



British Approvals Service for Electrical
Equipment in Flammable Atmospheres

Certificate of Conformity

- 1.
2. BAS No Ex 92C2444
3. This certificate is issued for the electrical apparatus:

THE EUROBLOC 90A RANGE OF IIB SHUNT ZENER DIODE
SAFETY BARRIERS

4. manufactured and submitted for certification by:

WEIDMULLER (KLIPPON MICROSYSTEMS) LTD, Safety Technology Products
of West Malling, Kent, ME19 6EX

5. This electrical apparatus and any acceptable variation thereto is specified
in the Schedule to this Certificate and the documents therein referred to.

6. BASEEFA being an Approved Certification Body in accordance with Article 14 of
the Council Directive of the European Communities of 18 December 1975
(76/117/EEC) certifies that the apparatus has been found to comply with
harmonised European Standards

EN50 014 (1977) and Amendments 1 to 5
EN50 020 (1977) and Amendments 1 and 2

and has successfully met the examination and test requirements as recorded in
confidential Report

No 92(C)334 dated 15 September 1992

7. The apparatus marking shall include the code

[EEx ia] IIB
(T_{amb} = 55°C)

File No: EECS 0932/02/008



Sheet 1/5

SHM

I M CLEARE
DIRECTOR EECS
2 February 1993



Electrical Equipment Certification Service
Health and Safety Executive
Harpur Hill, Buxton, Derbyshire, SK17 9JN, United Kingdom
Tel: 0298 262111 Fax: 0298 79514 Telex: 668113 RLSD G





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8. The manufacturer of the electrical apparatus referred to in this certificate, has the responsibility to ensure that the apparatus conforms to the specification laid down in the Schedule to this certificate and has satisfied routine verifications and tests specified therein.

9. This apparatus may be marked with the Distinctive Community Mark specified in Annex II to the Council Directive of 16 January 1984 (Doc 84/47/EEC). A facsimile of this mark is printed on sheet 1 of this certificate.

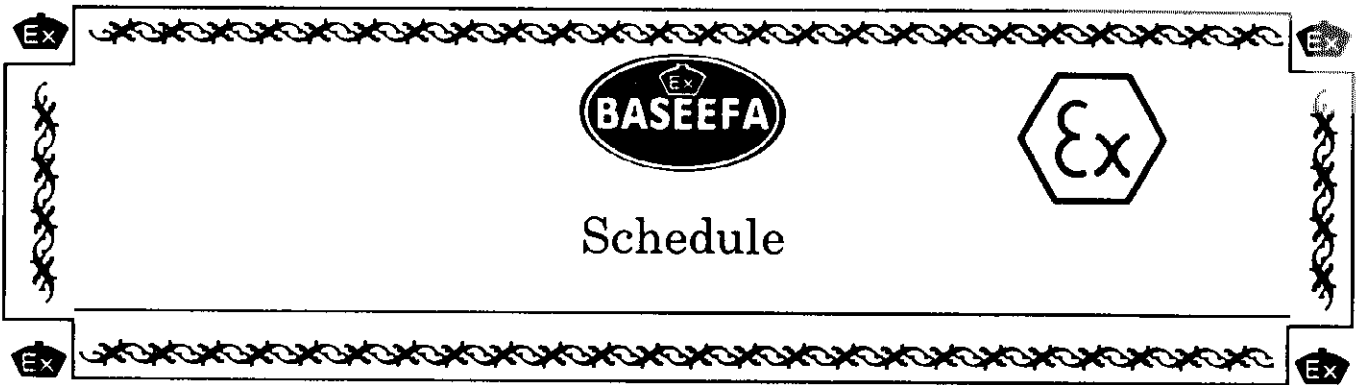
Sheet 2/5

This certificate is granted subject to conditions applicable to the Approval Service, it does not necessarily indicate that the apparatus may lawfully be used in particular industries or circumstances.



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APPARATUS

The Eurobloc 90A Range of IIB Shunt Zener Diode Safety Barriers are designed to restrict the transfer of energy from non-intrinsically safe circuits to intrinsically safe circuits by the limitation of voltage and current.

The barriers consist of a network of fuses, resistors, zener diodes and diodes mounted on a printed circuit board and fully encapsulated within a plastic enclosure which is fitted with terminals for the connection of the input and output wiring. A flying lead is brought out from the enclosure for connection to an earthed busbar.

The barriers in this range are all polarised, the polarity being denoted by the colour of a "saddle" type label fitted over the enclosure; Red - positive or Black - negative. An additional "saddle" label, coloured blue, and blue paint around the I.S. terminal throats is used to identify the intrinsically safe output terminals.

