



British Approvals Service for Electrical  
Equipment in Flammable Atmospheres

## *Certificate of Conformity*

- 1.
2. **BAS No Ex 92C2445**
3. This certificate is issued for the intrinsically safe electrical system:  
  
**A EUROBLOC 90A SHUNT ZENER DIODE SAFETY BARRIER  
IIC 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 IIC T4.

File No: EECS 0932/02/008



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SHM

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



**Electrical Equipment Certification Service**  
Health and Safety Executive  
Harpur Hill, Buxton, Derbyshire, SK17 9JN, United Kingdom  
Tel: 0298 26211 Fax: 0298 79514 Telex: 668113 RLSD G





British Approvals Service for Electrical  
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Certificate BAS No. Ex 92C2445 dated 2 February 1993

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.

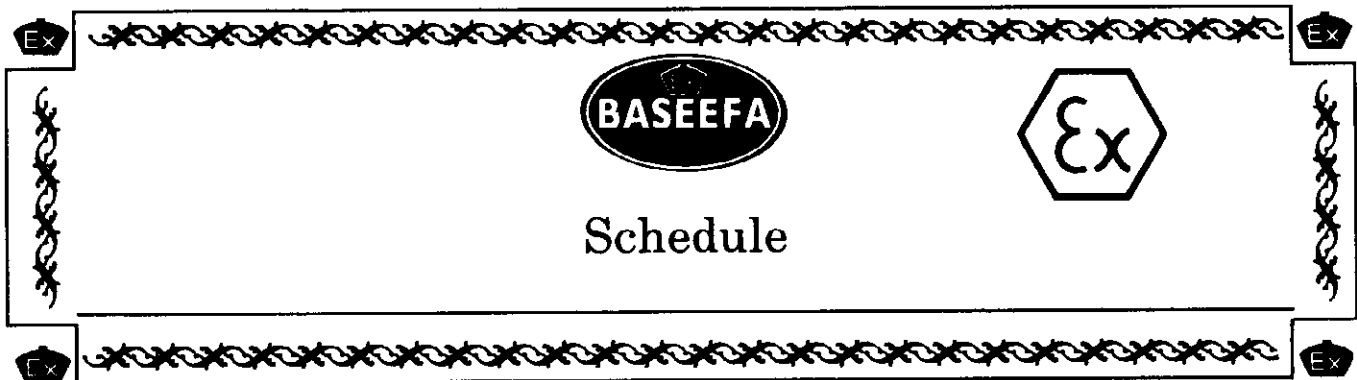
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This certificate is granted subject to conditions applicable to the Approval Service, it does not necessarily indicate that the apparatus may lawfully be used in particular industries or circumstances.



Electrical Equipment Certification Service  
Health and Safety Executive  
Harpur Hill, Buxton, Derbyshire, SK17 9JN, United Kingdom  
Tel: 0298 262111 Fax: 0298 79514 Telex: 668113 RL5D G





Certificate of Conformity BAS No. Ex 92C2445 dated 2 February 1993

**SYSTEM**

A Eurobloc 90A Shunt Zener Diode Safety Barrier IIC 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] IIC to BASEEFA Certificate Number Ex 92C2443, as listed in Table 1. with or without a separate earth return.

NB. Both channels of the E953A 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.



# Schedule

Certificate of Conformity BAS No. Ex 92C2445 dated 2 February 1993

## 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 1951	1	18/9/92	IIC System Drawing

TABLE 1

Barrier Type	Description	Fuse Rating mA	Output Parameters			Optimum Power Watts	Factor of Safety for IIC	Factor of Safety for IIB	Remarks
			Uz Volts	Rmin Ohms	I <sub>max:out</sub> Amps				
E976A +ve E976A -ve	A: 28V 600R B: 15V Diode A&B Combined	50 50	28.00 17.90 28.00	589.0 Diode 589.0	0.047	0.33	3.77		
E952A +ve E952A -ve	A: 28V 300R B: 4V 10R A:B Combined	50 250	28.00 5.70 6.56	300.2 12.0 11.5	0.093 0.475 0.568	0.65 0.67 0.93	1.92 10.52 8.79		
E925A +ve E925A -ve	A: 28V 300R B: 10V 47R A&B Combined	50 100	28.00 11.40 13.90	300.2 53.2 45.2	0.093 0.214 0.307	0.65 0.61 1.06	1.92 23.3 9.32		



