



1 **TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 04ATEX4111X** Issue: **3**

4 Equipment: **Trunkguard TG200 Series Device Couplers**

5 Applicant: **Moore Industries Incorporated**

6 Address: 16650 Schoenborn Street  
Sepulveda  
CA 91343-6196  
USA

7 This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

8 Sira Certification Service certifies that this equipment has been found to comply with the Essential Health and Safety Requirements that relate to the design of Category 3 equipment, which is intended for use in potentially explosive atmospheres. These Essential Health and Safety Requirements are given in Annex II to European Union Directive 94/9/EC of 23 March 1994.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 50021:1999

EN 50281-1-1:1998

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

11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified equipment, and not to specific items of equipment subsequently manufactured.

12 The marking of the equipment shall include the following:



II 3 GD T100°C IP66  
EEx nA[nL] IIC T5 (Ta = -40°C to +70°C)

D R Stubbings BA MIET  
Certification Manager

Project Number 59A17276  
C. Index 16

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**Sira Certification Service**

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## SCHEDULE

### TYPE EXAMINATION CERTIFICATE

Sira 04ATEX4111X  
Issue 3

#### 13 DESCRIPTION OF EQUIPMENT

The TG200 Series Device Coupler is designed to facilitate the connection of multiple process measurement & control devices using fieldbus technology into fieldbus segments. The unit has designation TG2XX-DIN where XX may be 04, 08, 0X to indicate 4, 8 or 10 spurs respectively, and the unit is rated at 9 to 32V DC.

The TG200 unit comprises a printed circuit board populated with components and terminal blocks, this is then fitted in a plastic case with end brackets and a top cover. The unit is filled with encapsulant such that the terminal blocks and light emitting diodes (LEDs) protrude through the encapsulant. The LEDs are visible through windows in the top cover label. The end brackets may have integral mouldings for mounting on DIN rail or flat brackets for surface mounting. The unit is provided with shrouds (covers) and fillers for the Trunk In and Trunk Out terminal blocks such that accidental contact with non-energy limited live parts is prevented, achieving a minimum of IP30 protection. The spur terminal blocks provide connections to the energy limited circuits, which may be removed in the hazardous area while the unit is energised.

Each TG200 unit has a segment input (Trunk In), and provides multiple device connection points (Spurs) together with onward segment transmission (Trunk Out). The TG200 unit is to be installed inside an external enclosure that is suitably certified for Zone 2 use, which may be selected by the installer, subject to a Special Condition for Safe Use.

Installation of the covers and fillers on the Trunk In and Trunk Out terminals permits the external enclosure to be opened in the hazardous area whilst the TG200 unit is energised.

<b>Electrical Parameters:</b> Trunk in = Trunk out	Spur Out
$U_i \leq 32 \text{ V}$	$U_o = U_i$
$I_i \leq 1.5 \text{ A}$	$I_o = 50 \text{ mA}$
	Individual Spur connections are limited to
	$U_o = U_i$ and $I_o = 50 \text{ mA}$ .

External circuits should be limited to the following:

Group	Maximum External Capacitance, $C_o$	Maximum External Inductance, $L_o$
IIC	180 nF	30 mH
IIB	1230 nF	120 mH
IIA	4600 nF	240 mH

Wiring access to the Trunk In and Trunk Out connections in the hazardous area is only permitted when the TG200 unit is de-energised.



## SCHEDULE

### TYPE EXAMINATION CERTIFICATE

Sira 04ATEX4111X  
Issue 3

**Variation 1** - This variation introduced the following changes:

- i. To permit the TG200 Printed Circuit Board to contain up to 32 spur short-circuit protection units (SSCPUs) and one autoterminator circuit. The numbers of SSCPU's that may be fitted on to a printed circuit are normally specified in multiples of two, starting with four circuits. These are designated as TG204, TG206, TG208 up to TG232. The drawings indicate a TG208 as an example.
- ii. To permit changes to the circuit of the TG200 including component type, component name designation and component values.
- iii. To permit the PCB to be re-laid out.
- iv. To permit changes to drawing format to allow the use of Moore Industries drawing paper.
- v. To permit changes to the certification label format to include Moore-Hawke LLC, Moore Industries-International Inc, CA 91343, USA.

**Variation 2** - This variation introduced the following changes:

- i. To permit the introduction of three alternative circuits.
- ii. To permit a re-design of the current-limiting circuit.
- iii. To permit the addition of RF protection components.
- iv. To permit the addition of an optional terminator board module.
- v. To permit the optional use of a metal inner enclosure material instead of plastic.

## 14 DESCRIPTIVE DOCUMENTS

### 14.1 Drawings

Refer to Certificate Annexes.

