



British Approvals Service for Electrical  
Equipment in Flammable Atmospheres

## *Certificate of Conformity*

- 1.
2. **BAS No Ex 92C2446**
3. This certificate is issued for the intrinsically safe electrical system:  
**A EUROBLOC 90A SHUNT ZENER DIODE SAFETY BARRIER  
IIB SYSTEM**
4. submitted for certification by:  
**WEIDMULLER (KLIPPON MICROSYSTEMS) LTD, Safety Technology Products  
of West Malling, Kent, ME19 6EX**
5. This electrical system 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 system has been found to comply with harmonised  
European Standard

EN50 039 (1980)

and has successfully met the examination and test requirements as recorded in  
confidential Report No 92(C)334 dated 15 September 1992

7. The system is coded EEx ia IIB T4.

File No: EECS 0932/02/008



**I M CLEARE**  
**DIRECTOR EECS**  
2 February 1993

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SHM



**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. It is the responsibility of the system certificate holder to supply the relevant documentation to the installer of the intrinsically safe electrical system referred to in this certificate.

The installer has the responsibility to ensure that the system conforms to the specification laid down in the Schedule to this certificate and has satisfied routine verifications and tests specified therein.

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

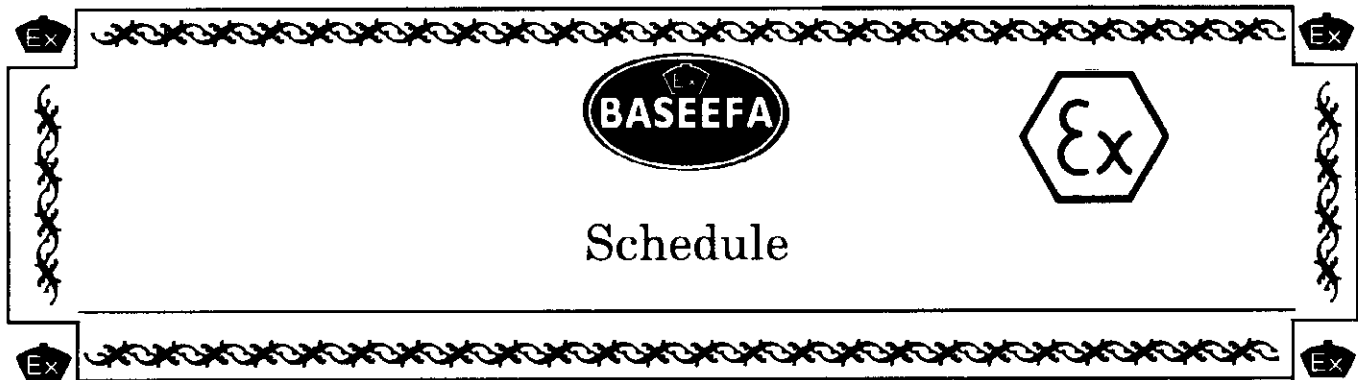
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This certificate is granted subject to conditions applicable to the Approval Service, it does not necessarily indicate that the apparatus may lawfully be used in particular industries or circumstances.



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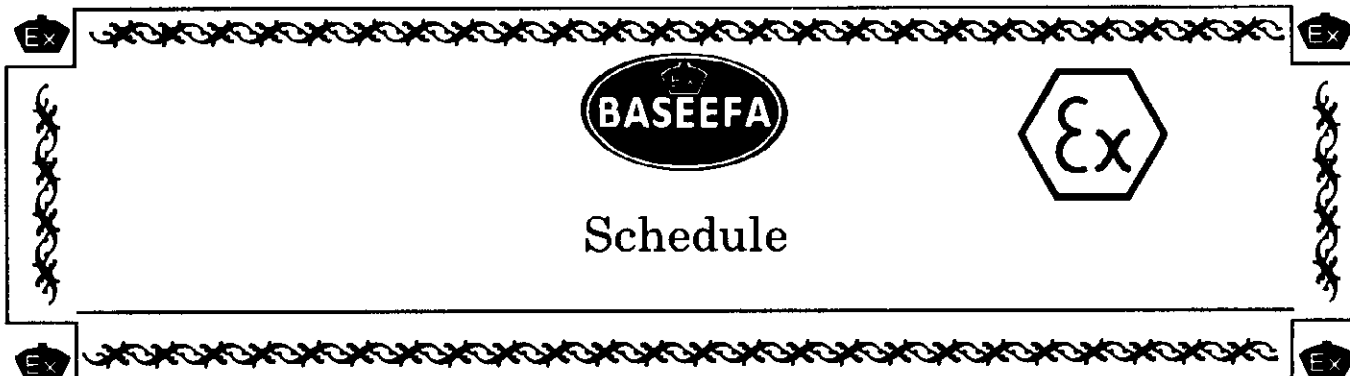
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**SYSTEM**

A Eurobloc 90A Shunt Zener Diode Safety Barrier IIB System comprising of:-

1. Apparatus located in the non-hazardous area (safe area).
  - 1.1 Any single channel barrier, a single channel of a dual channel barrier, or any dual channel barrier certified [EEx ia] IIB to BASEEFA Certificate Number Ex 92C2444, as listed in Table 1, with or without a separate earth return.

NB. Both channels of the E959A barrier must not be interconnected in this system.
  - 1.2 Apparatus which is unspecified except that it must not be supplied from nor contain in normal or abnormal conditions a source of potential with respect to earth in excess of 250 volts r.m.s. or 250 volts d.c.
2. Apparatus which may be located in the Hazardous Area.
  - 2.1 Resistive components, thermocouples, junction boxes, which meet the requirements of Clause 1.3 of BS 5501: Part: 1977: EN50 014, meeting the creepage and clearance requirements in BS 5501: Part 7: 1977: EN50 020, housed in an enclosure providing a degree of protection of at least IP20 and capable of withstanding a 500 volt test to earth or frame of the equipment for one minute without breakdown. Such equipment need not be certified nor marked.
3. Permissible Interconnecting Cables.
  - 3.1 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 values shown in Table 2.



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**CABLES**

The cable used may be a separate cable or may be installed in a Type A or Type B multicore cable (as defined in Clause 5.3 of EN50 039) provided that the peak voltage of any circuit within the Type B multicore cable does not exceed 60 V.

**DRAWINGS**

Number	Issue	Date	Description
STL 1950	1	18/9/92	IIB System Drawing

**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	I <sub>max:out</sub> 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	1.133 1.133 2.267	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	1.133  1.133	2.76  2.76		
E958A +ve E958A -ve	A: 28V 150R Single	50	28.00	172.9	0.162	1.133	2.76		



# Schedule

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TABLE 2

Barrier Type	Description	Output Parameters		Capacitance micro F	Inductance milli H	L/R Ratio $\mu\text{H}/\text{ohm}$	Note
		Uz Volts	I <sub>max:out</sub> Amps				
E959A +ve E959A -ve	A: 28V 150R	28.00	0.162	0.39	5.70	0.00	IIB
	B: 28V 150R	28.00	0.162	0.39	5.70	121.00	IIB
	A&B Combined	28.00	0.324	Not Permitted			
E969A +ve E969A -ve	A: 28V 150R	28.00	0.162	0.39	5.70	121.00	IIB
	B: 28V Diode	28.00		0.13			IIC
	A&B Combined	28.00	0.162	0.39	5.70	121.00	IIB
E958A +ve E958A -ve	A: 28V 150R	28.00	0.162	0.39	5.70	121.00	IIB
	Single			0.39	5.70	121.00	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.