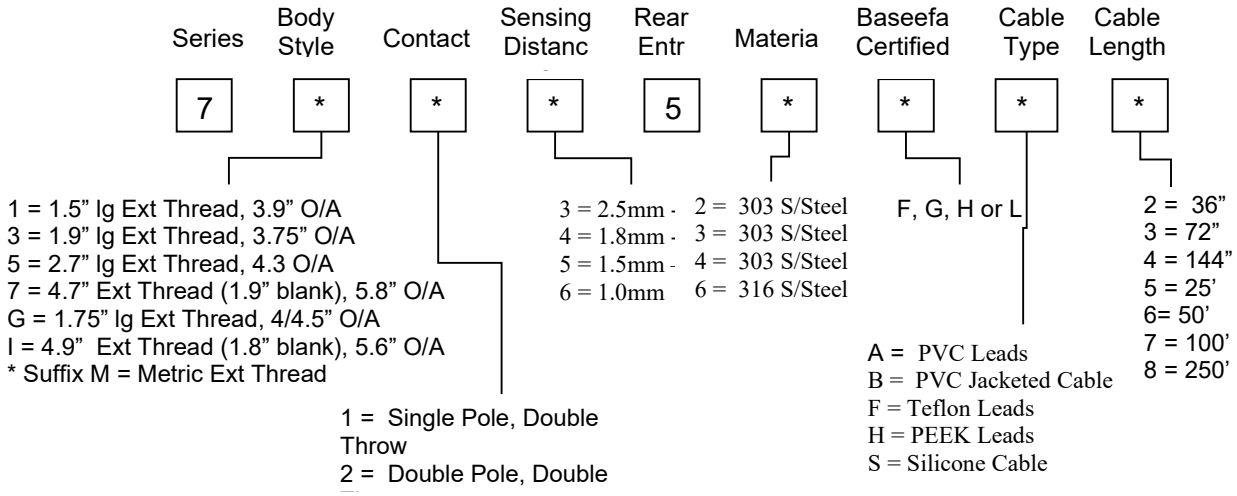
IECEx BAS 09.0080X Annex Issue 8.pdf

SGS Baseefa Limited
Rockhead Business Park
Staden lane, Buxton, Derbyshire
SK17 9RZ
United Kingdom

Series 7 Proximity Switches

Series 71, 73, 75, 77, 7G & 7I Proximity Switches

Model Range



The seventh character of the Model Number (F, G or H) indicates the temperature classification / maximum surface temperature and ambient temperature range of the equipment, which are as follows:

Seventh character of Model Number	Certification Marking
F	Ex ia IIC T6 Ga (-65°C ≤ T_a ≤ +50°C) Ex ia IIIC T_{200}85°C Da (-65°C ≤ T_a ≤ +50°C)
G	Ex ia IIC T4 Ga (-65°C ≤ T_a ≤ +100°C) Ex ia IIIC T_{200}135°C Da (-65°C ≤ T_a ≤ +100°C)
H	Ex ia IIC T3 Ga (-65°C ≤ T_a ≤ +150°C) Ex ia IIIC T_{200}200°C Da (-65°C ≤ T_a ≤ +150°C)

The model range described here includes an alternative label that carries third-party certification marks not ratified by SGS Baseefa. These models are identified by the inclusion of an "L" as the seventh character of the model number. For those carrying this character the model nomenclature is not relied upon to define the certification parameters.

