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 KTL 21.0001X**	Page 1 of 3	Certificate history:
Status:	**Current**	Issue No: 0	
Date of Issue:	2021-12-31		
Applicant:	**POWER-GENEX Ltd.** 99, Eunbong-ro, Namdong-Gu Incheon 21639 **Korea, Republic of**		
Equipment:	**Smart Valve Positioner, ASD-5 series**		
Optional accessory:			
Type of Protection:	**Intrinsic safety "i"**		
Marking:	Ex ia IIC T6/T5 Gb Ex ia IIIC T85 °C/T100 °C Db		

Approved for issue on behalf of the IECEx Certification Body: **Park, Jong-koo**

Position: **Certification Manager**

Signature: (for printed version)

Date: 2021-12-31

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 www.iecex.com or use of this QR Code.

Certificate issued by:

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

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Manufacturer: **POWER-GENEX Ltd.**
99, Eunbong-ro, Namdong-Gu
Incheon 21639
Korea, Republic of

Additional manufacturing locations:

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 Report:

KR/KTL/ExTR21.0001/00

Quality Assessment Report:

KR/KTL/QAR11.0002/06

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

The ASD-5 series smart valve positioner is intrinsically safe equipment that is used for control of linear and rotary valve position.
The equipment comprises a pilot valve assembly, a position feedback assembly (a shaft & an MR sensor board), a torque motor assembly, an optional pressure gauge adaptor, a main board, an option board, a switch board, an LCD board, a pressure sensor board and so on. The main board and the option board are completely encapsulated within a non-metallic case except facilities for connection of other circuits. All the parts except the optional pressure gauge adaptor above are housed in an aluminium alloy or a stainless steel enclosure with a polycarbonate display window. The optional pressure gauge adaptor is attached to the side of the enclosure. Terminal blocks inside the enclosure are used for external connections of the equipment. Internal wiring is used for connections between the main board and the MR sensor board, between the main board and the torque motor, and between the main board and the pressure sensor board.
The valve is controlled by the main board and the torque motor assembly through a (4~20) mA input signal and a position feedback signal from the MR sensor. The optional output signal for valve position feedback to external system is provided by possible combinations of a (4~20) mA position transmitter, two alarm limit switches, two SPDT limit switches, two IECEx certified (IECEx PTB 11.0092X) P&F proximity sensors and a superimposed hart communication.
All the external connection ports shall be supplied within maximum allowable electrical input parameters (Ui, Ii, Pi) of the ports each by connecting to certified intrinsically safe circuits or associated apparatus such as safety barriers. The electrical parameters of the equipment for intrinsic safety are as follows;

- Input signal (Terminal J1, 1-2): Ui = 28 V, Ii = 93 mA, Pi = 651 mW, Ci = 23 nF, Li = 0
- Output signal (Terminal J2, 4-5): Ui = 28 V, Ii = 93 mA, Pi = 651 mW, Ci = 23 nF, Li = 0
- 2 x Alarm limit switches (Terminal J7, 14-15 & J9, 11-12): Ui = 28 V, Ii = 93 mA, Pi = 651 mW, Ci = 0, Li = 0
- 2 x SPDT limit switches (Terminal J12, 14-16 & J11, 11-13): Ui = 28 V, Ii = 93 mA, Pi = 651 mW, Ci = 0, Li = 0
- 2 x P&F proximity sensors (Terminal J12, 14-15 & J11, 11-12): Ui = 16 V, Ii = 25 mA, Pi = 64 mW, Ci = 30 nF, Li = 100 μH

Temperature class depends on ambient temperature. The ambient temperature for T6 or T85 °C is -40 °C to +40 °C and the ambient temperature for T5 or T100 °C is -40 °C to +60 °C.

The configuration of ASD-5 series approved in this certificate is as follows;

ASD-5abc-defghijkl
a = Body Material : 0, 1
*b = Actuator operation : 0, 1
*c = Feedback type : 0, 1
d = Hazardous Area & Protection : I (for IIC only), D (for IIC and IIIC)
*e = Feedback size : B, C, F, N (for Linkage type) / B, 6, 8 (for Linkage-less type)
*f = Gauge (Out1, Out2 gauge) : 1, 2
g = Beacon indicator : N (for IIC and IIIC), F (for IIC only), Y (for IIC only)
h = Options : N, O, A
I = Limit switches : N, L, S, P
J = Communication : N, H
*K = Connection Threads : 3, 4, 5, 6
*l = Mounting Bracket : N, L, R
* : Options which do not affect intrinsic safety

For detailed information, refer to the manual.

SPECIFIC CONDITIONS OF USE: YES as shown below:
1. WARNING-POTENTIAL ELECTROSTATIC CHARGING HAZARD-SEE INSTRUCTIONS.
If the enclosures of the equipment incorporate the non-metallic parts, which may generate an ignition capable level of electrostatic charge, the equipment shall be installed in a location where the external conditions cannot result in the build-up of electrostatic charge on such surfaces. For example, the equipment shall be installed in the location protected from direct airflow, causing a charge transfer. Additionally, the equipment shall only be cleaned with a damp cloth, and caution should be used when being handled.

2. Separately certified Ex cable glands and blanking elements shall be used suitably to the threaded holes for cable entries.

3. WARNING - DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT.
The equipment shall not be opened for installation, repair, or overhaul in a hazardous area. The user shall consult the manufacturer if there is any problem during the usage.

4. Impact tests on the enclosure were conducted based on Group II or III value for low risk of mechanical danger, as per Table 15 of IEC 60079-0:2017, 7th Edition. Thus, the equipment shall be installed only in an area where risk of impact is low.