



# DET NORSKE VERITAS

## 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: **DNV-2005-OSL-ATEX-0327X** Rev. 7

[4] Equipment or Protective System: **PAC 1278 2-wire I.S. ASL subsystem**

[5] Applicant – Manufacturer or Authorized representative: **MISTRAS Group Inc.**

[6] Address: **195 Clarkesville Road,  
Princeton Junction, New Jersey  
USA**

[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] DNV, notified body number 0575 in accordance with Article 9 of 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 reports listed in section 14.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
**EN 60079-0: 2012 and EN 60079-11:2012**

[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 protected system. If applicable, further requirements of this Directive apply to the manufacturer and supply of this equipment or protective system.

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

 **II 1 G Ex ia IIC T4 Ga -40 °C ≤ Ta ≤ +70 °C**  
**Ex ia IIC T6 Ga -40 °C ≤ Ta ≤ +40 °C**  
**II 1 D Ex ia IIIC T135°C Da -40 °C ≤ Ta ≤ +70 °C**

Høvik, 2015-08-12  
for Det Norske Veritas AS

**Bjørn Spongsveen**  
*Certification Manager*



Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

The digitally signed and electronically distributed document is the original and valid certificate. Ref.: [www.dnv.com/digitalsignatures](http://www.dnv.com/digitalsignatures)

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



[13]

## Schedule

[14] **EC-TYPE EXAMINATION CERTIFICATE No.:** DNV-2005-OSL-ATEX-0327X

Rev. 7

### Certificate History

| Revision | Description  | Report no.      | Issue date |
|----------|--|-----------------|------------|
| -        | Original certificate   | 2005-3340       | 2005-11-22 |
| 1        | Supplement 1   | 2006-3010       | 2006-09-21 |
| 2        | Updated to recent standards, minor changes on four drawings                                  | 2011-3336       | 2011-07-29 |
| 3        | Correction to label drawings   | 2012-3404       | 2012-12-05 |
| 4        | Reversal of label drawing correction   | 2012-3404       | 2013-03-01 |
| 5        | Update dust rating and update to latest standard versions, add T6 rating for +40 °C ambient. | 2013-3369       | 2014-11-13 |
| 6        | Transfer sensors from certificate DNV-2003-OSL-ATEX-0165, and update sensor drawings.        | 2013-3369 Rev 1 | 2015-04-29 |
| 7        | Correction of typographical error  | 2013-3369 Rev 1 | 2015-08-12 |

### [15] Description of Equipment or Protective System

The ASL Subsystem comprises an electronic circuit housed in aluminium enclosure. The circuit is partially encapsulated in an epoxy resin. The input of the ASL Subsystem must be connected to a power supply via an EC Type certified zener barrier with or without galvanic separation.

EC Type Examination Certified sensors that can be connected to the ASL subsystem output: ISR.45, ISR1.5, ISR3, ISR6, ISR15, ISR30, ISR50, ISWD, and ISD9203B.

### Type Identification

Model 1278

GDU 1278

The ASL Subsystem GDU 1278 has the following alternative Authorized Representative:

**Groverlely Detection Limited**

**Anchor Works, Groverley Road, Christchurch, Dorset, BH23 3HB UK**

### Electrical Data

$U_i = 30V$ ,  $I_i = 100mA$ ,  $P_i = 0.9W$ ,  $L_i = 100 \mu H$ ,  $C_i = 0.05 \mu F$

### Degrees of protection (IP Code)

IP66

[16] **Project No.:** PRJC-449152-2013-PRC-USA

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**Descriptive Documents**

| Number        | Title  | Rev. | Date       |
|---------------|--|------|------------|
| 1277-2011     | Drill/fabrication drawing & Panel drawing<br>2-wire IS-ASL subsystem, (2 sheets) | 0    | 2005-01-22 |
| 1278-2011     | Drill/fabrication drawing & Panel drawing<br>2-wire IS-ASL subsystem, (2 sheets) | 1A   | 2011-04-28 |
| 1278-2014-XX  | Assembly Drawing, 2-wire IS-ASL subsystem  | 1B   | 2011-04-28 |
| 1278-5015-XXX | Assembly Drawing, 1278 2-wire IS-ASL subsystem                                   | 3    | 2014-06-04 |
| 1278-6000     | 1278 System Connections  | 1    | 2014-06-04 |
| 1278-3010     | Schematic, 2-wire IS-ASL subsystem (3 sheets)                                    | 1B   | 2011-03-14 |
| 1277-2010     | 2-wire IS-ASL subsystem (PCB layout, 9 sheets)                                   | 0    | 2005-01-26 |
| 1278-2010     | 2-wire IS-ASL subsystem (PCB layout, 8 sheets)                                   | 1    | 2005-10-25 |
| ISWD/ISD9203B | ISWD & ISD9203B Assembly   | 1    | 2013-01-28 |
| ISR.45-6001   | ISR.45 Assembly  | 1    | 2013-01-28 |
| ISXXXXX-6001  | ISR6, ISR15, ISR30, ISR50, ISF15, ISF30 & ISF50 Assembly                         | 1    | 2013-01-28 |
| ISR1.5/3-6001 | ISR1.5 & 3 Assembly  | 1    | 2013-01-28 |
| 1110-2030     | Sensor, Diode Protection Board Artwork ( 8 sheets)                               | 0    | 1997-10-09 |
| 1110-2031     | Drill Drawing IS Sensor Diode Protection Board<br>(2 sheets)                     | 0    | 2001-10-23 |
| 1110-2034     | Top Assembly Drawing IS Sensor Diode Protection<br>Board (2 sheets)              | 0A   | 2003-10-15 |
| 1110-3030     | Schematic, IS Sensor Diode Protection Board                                      | 0    | 2001-10-29 |
| IS9203B-3010  | IS9203B Sensor Schematic   | 0    | 2003-04-10 |
| ISR45-3010    | ISR.45 Sensor Schematic  | 0    | 2003-04-10 |
| ISXXXX2-3010  | ISWD, ISR1.5, ISR3 Sensor Schematic  | 0    | 2003-04-10 |
| ISXXXXX-3010  | ISR6, ISR15, ISR30 and ISR50 Sensor Schematic                                    | 0    | 2003-04-10 |

**[17] Special Conditions for Safe Use**

The enclosure is made of aluminium, and care must be taken due to the potential risk of sparks on avoid impact with iron or steel objects.

**[18] Essential Health and Safety Requirements**

See part 9 of this certificate

END OF CERTIFICATE

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.