Input Parameters

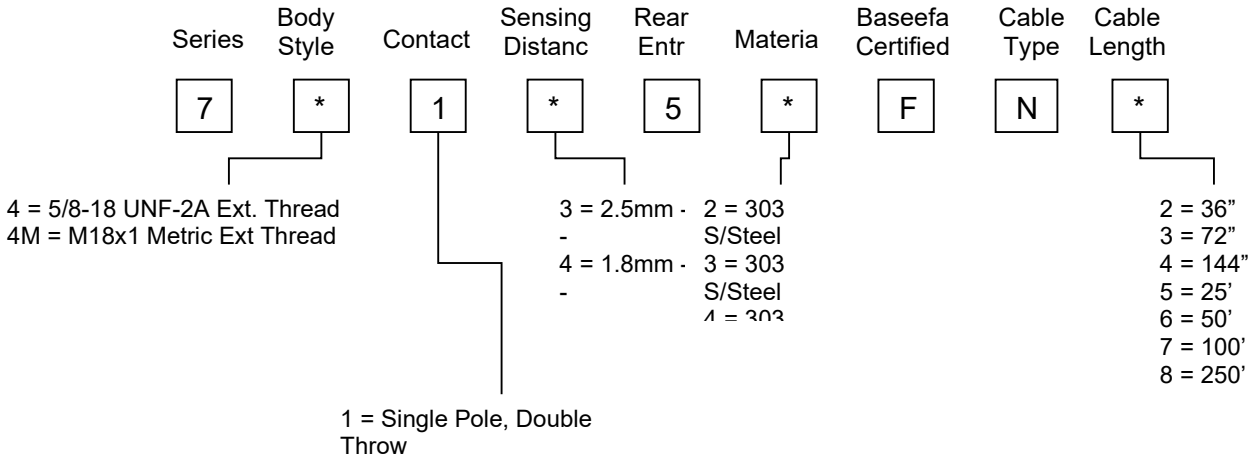
U_i = 30V C_i = 33nF
I_i = 0.25A L_i = 200µH

74 Series Proximity Switches

The 74 Series Proximity Switches comprise a stainless steel enclosure with a Single Pole Double Throw (SPDT) switch mechanism identical to those used in the Series 7 Proximity Switches. External connections to the switch mechanism are made via either Niltox, PVC, Teflon, Peek or Silicone insulated integral cable / leads which exits the equipment via a potted seal assembly and must be terminated within an enclosure provided with protection suitable for the zone of installation. All models of the switches have a degree of protection of IP66 & IP67.

These models differ in the enclosure body style and cable type and are available with various integral cable lengths. The model numbering and certification markings & input parameters of the 74 Series Proximity Switches ranges with Niltox & Silicone integral cables are as follows: -

