



# 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](http://www.iecex.com)

Certificate No.: **IECEX BAS 19.0108X** Page 1 of 4 [Certificate history:](#)  
Issue 0 (2019-11-18)

Status: **Current** Issue No: 1

Date of Issue: 2021-08-12

Applicant: **Eaton Electric Limited**  
Great Marlings  
Butterfield  
Luton  
Bedfordshire  
LU2 8DL  
United Kingdom

Equipment: **SD\*\*xxx & SD\*\*Mxx Series Surge Protection Devices**

Optional accessory:

Type of Protection: **Increased Safety**

Marking: **Ex ec IIC T4 Gc (-30°C ≤ Ta ≤ +75°C)**

Approved for issue on behalf of the IECEx  
Certification Body:

**Mr R S Sinclair**

Position:

**Technical Manager**

Signature:  
(for printed version)

Date:

13/8/2021

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Certificate issued by:

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





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Manufacturer: **Eaton Electric Limited**  
Great Marlings  
Butterfield  
Luton  
Bedfordshire  
LU2 8DL  
**United Kingdom**

Additional manufacturing locations: **MTL Instruments PVT Limited**  
No 3 Old Mahabalipuram Road,  
Sholinganallur, Chennai, 600 119  
**India**

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 60079-7:2015** Explosive atmospheres – Part 7: Equipment protection by increased safety "e"  
Edition:5.0

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/ExTR19.0286/00](#)

[GB/BAS/ExTR21.0130/00](#)

Quality Assessment Reports:

[GB/BAS/QAR06.0022/08](#)

[GB/BAS/QAR07.0017/09](#)



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## EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The SD\*\*xxx & SD\*\*Mxx Series Surge Protection Devices are designed to protect instrumentation and electronic systems from surges and transients conducted through signal cables.

The SD\*\*xxx Series Surge Protection Devices comprises a printed circuit board (PCB) upon which are mounted all the electrical components. The units use two and three terminal gas discharge tubes, diodes, zener diodes, resistors and inductors for operational purposes and may be optionally encapsulated. The p.c.b. is housed within a plastic enclosure with two groups of three terminals (1, 2 & 3 and 4, 5 & 6) at either end of the enclosure, for the connection of the interconnecting cables. An earth shoe is fitted to the equipment to enable connection of an earth bonding conductor with a cross sectional area of at least 4mm<sup>2</sup>. The SD\*\*xxx Series are available in a number of differing configurations and operating voltages. The '\*\*' in the equipment title indicates the nominal voltage the equipment is designed to work at. The 'xxx' in the model number defines the configuration of the circuit dependant on the type of system. This certificate covers the SD\*\*, SD\*\*X, SD\*\*T3, SD\*\*R, SD\*\*R3 and SDrd ranges of the SD\*\*xxx Series Surge Protection Devices. Depending on the module two plug-in external links may be available to disconnect the signal connections 2 & 5 and 1 & 4. There is also the option for these links to be replaced with plug-in fuse links.

The SD\*\*Mxx Series Surge Protection Devices are based on a module construction and comprise a 'module base' unit which has four options and a plug-in surge 'module insert' which has thirty options. Once the 'module insert' is installed into the 'module base' unit it is retained in place by a locking bar.

The 'module base' unit comprises three input terminals, three output terminals and a printed circuit board, all mounted in an enclosure provided with a mounting slot for the 'module insert' and a conductive foot for mounting on a standard DIN rail. A gas discharge tube may be inserted in connections 3 & 6 to the mounting foot or alternatively this is replaced with a link which directly earths the foot and these components are mounted on a printed circuit board. The 'module base' unit offers the option of maintaining the signal connections 2 & 5 and 1 & 4 when the 'module insert' is removed or interrupting these connections.

The 'module insert' comprises an encapsulated printed circuit board upon which are mounted the electrical components. The modules use two and three terminal gas discharge tubes, diodes, zener diodes, LED's, resistors and inductors for operational purposes mounted on the module PCB and housed within a plastic module with PCB edge connections exposed for connection to the 'module base'. Depending on the module two plug-in external links may be available to disconnect the signal connections 2 & 5 and 1 & 4. There is also the option for these links to be replaced with plug-in fuse links.

The SD\*\*Mxx Series Surge Protection Devices are available in a number of differing configurations and operating voltages. The '\*\*' in the equipment title indicates the nominal voltage the equipment is designed to work at. The 'xx' in the model number defines the configuration of the circuit in terms of whether fuse or disconnect links are fitted and LED indication.

In terms of the 'ec' certification, the differences between the SD\*\*xxx & SD\*\*Mxx Series Surge Protection Devices models are considered not to affect the safety assessment.

See the Certificate Annex for further model details and electrical parameters.

## SPECIFIC CONDITIONS OF USE: YES as shown below:

- 1) The equipment shall only be installed in an area of at least Pollution Degree 2, as defined in IEC 60664-1, and in an enclosure that provides a degree of protection of at least IP54 and meets the relevant requirements of IEC 60079-0 & IEC 60079-7.
- 2) The equipment may not be capable of withstanding the 500V dielectric strength test in accordance with clause 7.1 of IEC 60079 7, and this must be taken into account during installation.
- 3) All pluggable connections between the module and base, and where fitted, the disconnect or fuse links must not be inserted or removed unless the area in which the equipment is installed is known to be non-hazardous, or the circuit to which it is connected has been de-energised.
- 4) Unused terminals on the equipment shall be tightened.



