

Certification of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Certificate of Conformity

Certificate No: AUS Ex 3631X **Issue 0:** Original Issue 24/8/1999
Issue 1: 15/08/2002

Date of Expiry: 24/8/2009

Certificate Holder: Pepperl + Fuchs GmbH
Koenigsberger Allee 87
68307 Mannheim
GERMANY

Electrical Equipment: K-Series Isolated Switch Amplifiers

Type of Protection: Ex (ia) I/IIA, IIB & IIC

Marking Code: Ex (ia) I/IIC
AUS Ex 3631X

Manufactured By: Pepperl + Fuchs GmbH Pepperl+Fuchs Pte. Ltd.
Koenigsberger Allee 87 Singapore 0513
68307 Mannheim
GERMANY

Issued by:



919 Londonderry Road Londonderry NSW 2753
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STANDARDS AUSTRALIA

Standards Australia Quality Assurance Services Pty Limited A.B.N. 67 050 611 642

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This certificate is granted subject to the conditions as set out in Standards Australia Miscellaneous Publication MP 69 and the Procedures (Doc Q7134) of the scheme.

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

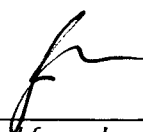
- AS 2380.1-1989 Electrical equipment for explosive atmospheres - Explosion-protection techniques - General requirements (incorporating Amendment 1)
- AS 2380.7-1987 Electrical Equipment for explosive atmospheres - Explosion-protection techniques - Intrinsic safety 'i'
- AS 1939-1990 Degrees of protection provided by enclosures of electrical equipment (IP Code)

This certificate does not ensure compliance with electrical safety requirements and performance other than those included in the Standards listed above.

The equipment listed has successfully met the examination and test requirements as recorded in

Test Report No: TestSafe 22698

File Reference: TestSafe 2002/004204


Signed for and on behalf of issuing authority
Director
TestSafe Australia

Position
15/08/2002

Date of issue

Ex 3631X-1

This certificate and schedule may not be reproduced except in full.

This certificate is not transferable and remains the property of Standards Australia Quality Assurance Services and must be returned in the event of its being revoked or not renewed.

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Schedule

Certificate No: AUS Ex 3631X

Issue: 1

Date of Issue: 15/08/2002

Certified Equipment: The K-Series Isolated Switch Amplifier is designed for transmission of control signals from the hazardous area to the non-hazardous area and provides galvanic isolation between intrinsically safe circuits and non-intrinsically safe circuits. The equipment is powered from a nominal input voltage either of 115 Vac or 230 Vac.

The apparatus consists of a printed circuit board (PCB) which is fitted in a moulded plastic enclosure. Terminal blocks for safe and hazardous connections are fitted on the side of the enclosure. The electronics comprises an infallible transformer, relays with associated circuitry and current/voltage limiting circuitry. The limiting circuitry comprises infallible resistors and triplicated Zener diodes assembly. The range of amplifiers may be shown with the following code **K a b – SR2 – Ex c**, where the letters are:

K	K = series name
a	H = terminal housing high F = terminal housing with removable terminals
b	A5 = 115 V ac A6 = 230 V ac
SR	SR = Relay output
2	2 = Generation 2
Ex	Ex = Ex design
c	1W = 1relay/1 channel 1W.LB = 2 relays/1 channel 2W = 2 relays/2 channel

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Addendum to Certificate No. Ex 3631X-1

Conditions of Certification:

It is recommended that the following condition of safe use be included in the certificate for the equipment:

- The following parameters must not be exceeded during installation of the equipment:

Input Parameters	Terminals 14 and 15 of KH A5	Terminals 14 and 15 of KH A6		
Maximum Supply Voltage U_m	126.5 V	250 V		
Output Parameters per channel				
Terminals 1 (2) and 3 Terminals 4 (5) and 6	IIC	IIB	IIA	I
Maximum Output Voltage U_o	10.6 V	10.6 V	10.6 V	10.6 V
Maximum Output Current I_o	19.12 mA	19.12 mA	19.12 mA	19.12 mA
Maximum Output Power P_o	51 mW	51 mW	51 mW	51 mW
Maximum External Capacitance C_o	590 nF	2.1 μ F	4.7 μ F	60 μ F
Maximum External Inductance L_o	3 mH	5 mH	24 mH	250 mH

