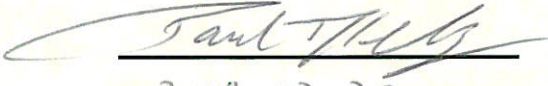




IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

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

Certificate No.:	IECEx UL 06.0008X	issue No.:2	Certificate history: Issue No. 2 (2008-3-20) Issue No. 1 (2006-10-3)
Status:	Current		
Date of Issue:	2008-03-20	Page 1 of 4	
Applicant:	Otto Communications, Div. of Otto Engineering Inc. 2 East Main Street Carpentersville, IL 60110 United States of America		
Electrical Apparatus: Optional accessory:	Radio Accessories, see Schedule for Model Numbers		
Type of Protection:	ia		
Marking:	Ex ia IIC T4		
Approved for issue on behalf of the IECEx Certification Body:	Paul T. Kelly		
Position:	Lead Operations Manager		
Signature: (for printed version)			
Date:	2008-03-20		

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:

Underwriters Laboratories Inc (UL)
333 Pfingsten Road
Northbrook IL 60062-2096
United States of America





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Manufacturer: **Otto Communications, Div. of Otto Engineering Inc.**
2 East Main Street
Carpentersville, IL 60110
United States of America

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 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-11 : 1999 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'I'

*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:

US/UL/ExTR06.0011/00
US/UL/ExTR06.0011/01

Quality Assessment Report:
US/UL/QAR06.0010/00



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Types comprising the certification:

Description	Model Numbers
Speaker/Mic	V2-10023-S, V2-10024-S, V2-10031-S, V2-10068-S, V2-10112-S, V2-10134-S, V2-10139-S, V2-10162-S, V2-10168-S, V2-10228-S, V2-10230-S, V2-10234-S, V2-10240-S, V2-10241-S, V2-10256-S, V2-10273-S, V2-10274-S, V2-10278-S, V2-10316-S
Ranger Headset	V4-NR2BA1-S, V4-NR2CD1-S, V4-NR2CE1-S, V4-NR2MJ1-S, V4-10421-S
Earphone Kit	V1-10432-S
Hurricane Headset	V4-HC2CD1-S, V4-HC2CE1-S, V4-HC2KB1-S, V4-HC2KB3B-S, V4-HC2MA3B-S, V4-HC2MA5-S, V4-HC2MJ5-S

The following intrinsic safety (entity) parameters apply to the above types:

Speaker/Mic	Ranger Headset	Earphone Kit	Hurricane Headset
U_i : 9.6V	U_i : 9.6V	U_i : 9.6V	U_i : 9.6V
I_i : 0.22A	I_i : 0.11A	I_i : 0.22A	I_i : 0.11A
P_i : 1.3W	P_i : 1.3W	P_i : 1.3W	P_i : 1.3W
L_i : see table below	L_i : 1.8mH	L_i : 0.35mH	L_i : 1.1mH
C_i : 1.8μF	C_i : 1.8μF	C_i : 1.8μF	C_i : 1.8μF

Speak/Mic	Li:	Speak/Mic	Li:	Speak/Mic	Li:
V2-10023-S	0.518 mH	V2-10162-S	0.203 mH	V2-10241-S	0.326 mH
V2-10024-S	0.518 mH	V2-10168-S	0.326 mH	V2-10256-S	0.518 mH
V2-10031-S	0.518 mH	V2-10228-S	0.326 mH	V2-10273-S	0.203 mH
V2-10068-S	0.326 mH	V2-10230-S	0.326 mH	V2-10274-S	0.203 mH
V2-10112-S	0.326 mH	V2-10234-S	0.203 mH	V2-10278-S	0.203 mH
V2-10134-S	0.326 mH	V2-10240-S	0.326 mH	V2-10316-S	0.518 mH
V2-10139-S	0.518 mH				

CONDITIONS OF CERTIFICATION: YES as shown below:

These devices are intended for use only as specified in the installation manual as follows:

Speaker/Mic :	Installation Manual Number 804184
Ranger Headset :	Installation Manual Number 804205
Earphone Kit :	Installation Manual Number 804206
Hurricane Headset :	Installation Manual Number 804203

The above OTTO certified radio accessory products are only intended for connection to intrinsically safe radios. The radio accessory products have been evaluated for intrinsic safety and can be used with any certified radio that has intrinsic safety (entity) parameters at the accessory connection conforming to the following:

$$\begin{array}{lll} U_o \leq U_i & I_o \leq I_i & P_o \leq P_i \\ L_o \geq L_i & C_o \geq C_i & \end{array}$$



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

Issue 1: The scope of this investigation is limited to the Applicant's name being changed from Otto Controls, Division of Otto Engineering to Otto Communication, Division of Otto Engineering. No technical changes were made to the devices.

Issue 2: Modifications made to internal circuitry requiring changes to the Li entity parameters. Removal of two models for the speaker/mic.