



EC-TYPE EXAMINATION CERTIFICATE

Equipment or Protective System Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC

EC-Type Examination Certificate Number : **BAS99ATEX7065**

Equipment or Protective System: **THE RANGE OF IIC ISOLATED SOLENOID DRIVERS**

Manufacturer: **WEIDMÜLLER LTD**
INTRINSIC SAFETY AND ELECTRONICS DIVISION

Address: **West Malling, Kent, ME19 6EX**

This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

The Electrical Equipment Certification Service, notified body number 600 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report N°

98(C)0796 dated 13 July 1999

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:


EN 50014: 1997 EN 50020 1994

except in respect of those requirements listed at item 18 of the Schedule.

If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

The marking of the equipment or protective system shall include the following:-

 II [I] G [EEEx ia] IIC (-20°C ≤ T_a ≤ 60°C)


This certificate may only be reproduced in its entirety and without any change, schedule included.

File No: EECS 0932/02/024

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances.



Electrical Equipment Certification Service
Health and Safety Executive
Harpur Hill, Buxton, Derbyshire. SK17 9JN. United Kingdom
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 I M CLEARE
DIRECTOR
6 April 1999

Re-issued 13 July 1999 to replace original



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Description of Equipment or Protective System

The Range of IIC Isolated Solenoid Drivers are designed for mounting within a safe area, as an interface between safe area and hazardous area apparatus.

The solenoid driver safe area circuit is protected from thermal damage by a fuse protected crowbar circuit and fuse protected zener diodes and resistors for the control and override functions, if appropriate. The circuit contains a transformer and one or two optocouplers which provide galvanic isolation across the driver. The hazardous area output voltage is clamped at the terminals by duplicated zener diode chains and the output current is limited by current limiting resistors.

The units considered are electrically similar, but have functional differences. The WIS1210, WIS1211 & WIS1212 are the basic single channel model, the WIS1214 & WIS1215 are single channel with direct control and override and the WIS1217 & WIS1218 are single channel with reversible control and override.

The solenoid drivers use surface mounted components mounted on a glass fibre printed circuit board. A further glass fibre printed circuit board mounted at right angles to the main board connects to the terminals. The solenoid driver circuit is housed within an outer plastic enclosure which provides a degree of protection of at least IP20, is fitted with terminals and incorporates a universal mounting foot

Types WIS1210, WIS1211, WIS1212, WIS1214 WIS1215, WIS1217 & WIS1218
- Safe Area Terminals 11, 12, 21, 22 & 41

$U_m = 250V$ d.c. or r.m.s.

For all IIC Single Channel Units - Hazardous Area Terminals 13, 14 & 44

Type	U_o	R_o	I_o	P_o
WIS1210	24.2V	260R	93mA	0.57W
WIS1211	24.2V	226R	107mA	0.65W
WIS1214	24.2V	226R	107mA	0.65W
WIS1217	24.2V	226R	107mA	0.65W
WIS1212	24.2V	147R	165mA	1W
WIS1215	24.2V	147R	165mA	1W
WIS1218	24.2V	147R	165mA	1W



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CABLE PARAMETERS

The Capacitance and either the Inductance or Inductance to Resistance (L/R) Ratio of the cables connected to the output terminals of the Solenoid Drivers should not exceed the following values:-

For WIS1210 - Hazardous Area Terminals 13, 14 & 44

GROUP	CAPACITANCE in μF	INDUCTANCE in mH	OR	L/R RATIO in $\mu\text{H}/\text{ohm}$
IIC	0.12	4.3		65
IIB	0.91	17.72		243
IIA	3.27	36.02		513

For WIS1211, WIS1214 & WIS1217,- Hazardous Area Terminals 13, 14 & 44

GROUP	CAPACITANCE in μF	INDUCTANCE in mH	OR	L/R RATIO in $\mu\text{H}/\text{ohm}$
IIC	0.12	3.25		56
IIB	0.91	13.69		213
IIA	3.27	27.54		449

For WIS1212, WIS1215 & WIS1218,- Hazardous Area Terminals 13, 14 & 44

GROUP	CAPACITANCE in μF	INDUCTANCE in mH	OR	L/R RATIO in $\mu\text{H}/\text{ohm}$
IIC	0.12	0.89		37
IIB	0.91	5.37		149
IIA	3.27	11.09		305

VARIATION ONE

To permit the introduction of two Dual Channel, Basic units, Types WIS1220 and WIS1221 each channel having identical output parameters to the Single Channel Types WIS1210 and WIS1211. These Dual Channel units employ an isolation transformer and three optocouplers on an alternative printed circuit board mounted within an identical enclosure to the Single Channel units. The hazardous area circuits share common voltage clamping components but each channel has separate current limitation.