Input Parameters	Terminals 14 and 15 of KH A5	Terminals 14 and 15 of KH A6		
Maximum Supply Voltage U_m	126.5 V	250 V		
Output Parameters for two channels connected in parallel				
Terminals 1 (2) and 3 Terminals 4 (5) and 6	IIC	IIB	IIA	I
Maximum Output Voltage U_o	10.6 V	10.6 V	10.6 V	10.6 V
Maximum Output Current I_o	38 mA	38 mA	38 mA	38 mA
Maximum Output Power P_o	102 mW	102 mW	102 mW	102 mW
Maximum External Capacitance C_o	550 nF	2 μ F	4.7 μ F	60 μ F
Maximum External Inductance L_o	3 mH	5 mH	24 mH	250 mH

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Drawing Schedule

Drawing No	Drawing Title	Issue	Date
Nr.16-219PT-01 Ind.	Description of the Isolation Amplifier KHA.-...Ex..W..	0	17/5/94
Nr.16-219PT-02 Ind.	Technical Data for Isolation Amplifier KHA.-...Ex..W..	0	17/5/94
Nr.16-219PT-04 Ind.	Typelabel example for Isolation Amplifier KHA.-...Ex..W..	0	17/5/94
Nr.16-219PT-05 Ind.	Functional block diagram for Isolation Amplifier KHA.-...Ex..W..	0	17/5/94
16-219SA-06	SA-Approval KHA.-...Ex..W..	0	4/5/99
16-219SA-07	SA-Approval KHA.-...Ex..W..	0	11/11/96
Nr.16-219PT-12 Ind.	Transformer T1 for KHA.-...Ex..W..	0	17/5/94
Nr.16-219PT-13 Ind.	Technical data of the transformer T1 for KHA.-...Ex..W..	0	17/5/94
Nr.16-219PT-15 Ind.	Housing for Isolation Amplifier KHA.-...Ex..W..	0	17/5/94
Nr.16-219PT-16 Ind.	Housing for Isolation Amplifier KHA.-...Ex..W..	0	17/5/94
Nr.16-219PT-17 Ind.	Housing for Isolation Amplifier KHA.-...Ex..W..	0	17/5/94
Nr.16-219PT-18 Ind.	Housing for Isolation Amplifier KHA.-...Ex..W..	0	17/5/94
Nr.16-219PT-19 Ind.	Supplementation of the technical data of the transformer T1(115VAC version) for KHA.-...Ex..W..	0	20/7/94
Nr.16-219PT-22 Ind.	Type designation key for KHA.-...Ex..W..	0	25/1/95
Nr.16-219PT-28 Ind.	SAA-APPROVAL (type label) K...-Series Isolated Switch Amplifier	0	27/3/97
Nr.16-219PT-33 Ind.	Housing versions for Isolation Amplifier KHA.-...Ex..W..	0	26/1/95
Nr.16-219PT-34 Ind.	Housing for Isolation Amplifier KHA.-...Ex..W..	0	26/1/95
Nr.16-219PT-35 Ind.	Housing for Isolation Amplifier KHA.-...Ex..W..	0	26/1/95
Nr.16-219PT-45 Ind.	Circuit diagram for Isolation Amplifier KHA.-SR2-Ex2.W.	0	21/4/94
Nr.16-219PT-46 Ind.	Artwork diagram for Isolation Amplifier KHA.-SR2-Ex2.W.	A	17/6/99
Nr.16-219PT-47 Ind.	Circuit diagram for Isolation Amplifier KHA.-SR2-Ex1.W.	0	16/11/95
Nr.16-219PT-48 Ind.	Artwork diagram for Isolation Amplifier KHA.-SR2-Ex1.W.	A	17/6/99
Nr.16-219PT-49 Ind.	Circuit diagram for Isolation Amplifier KHA.-SR2-Ex1.W.LB	0	16/11/95
Nr.16-219PT-50 Ind.	Artwork diagram for Isolation Amplifier KHA.-SR2-Ex1.W.LB	A	17/6/99
16-316PT-06 Sht 1 & 2	Layout II A site variante 1,2,3 Typ: K*A*-SR*-Ex*.W.*	0	22/1/99