74 Series Proximity Switches with Niltox Cable Model Range

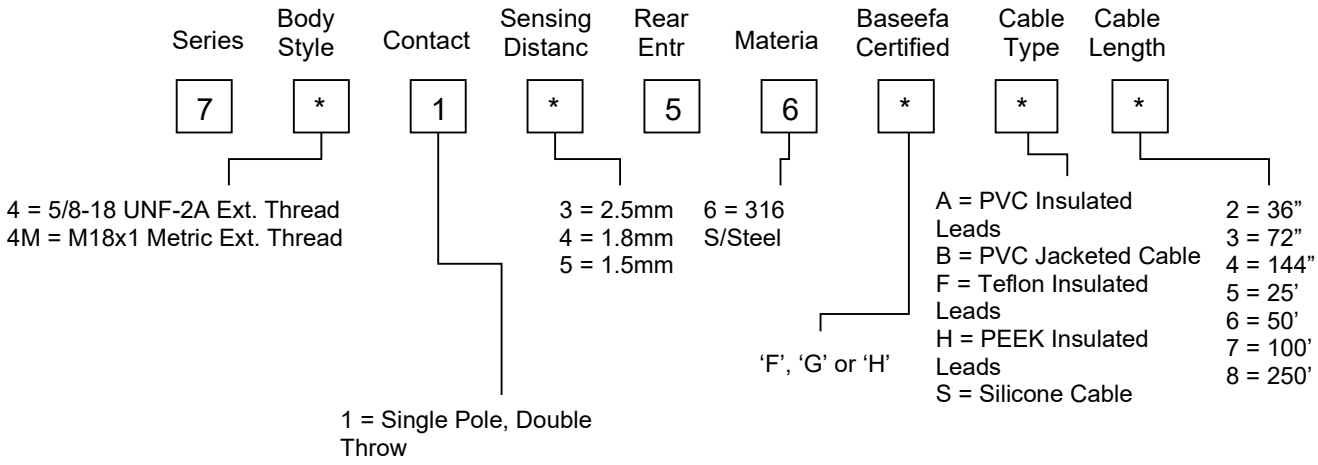


Ex ia IIC T6 Ga (-65°C ≤ T_a ≤ +50°C)
Ex ia IIIC T_{200}85°C Da (-65°C ≤ T_a ≤ +50°C)

Input Parameters

U_i = 30V C_i = 33nF
I_i = 0.25A L_i = 200µH

74 Series Proximity Switches with PVC, Teflon, Peek & Silicone Leads / Cables Model Range



The seventh character of the Model Number (F, G or H) indicates the temperature classification / maximum surface temperature and ambient temperature range of the equipment, which are as follows: -

Seventh character of Model Number	Certification Marking
F	Ex ia IIC T6 Ga (-65°C ≤ T_a ≤ +50°C) Ex ia IIIC T_{200}85°C Da (-65°C ≤ T_a ≤ +50°C)
G	Ex ia IIC T4 Ga (-65°C ≤ T_a ≤ +100°C) Ex ia IIIC T_{200}135°C Da (-65°C ≤ T_a ≤ +100°C)
H	Ex ia IIC T3 Ga (-65°C ≤ T_a ≤ +150°C) Ex ia IIIC T_{200}200°C Da (-65°C ≤ T_a ≤ +150°C)

Input Parameters

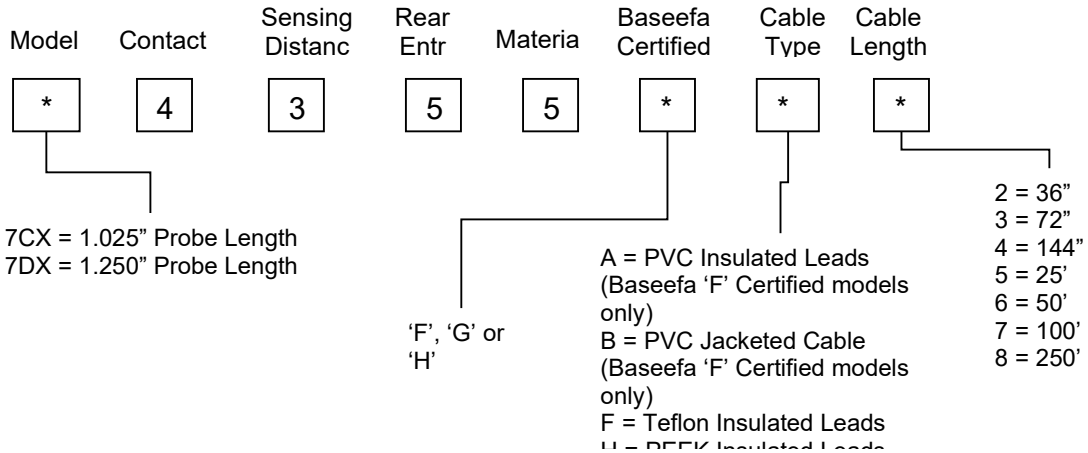
U_i = 30V C_i = 33nF
I_i = 0.25A L_i = 200µH

7CX & 7DX Series Proximity Switch Models

The 7CX & 7DX Series Proximity Switches comprise a stainless steel enclosure with a Single Pole Double Throw (SPDT) switch mechanism identical to those used in the Series 7 Proximity Switches. The switch mechanism can be additionally hermetically sealed. The switches are fitted with a bracket either 1.025 inch (7CX models) or 1.250 inch (7DX models) from the switch end of the equipment to permit mounting of the switch. External connections to the switch mechanism are made via either PVC, Teflon or Peek insulated integral cable / leads which exits the equipment via a potted seal assembly. These external connections must be terminated within an enclosure provided with protection suitable for the zone of installation.

