



1 **EC - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

3 EC - Type Examination Certificate Number: **Baseefa06ATEX0091X**

4 Equipment or Protective System: **GR Series Pressure Switches**

5 Manufacturer: **Delta Controls Limited**

6 Address: **Island Farm Avenue, West Molesey, Surrey KT8 2UZ**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa (2001) Ltd., Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. 05(C)0670

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2004 EN 50020: 2002 EN 60079-26: 2004 IEC 61241-0: 2004 EN 61241-11: 2005

except in respect of those requirements listed at item 18 of the Schedule.

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

11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

Ex II 1GD Ex ia IIC T6 (-40°C ≤ T_a ≤ +60°C) or T4 (-40°C ≤ T_a ≤ +85°C)
Ex iaD 20 T85 (-40°C ≤ T_a ≤ +60°C) or T135 (-40°C ≤ T_a ≤ +85°C)

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. 0279

Project File No. 05/0670

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.

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13

Schedule

14

Certificate Number Baseefa06ATEX0091X

15 Description of Equipment or Protective System

The GR Series Pressure Switches are designed to allow the switching of one or two internally mounted microswitches connected to intrinsically safe circuits, actuated by pressure being applied to a piston / level / diaphragm assembly.

The apparatus comprises an aluminium or stainless steel enclosure with a pressure port containing a piston and diaphragm assembly connected externally to various process connections. The piston passes through a bushing arrangement into the main enclosure to actuate one or two microswitches fitted in a sealed snap switch assembly. External connections to the microswitches are via flying lead connections fed out through the top of the enclosure or via terminals fitted in a plastic enclosure.

The GR Series Pressure Switches has a number of different models, the differences being the type and number of microswitches fitted and the process connection. The following models in the range have been assessed: -

Typical Model Number

4	GR2	A* **	HP	* ** ****
↑	↑	↑	↑	
1.	2.	3.	4.	

1. Enclosure Type – 2 options:-

- 4 = Stainless Steel Enclosure
- 5 = Aluminium Enclosure

2. Pressure Switch Type – 5 Options:-

- GR2 = Fixed Switching Differential Pressure Switch (Max. Working Pressure 155 Bar.)
- GR3 = Fixed Switching Differential Pressure Difference Switch (Max. Working Pressure 110 Bar)
- GR4 = Fixed Switching Differential Pressure Switch (Max. Working Pressure 600 Bar or 1000 Bar)
- GR6 = Fixed Switching Differential Pressure Difference Switch (Max. Working Pressure 250 Bar)
- GR7 = Fixed Switching Differential Temperature Switch

3. Electrical Entry – 5 Options: -

- A = Flying Leads - 0.5 Metre Lead Length
- B = Flying Leads - 1 Metre Lead Length
- L = Flying Leads – 3 Metre Lead Length
- V = Plastic Terminal Enclosure with Screw Terminals
- W = Plastic Terminal Enclosure with DIN rail mounted terminals

4. Switch Options – 6 Options:-

- HP = Single Pole Double Throw (SPDT) gold plated silver contacts
- HQ = Double Pole Double Throw (DPDT) gold plated silver contacts (Simultaneous falling under pressure)
- HT = Double Pole Double Throw (DPDT) gold plated silver contacts (Simultaneous rising under pressure)
- HV = Single Pole Double Throw (SPDT) gold alloy contacts for low voltage switching
- HW = Double Pole Double Throw (DPDT) gold alloy contacts for low voltage switching (Simultaneous falling under pressure)
- HY = Double Pole Double Throw (DPDT) gold alloy contacts for low voltage switching (Simultaneous rising under pressure)

* denotes other parameters of the model number relating to the construction, setting and process connections options of the apparatus. The differences in these options do not have an affect on the intrinsic safety assessment.