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Addendum to Certificate No. Ex 3631X-1

Schedule of Variations

Variations Relating to Issue 1:

1. The Model KFA5-SR2-Ex*. * and KFA6-SR2-Ex*. * may be added to the range of certified equipment. This model is different from the previously certified amplifiers in that it has removable terminals and although the unit uses the same mains isolating transformer, changes have been made to the remainder of the circuitry.
2. Addition of alternative manufacturer address.

Drawings related to Issue 1

Drawing No	Drawing Title	Issue	Date
16-316PT-10	KFA*-SR2-Ex*. * Assembly drawing side B	Original	9 Feb 2001
16-316PT-11 Page 1 of 2	KFA*-SR2-Ex*. * Copper layout side B	Original	9 Feb 2001
16-316PT-11 Page 2 of 2	KFA*-SR2-Ex*. * Copper layout side A	Original	Not Dated
16-316SA-07A Pages 1 to 4	1.SAA Supplement K*A*-SR2-Ex*.W.*	Original	5 Mar 2002
16-316SA-08	KFA*-SR2-Ex*. * IS-block Diagram	Original	14 Mar 2001
16-316SA-09 Pages 1 and 2	KFA*-SR2-Ex*. * Schematics	Original	14 Mar 2001
16-316SA-10 Pages 1 to 3	Transformer – SAA Approval K***-SR2-***	Original	17 May 2002
16-345-11 Pages 1 to 8	Approval Drawing Housing KF –15pol. Symm. With sepertion bar	Original	12 Aug 1999
16-219SA-28 A Page 1 of 2	SA Approval K***-SR2-Ex*.*** (240V Version)	Original	09 Aug 1999
16-219SA-28 A Page 2 of 2	SA Approval K***-SR2-Ex*.*** (120V Version)	Original	Not Dated

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Conditions related to Issue 1:

1) The following parameters must not be exceeded during installation of the equipment:

Input Parameters	Terminals 14 and 15 of KFA5		Terminals 14 and 15 of KFA6	
Maximum Supply Voltage U_m	126.5 V		253 V	
Output Parameters per channel				
Terminals 1 (2) and 3 Terminals 4 (5) and 6	IIC	IIB	IIA	I
Maximum Output Voltage U_o	9.6 V	9.6 V	9.6 V	9.6 V
Maximum Output Current I_o	11.8 mA	11.8 mA	11.8 mA	11.8 mA
Maximum Output Power P_o	28.4 mW	28.4 mW	28.4 mW	28.4 mW
Maximum External Capacitance C_o	590 nF	2.1 μ F	4.7 μ F	60 μ F
Maximum External Inductance L_o	3 mH	5 mH	24 mH	30 mH

Input Parameters	Terminals 14 and 15 of KFA5		Terminals 14 and 15 of KFA6	
Maximum Supply Voltage U_m	126.5 V		253 V	
Output Parameters for two channels connected in parallel				
Terminals 1 (2) and 3 Terminals 4 (5) and 6	IIC	IIB	IIA	I
Maximum Output Voltage U_o	9.6 V	9.6 V	9.6 V	9.6 V
Maximum Output Current I_o	23.6 mA	23.6 mA	23.6 mA	23.6 mA
Maximum Output Power P_o	56.8 mW	56.8 mW	56.8 mW	56.8 mW
Maximum External Capacitance C_o	550 nF	2 μ F	4.7 μ F	60 μ F
Maximum External Inductance L_o	3 mH	5 mH	24 mH	30 mH

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