## Schedule

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TABLE 1 (Cont)

Barrier Type	Description	Fuse Rating mA	Output Parameters			Optimum Power Watts	Factor of Safety for IIC	Factor of Safety for IIB	Remarks
			Uz Volts	Rmin Ohms	I <sub>max:out</sub> Amps				
E925A(R)+ve E925A(R)-ve	A: 28V 300R B: 10V 47R A&B Combined	50 100	28.00 11.40 13.90	300.2 53.2 45.2	0.093 0.214 0.307	0.65 0.61 1.06	1.92 23.3 9.32		
E953A +ve E953A -ve	A: 28V 300R B: 28V 300R A&B Combined	50 50	28.00 28.00 28.00	300.2 300.2 150.1	0.093 0.093 0.186	0.65 0.65 XXXX	1.92 1.92 XXXX	2.40 Not permitted for IIC	
E975A +ve E975A -ve	A: 28V 300R B: 15V Diode A&B Combined	50 50	28.00 17.90 28.00	300.2 Diode 300.2	0.093  0.093	0.65  0.65	1.92  1.92		
E965A +ve E965A -ve	A: 28V 300R B: 28V Diode A&B Combined	50 50	28.00 28.00 28.00	300.2 Diode 300.2	0.093  0.093	0.65  0.65	1.92  1.92		
E963A +ve E963A -ve	A: 28V Diode B: 28V Diode A&B Combined	50 50	28.00 28.00 28.00	Diode Diode Diode					
E951A +ve E951A -ve	A: 28V 300R Single	50	28.00	300.2	0.093	0.65	1.92		
E957A +ve E957A -ve	A: 28V 600R B: 28V 600R A&B Combined	50 50	28.00 28.00 28.00	589.0 589.0 294.5	0.047 0.047 0.095	0.33 0.33 0.66	3.77 3.77 1.88		
E961A +ve E961A -ve	A: 28V Diode Single	50	28.00	Diode					



# Schedule

Certificate of Conformity BAS No. Ex 92C2445 dated 2 February 1993

TABLE 2

Barrier Type	Description	Output Parameters		Cable Parameters			Group
		Uz Volts	I <sub>max:out</sub> Amps	Capacitance micro F	Inductance milli H	L/R Ratio μH/ohm	
E976A +ve E976A -ve	A: 28V 600R	28.00	0.047	0.13	15.00	93.00	IIC
	B: 15V Diode	17.90		0.42			IIC
	A&B Combined	28.00	0.047	0.13	15.00	93.00	IIC
E952A +ve E952A -ve	A: 28V 300R	28.00	0.093	0.13	4.20	55.00	IIC
	B: 4V 10R	5.70	0.475	100000	0.16	58.00	IIC
	A&B Combined	6.56	0.568	0.13	0.12	26.70	IIC
E925A +ve E925A -ve	A: 28V 300R	28.00	0.093	0.13	4.20	55.00	IIC
	B: 10V 47R	11.40	0.214	1.60	0.80	58.00	IIC
	A&B Combined	13.90	0.307	0.13	0.40	33.00	IIC
E925A(R)+ve E925A(R)-ve	A: 28V 300R	28.00	0.093	0.13	4.20	55.00	IIC
	B: 10V 47R	11.40	0.214	1.60	0.80	58.00	IIC
	A&B Combined	13.90	0.307	0.13	0.40	33.00	IIC
E953A +ve E953A -ve	A: 28V 300R	28.00	0.093	0.13	4.20	55.00	IIC
	B: 28V 300R	28.00	0.093	0.13	4.20	55.00	IIC
	A&B Combined	28.00	0.186	Not permitted			
E975A +ve E975A -ve	A: 28V 300R	28.00	0.093	0.13	4.20	55.00	IIC
	B: 15V Diode	17.90		0.42			IIC
	A&B Combined	28.00	0.093	0.13	4.20	55.00	IIC
E965A +ve E965A -ve	A: 28V 300R	28.00	0.093	0.13	4.20	55.00	IIC
	B: 28V Diode	28.00		0.13			IIC
	A&B Combined	28.00	0.093	0.13	4.20	55.00	IIC
E963A +ve E963A -ve	A: 28V Diode	28.00		0.13			IIC
	B: 28V Diode	28.00		0.13			IIC
	A&B Combined	28.00		0.13			IIC