Each microswitch circuit has the following input parameters: -

$$U_i = 30V$$

$$I_i = 300mA$$

$$C_i = 0$$

$$L_i = 0$$

Variation 0.1

To permit the mounting of two GR Series Pressure Switches to a plastic terminal enclosure containing screw terminals or DIN rail mounted terminal connections to form the Model GRISASSY02****. The * denote the configuration of the model in terms of the GR Series Pressure Switches and the termination resistors fitted.

Each microswitch circuit has the same input parameters as specified for the GR Series Pressure Switches.

16 Report Number

05(C)0670

17 Special Conditions for Safe Use

1. The apparatus must be installed such that the risk of impact or abrasion is negligible.
2. The permanently attached leads must be suitably protected against mechanical damage and terminated in a suitable junction or terminal facility with a minimum degree of protection of at least IP6x.
3. The installation of external connections to models of the apparatus with terminal enclosures must be carried out using appropriate conduit or cable gland with a degree of protection of at least IP6x, Component certified by an EU approved Certification Body.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
14817	1	A	15/11/05	EEx ia Approval Drawing for GR Series
14818	1	A	08/12/05	EEx ia Switch Options
14819	1	A	08/12/05	GR4 High Pressure Low Temp Assembly
14820	1	A	08/12/05	GR Vacuum and Compound Ranges
14821	1	A	08/12/05	EEx ia GR Series Rating Label
14822	1	A	15/11/05	EEx ia Terminal Arrangement
14823	1	A	12/04/06	Adhesive Label Configuration
14838	1	A	10/05/06	GR Ex ia Terminal Block Assembly



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

3 Supplementary EC - Type Examination Certificate Number: **Baseefa06ATEX0091X/1**

4 Equipment or Protective System: **GR Series Pressure Switches**

5 Manufacturer: **Delta Controls Limited**

6 Address: **Island Farm Avenue, West Molesey, Surrey, KT8 2UZ**

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa06ATEX0091X to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0279**

Project File No. **10/0111**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

A handwritten signature in blue ink, appearing to read "R S Sinclair".

Baseefa

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R S SINCLAIR
DIRECTOR
On behalf of
Baseefa



13 **Schedule**

14 **Certificate Number Baseefa06ATEX0091X/1**

15 **Description of the variation to the Equipment or Protective System**

Variation 1.1

To confirm that the GR Series Pressure Switches covered by the original schedule and Variation 0.1 comply with the requirements of EN60079-0:2009, EN60079-11:2007, EN60079-26:2004, EN61241-0:2006, EN 61241-11:2006, and to confirm that they may be marked with the certification code:-

⊕ II 1GD Ex ia IIC T6 Ga Ex ia IIIC T85 °C Da IP6x (-40°C ≤ T_{amb} ≤ +60°C)
Ex ia IIC T4 Ga Ex ia IIIC T135 °C Da IP6x (-40°C ≤ T_{amb} ≤ +85°C)

The input parameters are clarified as being derived from a Certified Group IIC source at U_i = 30V, I_i = 300mA, C_i = 0 and L_i = 0.

Variation 1.2

To permit the potting compound Stycast 2850FT-FR/Cat 11 to be replaced with Resinlab Grade EP1340 Epoxy Resin, a change in the method of applying the certification details, an alternative entry thread, and for the metallic enclosure to be made from solid instead of welding.

16 **Report Number**

None

17 **Special Conditions for Safe Use**

None additional to those listed previously

18 **Essential Health and Safety Requirements**

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 **Drawings and Documents**

Number	Sheet	Issue	Date	Description
14817	1	B	2010/02/18	Ex ia Approval Drawing for GR Series
14818	1	B	2010/03/09	Ex ia Switch Options
14821	1	C	2010/02/18	Ex ia GR Series Rating & Certification Label
14822	1	B	2010/02/23	Ex ia Terminal Arrangement
14823	1	B	2010/02/23	Additional Adhesive Label Terminal Box
14838	1	B	2010/02/23	GR Ex ia Terminal Block Assembly