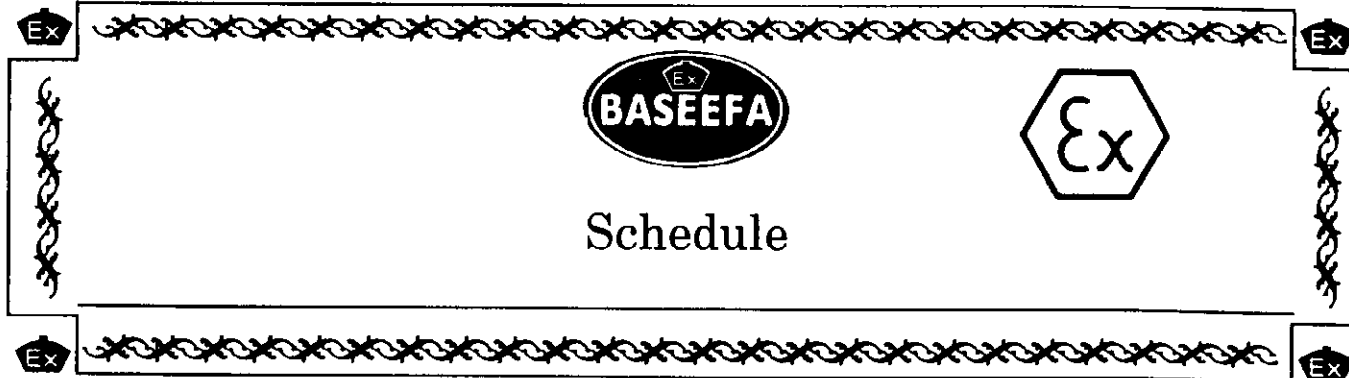
Overall there are three barriers considered in this range each available as either Positive or negative versions. These are listed in Table 1.

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the load connected to the output terminals must not exceed the value shown in Table 2.

For all the barriers the maximum voltage which can appear at the input terminals (U_m) must not exceed 250 V d.c. or 250 V r.m.s.

The flying lead must be connected to the earthed busbar by means of an increased safety (EEx e) termination.

The barrier construction meets the requirements of at least IP20, therefore it is not necessary to provide an additional enclosure for this purpose.



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Segregation between adjacent channels on a Dual Barrier is greater than 6mm and half this value is met by each barrier, such that when barriers are mounted side by side each channel may be considered as separate intrinsically safe circuits.

DRAWINGS

Number	Sheet	Issue	Date	Description
STL 1900	1	2	22/5/92	Cct & Tests E959A POS
STL 1900	2	3	18/9/92	Mech Assy E959A POS
STL 1901	1	2	21/5/92	Cct & Tests E959A NEG
STL 1901	2	3	18/9/92	Mech Assy E959A NEG
STL 1914	1	2	22/5/92	Cct & Tests E969A POS
STL 1914	2	3	18/9/92	Mech Assy E969A POS
STL 1915	1	2	22/5/92	Cct & Tests E969A NEG
STL 1915	2	3	18/9/92	Mech Assy E969A NEG
STL 1918	1	2	22/5/92	Cct & Tests E958A POS
STL 1918	2	3	18/9/92	Mech Assy E958A POS
STL 1919	1	2	22/5/92	Cct & Tests E958A NEG
STL 1919	2	3	18/9/92	Mech Assy E958A NEG
* STL 1952	1	3	29/5/92	Resin Cast Sub Assembly
* STL 1952	2	2	29/5/92	Resin Cast Sub Assembly Items List
* STL 1893	1	5	18/9/92	PCB Assembly Parts List
STL 1981		2	21/5/92	PCB Assembly 28V 150R +ve
STL 1982		2	21/5/92	PCB Assembly 28V 150R -ve
* STL 1995		2	21/5/92	PCB Assembly 28V diode +ve
* STL 1996		2	21/5/92	PCB Assembly 28V diode -ve
* STL 1997	1	2	29/5/92	Printed circuit board (28V) artwork
* STL 1997	2	2	29/5/92	Printed circuit board (28V) cut and drill
* STL 1998	1	2	29/5/92	Printed circuit board artwork
* STL 1998	2	2	29/5/92	Printed circuit board cut and drill
* STL 1999		1	9/5/91	Zener diode pair for 28V E90 barrier applications

* Drawings marked thus are held on Group IIC Certificate No Ex 92C2443



Schedule

Certificate of Conformity BAS No Ex 92C2444 dated 2 February 1993

TABLE 1

Barrier Type	Description	Fuse Rating mA	Output Parameters			Optimum Power Watts	Factor of Safety for IIB	Factor of Safety for IIA	Remarks
			Uz Volts	Rmin Ohms	Imax:out Amps				
E959A +ve E959A -ve	A: 28V 150R B: 28V 150R A&B Combined	50 50	28.00 28.00 28.00	172.9 172.9 86.5	0.162 0.162 0.324	1.13 1.13 2.26	2.76 2.76 XXXX	1.83	Not permitted for IIB
E969A +ve E969A -ve	A: 28V 150R B: 28V Diode A&B Combined	50 50	28.00 28.00 28.00	172.9 Diode 172.9	0.162 0.162	1.13 1.13	2.76 2.76		
E958A +ve E958A -ve	A: 28V 150R Single	50	28.00	172.9	0.162	1.13	2.76		

TABLE 2

Barrier Type	Description	Output Parameters		Capacitance micro F	Inductance milli H	L/R Ratio µH/ohm	Note
		Uz Volts	Imax:out Amps				
E959A +ve E959A -ve	A: 28V 150R B: 28V 150R A&B Combined	28.00 28.00 28.00	0.162 0.162 0.324	0.39 0.39	5.70 5.70	121.00 121.00	IIB IIB
Not Permitted							
E969A +ve E969A -ve	A: 28V 150R B: 28V Diode A&B Combined	28.00 28.00 28.00	0.162 0.162	0.39 0.13 0.39	5.70 5.70	121.00 121.00	IIB IIC IIB
E958A +ve E958A -ve	A: 28V 150R Single	28.00	0.162	0.39 0.39	5.70 5.70	121.00 121.00	IIB IIB

All combined channel outputs are assumed to be both channels with an earth return (ie A three wire system).

The values for IIB and IIA are 3x and 8x the IIC values.

The values for IIA are 2.66x the IIB values.