## Schedule

Certificate of Conformity BAS No. Ex 92C2445 dated 2 February 1993

TABLE 2 (cont)

Barrier Type	Description	Output Parameters		Cable Parameters			Group
		Uz Volts	I <sub>max:out</sub> Amps	Capacitance micro F	Inductance milli H	L/R Ratio μH/ohm	
E951A +ve E951A -ve	A: 28V 300R Single	28.00	0.093	0.13 0.13	4.20 4.20	55.00 55.00	IIC IIC
E957A +ve E957A -ve	A: 28V 600R B: 28V 600R A&B Combined	28.00 28.00 28.00	0.047 0.047 0.095	0.13 0.13 0.13	15.00 15.00 4.00	93.00 93.00 38.20	IIC IIC IIC
E961A +ve E961A -ve	A: 28V Diode Single	28.00		0.13 0.13			IIC IIC

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 value.



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## *Certificate of Conformity Variation*

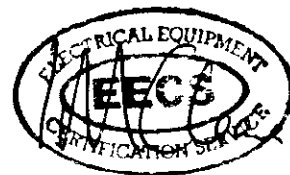
THIS IS TO CERTIFY THAT CERTIFICATE BAS NO Ex 92C2445

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

for the EUROBLOC 90A SHUNT ZENER DIODE SAFETY  
BARRIER IIC SYSTEM

is hereby extended to apply to the system conforming to the specification set out  
in the Schedules of the said Certificate but having the variations specified in  
the attached Schedule.

File No: EECS 0932/02/008



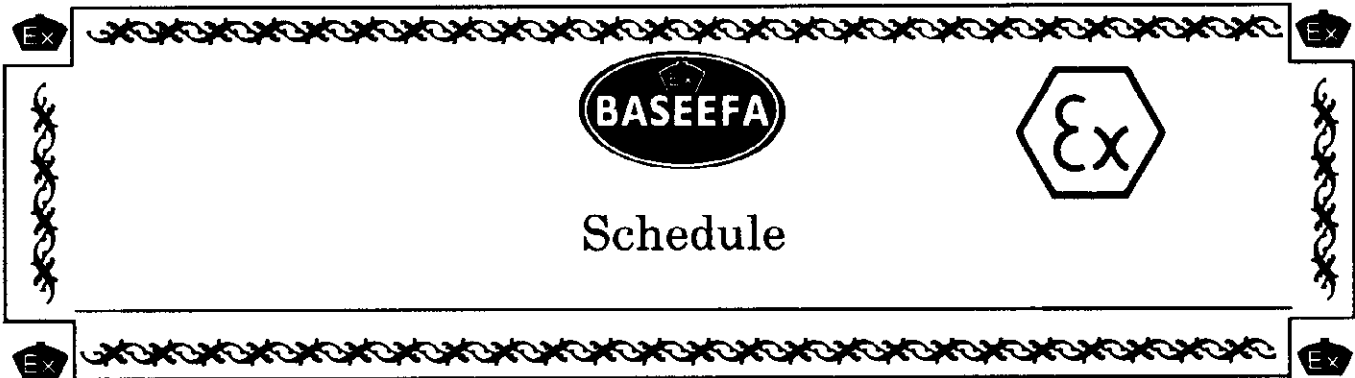
CERTIFICATE BAS NO Ex 92C2445/1  
Sheet 1/2  
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I M CLEAR  
DIRECTOR EECS  
1 February 1993



**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





Certificate of Conformity BAS No Ex 92C2445/1 dated 1 February 1993

**VARIATION ONE**

To permit the addition of an E987A negative polarised, dual channel Shunt Zener Diode Safety Barrier certified by BASEEFA to [EEx ia] IIC to the list of barriers in paragraph 1.1 of the original schedule.

The permissible interconnecting cables parameters (paragraph 3.1 of the original schedule) for this barrier are shown below:

Load Parameters

Type	Description	Capacitance $\mu\text{F}$	Inductance mH	L/R Ratio $\mu\text{H}/\text{ohm}$
E987A	A: 26V 299R	0.15	4.5	60
	B: 20V 392R	0.32	13.1	130
	A&B Combined	0.15	1.7	32

The load parameters are quoted for Group IIC.

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

**DRAWINGS**

Number	Issue	Date	Description
*STL 1951	1	18.9.92	IIC System Drawing

\* Held on BASEEFA Certificate No Ex 92C2445