

Government of India  
Ministry of Communications and Information Technology  
Department of Information Technology, Standardisation Testing & Quality Certification Directorate  
**ELECTRONICS REGIONAL TEST LABORATORY (EAST)**

TEST REPORT ON TRIP AMPLIFIER

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**1.0 SCOPE**

**1.1 Service Request No.** : TE/0061/08-12  
**1.2 Test Report No.** : ERTL(E)/TES/T238/0002/12-12  
Date : 12/03/2013

**1.3 Requested by** : **TROLEX LTD.**  
( Name & Address of the organisation ) : NEWBY ROAD INDL.ESTATE  
HAZEL GROVE,STOCKPORT,  
CHESHIRE, SK75DY,  
UNITED KINGDOM

**1.4 Description , Identification of the item to be tested**

Item	:	TRIP AMPLIFIER
Make	:	TROLEX
Model	:	TX9131
Sl.No.	:	PROTOTYPE
Qty.	:	1

**1.4.1 Applicable Spec.of the item(s) tested:**

Ui=16.5V, Ci=3.6nF, Li=0

**1.4.2 Characterisation and condition of the item**

Characterisation	:	Not applicable /
Condition	:	Satisfactory /

**1.5 Date of item receipt of item** : 04/09/2012

**1.6 Date of start of testing** : 12/12/2012

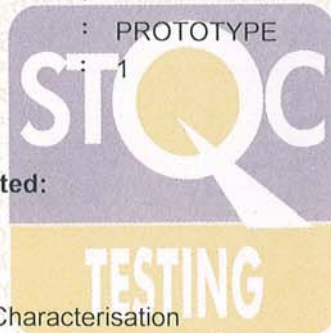
**1.6.1 Date of completion of testing** : 05/02/2013

**1.7 Location where testing performed** : In house

**1.8 Ambient condition during measurement** : 25 +/- 1.5°C  
70% RH. Max.

**1.9 Spec. used for testing** : IS/IEC 60079-0:2004 & IS/IEC 60079-11:2006,GAS GROUP I

**1.9.1 Details of non-standard method followed (if any)** : NIL



Certificate No. : T1397

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**3.0 Equipment used**

Pl. see the ANNEXURE-'EQUIPMENT USED' for details of equipment used for testing

**4.0 Remarks ( if any )**

- a) The equipment "Trip Amplifier", Type:TX9131, Make:Trolex has been assessed & tested as per relevant clauses of IS/IEC 60079-0:2004 & 60079-11:2006 for its intrinsically safe design & found complied for Gas Group I application.
- b) Safe condition of use: The equipment "Trip Amplifier" shall be housed in IP 54 enclosure (minimum requirement) or Flameproof enclosure tested and certified for Group I application.
- c) This report is exclusively valid for Trip Amplifier TX9131 having three options i.e. Single relay 4 to 20mA output option, Single relay .4 to 2V output option and Dual relay output option only.



RELEASED BY  
 (signature & date)

*Sona Jana*  
 20.3.13

**SONA JANA**  
 Scientist  
 STQC Directorate, Deptt. of IT, Ministry of Comm. & Info. Tech., Government of India, Kolkata-700 091

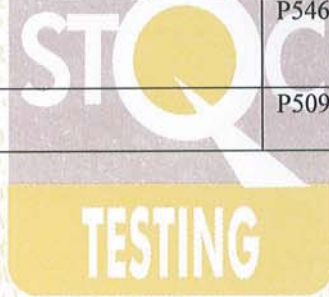
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**Annexure-I**

**Report No: ERTL(E)/TES/T238/0002/12-12**

Following are the certified drawings/ documents as listed Trip Amplifier, Type : TX9131, Make: Troxlex.

Sl. No	Title	Document / Drawing No.	Date	Issue	No of sheet(s)
01	Label Details	P5460.127.1	31.01.13	A	1
02	Interconnection Block Diagram	P5460.45	21.01.98	A	1
03	Circuit diagram Control PCB	P5460.01-I	07.07.97	A	1
04	PCB Artwork (Control)	P5460.03	07.07.97	A	1
05	Circuit diagram Output PCB (V,I,KTY81 Input)	P5460.38-I	09.01.98	A	1 of 3
06	Circuit diagram Output PCB (V,I,KTY81 Input)	P5460.38-I	09.01.98	A	2 of 3
07	Circuit diagram Output PCB (V,I,KTY81 Input)	P5460.38	06.02.02	B	3 of 3
08	Output PCB	P5460.29	08.01.98	A	7 sheets 1of 7 to 7 of 7
09	Reed Relay	P5093.27	21.01.97	C	1 of 1



B. Deb  
Head (EAC)



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**Annexure – II**

Report no. ERTL(E)/TES/T238/0002/12-12

Entity parameters for Trip Amplifier, Make: Trolex, Type: TX9131 as referred in the report

**T1-T2 (sensor power)**

$U_o = 16.5V$ ;  $C_i = 2.4nF$ ;  $L_i = 0$

**T3-T4 (sensor signal)**

$U_o = 16.5V$ ;  $I_o = 33mA$ ;  $P_o = 135mW$ ;  $C_i = 1.2nF$ ;  $L_i = 0$

**T5-T6 (supply)**

$U_i = 16.5V$ ;  $C_i = 3.6nF$ ;  $L_i = 0$

**T7-T8 (relay)**

$U_o = 0$ ;  $U_i = 20V$ ;  $C_i = 0$ ;  $L_i = 0$

**T11-T12 (relay reset / power on delay)**

$U_o = 16.5V$ ;  $U_i = 0$ ;  $C_i = 0$ ;  $L_i = 0$

**T9-T10 (Dual Relay Output Option)**

$U_o = 0$ ;  $U_i = 20V$ ;  $C_i = 0$ ;  $L_i = 0$

Or.

**T9-T10 (4-20mA Output Option)**

$U_o = 16.5V$ ;  $C_i = 0$ ;  $L_i = 0$ ;  $I_o = 105mA$

Value of  $L_o$  &  $C_o$  must not exceed the following limits.

$L_o = 42mH$ ;  $C_o = 11.7 \mu F$

Refer clause no. 10.1.5.2 of IS/IEC 60079-11:2006 for connection of combined inductance and capacitance.

Or.

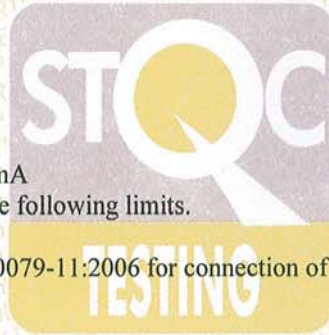
**T9-T10 (.4-2V Output Option)**

$U_o = 16.5V$ ;  $C_i = 0$ ;  $L_i = 0$ ;  $I_o = 105mA$

Value of  $L_o$  &  $C_o$  must not exceed the following limits.

$L_o = 42mH$ ;  $C_o = 11.7 \mu F$

Refer clause no. 10.1.5.2 of IS/IEC 60079-11:2006 for connection of combined inductance and capacitance.





B. Deb  
Head (EAC)