In addition to the probe length determined by the mounting bracket position, the various models of the 7CX & 7DX only differ in the cable type and lengths.

Model Range



The sixth character of the Model Number (F, G or H) indicates the temperature classification / maximum surface temperature and ambient temperature range of the equipment, which are as follows: -

Sixth character of Model Number	Certification Marking
F	Ex ia IIC T6 Ga (-65°C ≤ T_a ≤ +50°C) Ex ia IIIC T_{200}85°C Da (-65°C ≤ T_a ≤ +50°C)
G	Ex ia IIC T4 Ga (-65°C ≤ T_a ≤ +100°C) Ex ia IIIC T_{200}135°C Da (-65°C ≤ T_a ≤ +100°C)
H	Ex ia IIC T3 Ga (-65°C ≤ T_a ≤ +150°C) Ex ia IIIC T_{200}200°C Da (-65°C ≤ T_a ≤ +150°C)

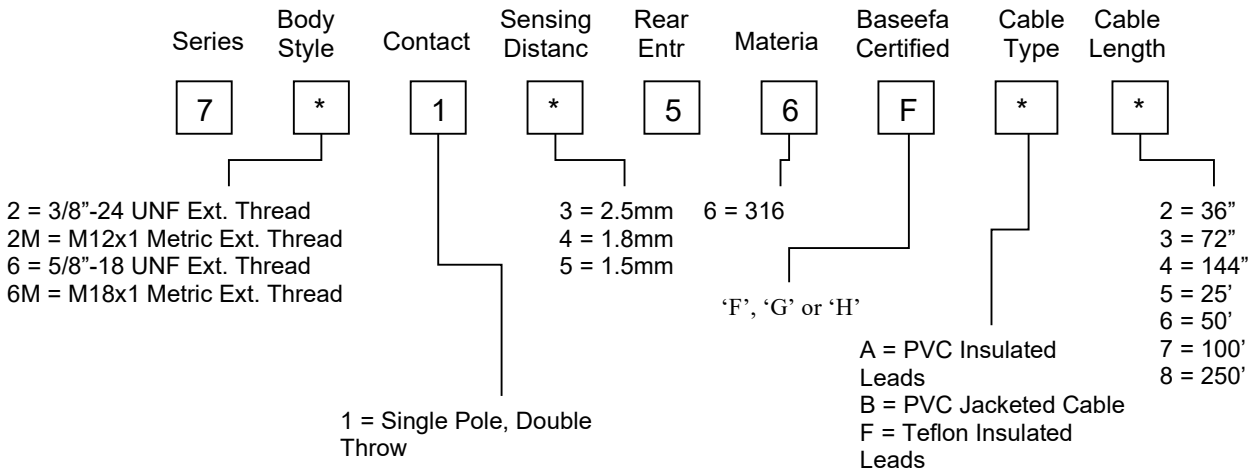
Input Parameters

U_i = 30V C_i = 33nF
I_i = 0.25A L_i = 200µH

72 & 76 Series Proximity Switch Models

The 72 & 76 Series Proximity Switches comprise a stainless steel enclosure with a Single Pole Double Throw (SPDT) switch mechanism identical to those used in the Series 7 Proximity Switches. External connections to the switch mechanism are made via an integral cable / leads which exits the equipment via a potted seal assembly and must be terminated within an enclosure provided with protection suitable for the zone of installation.

