



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 KTL 14.0006	Issue No: 1	<u>Certificate history:</u> Issue No. 1 (2016-10-04) Issue No. 0 (2015-03-09)
Status:	Current	Page 1 of 4	
Date of Issue:	2016-10-04		
Applicant:	KSB Seil Co., Ltd. 76, Noksansaneopbuk-ro 313beon-gil, Gangseo-gu, Busan Korea, Republic of		
Equipment:	Power Supply, Model EPS-12SA		
<i>Optional accessory:</i>			
Type of Protection:	Intrinsic safety "i"		
Marking:	[Ex ia Ga] IIC		

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

Park Jong-koo

Position:

Certification Manager

Signature:
(for printed version)

Date:

2016-10-04

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:

Korea Testing Laboratory
87, Digital-ro, 26-gil, Guro-gu
Seoul
Korea, Republic of





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Manufacturer: **KSB Seil Co., Ltd.**
76, Noksansaneopbuk-ro 313beon-gil, Gangseo-gu, Busan
Korea, Republic of

Additional Manufacturing location(s):

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 electrical apparatus 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 : 2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0
IEC 60079-11 : 2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

*This Certificate **does not** indicate compliance with electrical 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 Report:

[KR/KTL/ExTR14.0006/01](#)

Quality Assessment Report:

[NO/DNV/QAR15.0002/00](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Model EPS-12SA power supply is a kind of isolated barrier to isolate between intrinsically safe and non-intrinsically safe circuits and restrict the energy supplied to intrinsically safe circuits in hazardous area by the limitation of voltage and current.

The power supply is designed to convert from an AC Input to a DC output and provide the output through output channels selected by input signals for control of each channel. The AC input and input signals are supplied from unspecified power source and equipments in safe area, and the DC outputs are supplied to the intrinsically safe circuits in hazardous area.

The power supply consists of electrical and electronic components on a single printed circuit board coated twice by spraying, housed in a non-metallic enclosure. The enclosure meets the requirements of IP20.

The power supply are asymmetrical and has blue labels defining the hazardous area terminals for the DC output channels. The power supplies may be mounted adjacent to each other on the DIN rail.

The power supply has an ambient temperature range of -10 °C to +60 °C.

Electrical parameters of the power supply are as follows.

<Input from unspecified power source and equipments in safe area>

- Input Power(Terminals 4-6): 90 Vac ~ 250 Vac, $U_m = 250$ V

- Input Signal(Terminal 2-1/3): 21.6 Vdc ~ 26.4 Vdc, $U_m = 250$ V

<Outputs to intrinsically safe circuits in hazardous area>

- Output Power(Channel 1: Terminal 7-9, Channel 2: Terminal 10-12): $U_o = 19.32$ V, $I_o = 276$ mA, $P_o = 1316$ mW, $C_o = 244$ nF, $L_o = 0.31$ mH or $L_o/R_o = 27.1$ μ H/ Ω

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the load connected to channel 1 and channel 2 of the DC outputs must not exceed the above values (C_o and L_o or L_o/R_o).

The above values of C_o and L_o are allowed for;

- distributed capacitance and inductance e.g. as in a cable, or

- if the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value, or

- if the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

The above values of C_o and L_o are reduced to 50% if both of the following conditions are met;

- the total L_i of the external circuit (excluding the cable) is \geq 1% of the L_o value and

- the total C_i of the external circuit (excluding the cable) is \geq 1% of the C_o value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1 μ F for Group IIA and IIB and 600 nF for Group IIC.

The values of C_o and L_o shall not be exceeded by the sum of all of the L_i plus cable inductances in the circuit and the sum of all of the C_i plus cable capacitances respectively.

The above value of L_o/R_o ratio is for distributed parameters such as a cable parameter. If intrinsically safe circuits are configured with only one associated apparatus and the total L_i of the external circuit (excluding the cable) is less than 1% of L_o , the use of the L_o/R_o ratio as a cable parameter instead of the L_o is permitted. In all other situations, its use requires special consideration in accordance with IEC 60079-25.

CONDITIONS OF CERTIFICATION: NO



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue No.0 dated : 2015-03-09

Issue No.1 dated : 2016-10-04

1. Change of the electrical parameters by change of the safety components (such as the fuse, the zener diodes and the resistors) and addition of the feedback circuit

2. Change of the enclosure to air vent type

3. Introduction of assessment according to the new version of standards, IEC 60079-0:2011 and IEC 60079-11:2011