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Types WIS1220 and WIS 1221 - Safe Area Terminals 11, 12, 21, 22 & 31

$U_m = 250V$ d.c. or r.m.s.

For IIC Dual Channel Units, each separate channel - Hazardous Area Terminals
either 13, 14 & 44 or 33, 34 & 44

Type	U_o	R_o	I_o	P_o
WIS1220	24.2V	260R	93mA	0.57W
WIS1221	24.2V	226R	107mA	0.65W

CABLE PARAMETERS

The Capacitance and either the Inductance or Inductance to Resistance (L/R) Ratio of the cables connected to the output terminals of the Solenoid Drivers should not exceed the following values:-

For WIS1220, each separate channel - Hazardous Area Terminals
either 13, 14 & 44 or 33, 34 & 44

GROUP	CAPACITANCE in μF	INDUCTANCE in mH	OR	L/R RATIO in $\mu H/ohm$
IIC	0.12	4.3		65
IIB	0.91	17.72		243
IIA	3.27	36.02		513

For WIS1221, each separate channel - Hazardous Area Terminals
either 13, 14 & 44 or 33, 34 & 44

GROUP	CAPACITANCE in μF	INDUCTANCE in mH	OR	L/R RATIO in $\mu H/ohm$
IIC	0.12	3.25		56
IIB	0.91	13.69		213
IIA	3.27	27.54		449



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16. **Report No.**

98(C)0796

17. **Special Conditions For Safe Use**

None

18. **Essential Health and Safety Requirements**

ESSENTIAL HEALTH & SAFETY REQUIREMENTS not covered by Standards at (9)		
Clause	Subject	Compliance
1.0.4	Surrounding area conditions	See Report 98(C)0796 Clause 6
1.0.5	Marking	See Report 98(C)0796 Clause 6
1.0.6	Instructions	See Report 98(C)0796 Clause 6
1.1.3	Changes in characteristics of materials and combinations thereof	See Report 98(C)0796 Clause 6
1.2.2	Components for incorporation or replacement	See Report 98(C)0796 Clause 6
1.2.4	Dust deposits	See Report 98(C)0796 Clause 6
1.2.5	Additional means of protection	See Report 98(C)0796 Clause 6
1.2.7	Protection against other hazards	See Report 98(C)0796 Clause 6
1.3.1	Hazards arising from different ignition sources	See Report 98(C)0796 Clause 6
1.4.2	Withstanding attack by aggressive substances	See Report 98(C)0796 Clause 6
1.6.4	Hazards arising from connections	See Report 98(C)0796 Clause 6
2.1.1	Category 1G	See Report 98(C)0796 Clause 6

19. **DRAWINGS**

Number	Issue	Date	Description
*ST2978	B	12/5/99	Single Channel IIC/IIB Circuit Diagram
*ST2973	B	12/5/99	Single Channel IIC/IIB Main p.c.b.
ST2977	B	12/5/99	Single Channel IIC Main Assembly
*ST2975	A	10/08/98	Sub Board p.c.b.
**ST2949	A	19/01/99	Multilayer Transformer
***ST2867	A	07/02/97	Marking / Printing Details
***ST2873	A	16/04/97	Terminal details
*ST3002	A	10/02/99	EG12 Housing with mounting spigots
ST2980	B	12/5/99	Dual Channel IIC Circuit Diagram



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Number	Issue	Date	Description
ST2974	B	12/5/99	Dual Channel IIC Main p.c.b.
ST2981	B	12/5/99	Dual Channel IIC Main Assembly

*These drawings are common to BASEEFA Certificate No BAS99ATEX7066

**This drawing is held with BASEEFA Certificate No. BAS98ATEX7327

***These drawings are held with BASEEFA Certificate No. Ex 97D2111

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BASEEFA List Keywords
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