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## **DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)** **Variation 1.1**

This issue of the certificate permits the additional labelling method of laser etching.

ExTR: **GB/BAS/ExTR21.0130/00** File Reference: **21/0398**

### **Annex:**

[IECEX BAS 19.0108X Annex Iss. 0.pdf](#)

**SD\*\*xxx & SD\*\*Mxx Series Surge Protection Devices**

SD\*\*xxx Series Model Information & Electrical Parameters

The SD\*\*xxx Series Surge Protection Devices are available in a number of differing configurations and operating voltages. The ‘\*\*’ in the equipment title indicates the nominal voltage the equipment is designed to work at. For example, a unit marked SD07xxx has a nominal working voltage of 7V. The ‘xxx’ in the model number defines the configuration of the equipment. The differing configurations, working voltage and operating voltage of the device are not critical for the safety assessment.

The following tables detail the SD\*\*xxx Series Surge Protection Devices model range covered by the certification: -

Model Number Definition:

SD			
	**		Nominal Working Voltage: Either 07 (7V), 16 (16V), 32 (32V) or 55 (55V). Blank for SDrtd model
		xxx	Device Configuration: Either: -
			Blank = Two wire and earth connection
			R = Two wire and earth configuration with Li = 0.
			R3 = Three wire and earth configuration with Li = 0.
			X = Two wire and earth configuration with Li = 0.22mH.
			T3 = Three wire and earth configuration with Li = 0.22mH.
			rtd = Three wire and earth configuration with Li = 0 & matched resistors in signal lines.

Input / Output Parameters:

Input: Field Terminals (except SDrtd model)

The Maximum Continuous Operating Voltage (MCOV) is model dependent and is defined in the table below: -

Model Number	MCOV
SD07**	7.7V
SD16**	17V
SD32**	36V
SD55**	62V

The maximum rated current is model dependent and is defined in the table below: -

Model Number	Max. Rated Current
SD**	250mA
SD**R	400mA
SD**R3	400mA
SD**X	400mA
SD**T3	400mA

Input: Field Terminals (SDrtd Variant only)

Maximum Continuous Operating Voltage (MCOV) = 5V  
 Rated Current = 10mA

Output: Surge Protected Terminals (All Models)

Output Voltage = Input Voltage

SD\*\*Mxx Series Model Information & Electrical Parameters

The SD\*\*Mxx Series Surge Protection Devices are available in a number of differing configurations and operating voltages. The “\*\*” in the equipment title indicates the nominal voltage the equipment is designed to work at. For example, a unit marked SD07Mxx has a nominal working voltage of 7V. The differing configurations, working voltage and operating voltage of the device are not critical for the safety assessment.

The following tables detail the SD\*\*Mxx Series Surge Protection Devices model range and the ‘module insert’ & ‘module base’ options covered by the certification: -

Model Number Definition:

SD	**			Nominal Working Voltage: Either 07 (7V), 16 (16V), 32 (32V) or 55 (55V)
		M		Modular
			xx	Device Configuration: Either: -
			FX	= Fuse Link Fitted
			DX	= Disconnect Links fitted for Maintenance
			XX	= No LED or Disconnect Link Fitted
			XL	= LED “Normally Off with Failure On” Fitted

Module Insert Options:

Working Voltage 7V	Working Voltage 16V	Working Voltage 32V	Working Voltage 55V	Series Impedance	Disconnect Links	LED
SD07MXX	SD16MXX	SD32MXX	SD55MXX	<0.5Ω		
SD07MXL	SD16MXL	SD32MXL	SD55MXL	<0.5Ω		Fitted
SD07MDX	SD16MDX	SD32MDX	SD55MDX	2-2.4Ω	Fitted	
SD07MFX	SD16MFX	SD32MFX	SD55MFX	2-2.4Ω	Disconnect Fuse Fitted	

Module Base Options:

‘Module Base’ Type	Gas Discharge tube connects 3 & 6 to the mounting foot	Maintains the signal connections 2 & 5 and 1 & 4 with ‘module insert’ removed
SDBE-BCN	Not Fitted	Maintains the signal connections, with insert removed
SDBE-BDN	Not Fitted	Disconnects signal connections, with insert removed
SDBE-BCG	Fitted	Maintains the signal connections, with insert removed
SDBE-BDG	Fitted	Disconnects signal connections, with insert removed

Input / Output Parameters:

Input: Field Terminals

The Maximum Continuous Operating Voltage (MCOV) is model dependent and is defined in the table below: -

Model Number	MCOV
SD07M**	7.7V
SD16M**	17V
SD32M**	36V
SD55M**	62V

The maximum rated current is model dependent and is defined in the table below: -

Model Number	Max. Rated Current
SD**MXX	700mA
SD**MXL	700mA
SD**MDX	700mA
SD**MFX	250mA

Output: Surge Protected Terminals

Output Voltage = Input Voltage