### 14.2 Associated Sira Reports and Certificate History

Issue	Date	Report No.	Comment
0	6 May 2004	R52A10724A	The release of the prime certificate.
1	14 February 2006 22 November 2006	R52A13932A	The introduction of Variation 1. Variation 1 re-Issued with the re-issue of the prime certificate.
2	22 November 2006	R52A10724A	Prime certificate re-issued 22 November 2006 to correct a typographical error.
3	16 June 2008	R59A17276A	This Issue covers the following changes: <ul style="list-style-type: none"><li>• All previously issued certification was rationalised into a single certificate, Issue 3, Issues 0 to 2 referenced above are only intended to reflect the history of the previous certification and have not been issued as documents in this format.</li><li>• The introduction of Variation 2, including the change of the Applicant's name, first recognised 19 August 2005, was re-confirmed.</li></ul>

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**TYPE EXAMINATION CERTIFICATE**

**Sira 04ATEX4111X  
Issue 3**

**15 SPECIAL CONDITIONS FOR SAFE USE**

15.1 When the Trunkguard TG200 Series Device Couplers have not been provided with an enclosure by the manufacturer, then they shall be fitted in a terminal enclosure by the user/installer, in accordance with the following conditions:

- The enclosure shall be compliant with the requirements for Directive 94/9/EC, Category 3 GD, alternatively, an enclosure that has been certified by a notified body as EEx e II and is suitable for Category II 2GD applications may also be used.
- The enclosure shall be IP66 minimum.
- A minimum clearance of 1 mm between live parts and earthed metal shall be maintained.
- If other electrical circuits are fitted into the enclosure, then they shall be suitably approved for the hazardous area of installation and all live parts shall be protected to a minimum of IP30 when the enclosure is opened.
- The label supplied with the Trunkguard TG200 Series Device Couplers shall be affixed to the exterior of the enclosure.

15.2 If external maintenance devices are connected to the test points, they shall be certified EEx n, EEx i or otherwise approved for use in the hazardous area; in addition, the output parameters of these devices shall not exceed those of the spur circuit, i.e.  $U_o = 32\text{ V}$  and  $I_o = 50\text{ mA}$ . The covers for the test points shall only be removed for the minimum time necessary for the maintenance operations and shall be replaced after use.

**16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS (EHSRs)**

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed reports listed in Section 14.2.

**17 CONDITIONS OF CERTIFICATION**

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.

17.2 Holders of Type Examination Certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

17.3 The following routine test is to be performed on each product manufactured:

An electric strength test of 500 V ac, shall be applied between circuit and the casing covered in metal foil for at least 1 minute as required by EN 50021:1999 clause 9. No breakdown shall occur.

17.4 If the manufacturer supplies the Trunkguard TG200 Series Device Couplers already fitted in a terminal enclosure, then this enclosure shall be suitably certified and the key attributes listed in the table below shall be maintained by their original certificate.

Product	Certificate no.	Key attributes
Terminal enclosure	As appropriate	Either: Certified EEx e II, Category 2 GD or EEx nA II, Category 3 GD Or: Compliant with the requirements for Directive 94/9/EC for Category 3 GD And: IP66

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# Certificate Annexe

Certificate Number: Sira 04ATEX4111X

Equipment: Trunkguard TG200 Series Device Couplers

Applicant:



## Issue 0

Drawing No.	Rev.	Sheet	Date	Description
FTG200-001	1 of 1	1	20 Apr 04	Certification label
FTG200-002	1 of 1	1	20 Apr 04	Enclosure Certification label
FTG200-003	1 of 1	1	30 Mar 04	TG200-DIN Series General Assembly
FTG200-004	1 of 1	1	07 Jul 04	TG200 Series Schematic Diagram
FTG200-005	1 of 1	1	07 Jul 04	TG200 Series Electronic BOM
FTG200-006	1 to 4	1	01 May 04	TG208 Printed Circuit Board

## Issue 1

Drawing No.	Rev.	Sheet	Date	Description
			(Sira stamp)	
FTG200-001	B	1 of 1	21 Dec 05	TG200 Certification Label - Sira
FTG200-002	B	1 of 1	21 Dec 05	TG200 Certification Label - Sira
FTG200-003	A	1 of 1	01 Nov 05	TG200 General Assembly
FTG200-004	A	1 of 1	01 Nov 05	TG200 Circuit Diagram
FTG200-005	A	1 of 1	01 Nov 05	TG200 BOM
FTG200-006	A	1 of 1	01 Nov 05	TG200 PCB General Arrangement

## Issue 2

Drawing No.	Rev.	Sheet	Date	Description
FTG200-001	1 of 1	1	20 Apr 04	Certification label
FTG200-002	1 of 1	1	20 Apr 04	Enclosure Certification label
FTG200-003	1 of 1	1	30 Mar 04	TG200-DIN Series General Assembly
FTG200-004	1 of 1	1	07 Jul 04	TG200 Series Schematic Diagram
FTG200-005	1 of 1	1	07 Jul 04	TG200 Series Electronic BOM
FTG200-006	1 to 4	1	01 May 04	TG208 Printed Circuit Board

## Issue 3

Drawing No.	Rev.	Sheet	Date	Description
FTG200-001	B	1 of 1	21 Dec 05	TG200 Certification Label - Sira
FTG200-002	B	1 of 1	21 Dec 05	TG200 Certification Label - Sira
FTG200-004	B3	1 to 3	Feb 08	TG200 schematic
FTG200-005	B3	1 to 3	Feb 08	TG200 BoM
TG200-DIN1	A	1 of 1	Aug 07	General assembly
TRK-TERM	C	1 of 1	Jun 08	Terminator board schematic and assembly

FTG200-003 is withdrawn and replaced by TG200-DIN1. FTG200-006 is discontinued as it contains no safety-critical information.

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