These models differ in the enclosure body style and are available with various integral cable lengths. The model numbering and certification markings & input parameters of the 72 & 76 Series Proximity Switches ranges are as follows: -



The seventh character of the Model Number (F, G or H) indicates the temperature classification / maximum surface temperature and ambient temperature range of the equipment, which are as follows: -

Seventh character of Model Number	Certification Marking
F	Ex ia IIC T6 Ga (-65°C ≤ T_a ≤ +50°C) Ex ia IIIC T_{200}85°C Da (-65°C ≤ T_a ≤ +50°C)
G	Ex ia IIC T4 Ga (-65°C ≤ T_a ≤ +100°C) Ex ia IIIC T_{200}135°C Da (-65°C ≤ T_a ≤ +100°C)
H	Ex ia IIC T3 Ga (-65°C ≤ T_a ≤ +150°C) Ex ia IIIC T_{200}200°C Da (-65°C ≤ T_a ≤ +150°C)

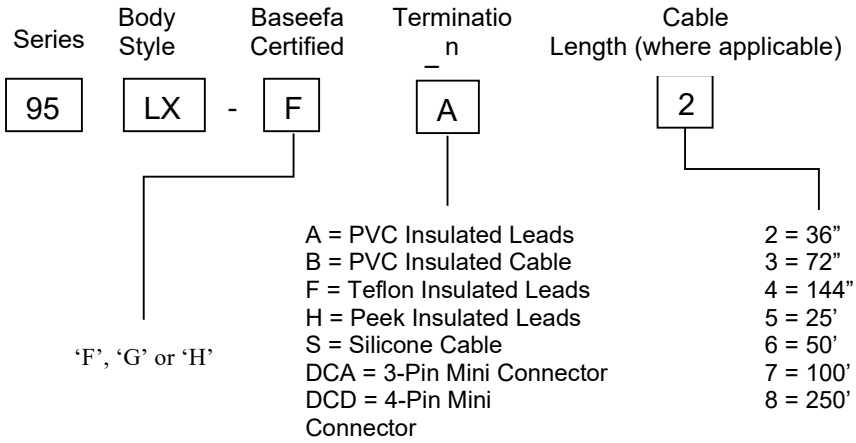
Input Parameters

U_i = 30V C_i = 33nF
I_i = 0.25A L_i = 200µH

95LX Series Proximity Switch Models

The 95LX Series Proximity Switches comprise a stainless steel enclosure with a Single Pole Single Throw (SPST) switch mechanism identical to those used in the Series 71 & 72 Series Proximity Switches. External connections to the switch mechanism are made either via either PVC, Teflon, Peek or Silicone insulated integral cable / leads which exits the equipment via a potted seal assembly, or via a 3-, 4- or 5-pin plug connector. Where applicable, the integral cable / lead connections must be terminated within an enclosure provided with protection suitable for the zone of installation.

These models differ in the enclosure body style, and external connection facilities, with the integral cable variants available with various integral cable lengths. The model numbering and certification markings & input parameters of the 95LX Series Proximity Switches ranges are as follows: -



The third character of the Model Number (F, G or H) indicates the temperature classification / maximum surface temperature and ambient temperature range of the equipment, which are as follows: -

Third character of Model Number	Termination Option(s)	Certification Marking
F	A, B, F, H, S, DCA, DCD & DCG	Ex ia IIC T6 Ga (-65°C ≤ T_a ≤ +50°C) Ex ia IIIC T_{200}85°C Da (-65°C ≤ T_a ≤ +50°C)
G	F, H & S	Ex ia IIC T4 Ga (-65°C ≤ T_a ≤ +100°C) Ex ia IIIC T_{200}135°C Da (-65°C ≤ T_a ≤ +100°C)
H	F only	Ex ia IIC T3 Ga (-65°C ≤ T_a ≤ +150°C) Ex ia IIIC T_{200}200°C Da (-65°C ≤ T_a ≤ +150°C)

Input Parameters

95LX Series Proximity Switches fitted with Integral Cables

U_i = 30V C_i = 33nF
I_i = 0.25A L_i = 200µH

95LX Series Proximity Switches fitted with 3, 4 or 5-pin Plug Connections

U_i = 30V C_i = 0
I_i = 0.25A L_i = 0