

# EC-TYPE EXAMINATION CERTIFICATE



[1]

[2]

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

[3]

EC-Type Examination Certificate Number: **DEMKO 02 ATEX 131477X Rev. 0**

[4]

Equipment or Protective System: **Avtron M5 and M6 Flameproof Pulse Generator**

[5]

Manufacturer: **Avtron Industrial Automation Inc.**

[6]

Address: **8901 E. Pleasant Valley Road, Independence, OH 44131 USA**

[7]

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

[8]

UL International Demko A/S, notified body number 0539 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 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. **10CA64878**

[9]

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

**EN 60079-0:2009**

**EN 60079-1:2007**

**EN 60079-7:2007**

[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, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system.

These are not covered by the certificate.

[12]

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

**II 2 G Ex de IIC T4 Gb**

**Certification Manager**

Jan-Erik Storgaard

**Date of issue:** 2003-02-14

**Re-issued:** 2012-11-22

**Notified Body**

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[14]

**Schedule**  
**EC-TYPE EXAMINATION CERTIFICATE No.**  
**DEMKO 02 ATEX 131477X Rev. 0**  
**Report: 10CA64878**

[15]

Description of Equipment or protective system

The M5 & M6 range of encoders are rotary speed and position transducers. The output from the units is directly proportional to shaft position (pulse count) or speed (pulse rate). The encoder is designed to be used for both control and instrumentation applications and is powered by a DC supply not exceeding 24 Volts. The device consists of a cast aluminium flameproof and up to two increased safety housings, separated by cement seals.

Temperature range

The ambient temperature range is -20 °C to +80 °C or -40 °C to +80 °C with a corresponding temperature class of T4.

Electrical data

Powered by a DC supply not exceeding 24 V.

Installation instructions

- All cable entry devices and blanking elements shall be certified in the type of increased safety enclosure “e”, rated IP 66 and suitable for the conditions of use and correctly installed.
- Unused apertures shall be closed with suitably certified Ex e blanking elements, rated IP 66.
- For ambient temperatures below -10 °C and above +60 °C use field wiring suitable for both minimum and maximum ambient temperatures.
- Wiring and cable glands used for installation must be suitable for a minimum temperature of 91°C.

Routine tests

The maximum reference pressure measured in accordance with sub-clause 15.1.2 of EN 60079-1 for the Rotary Encoder is 10 bar. The enclosure has been type tested in accordance with sub-clause 15.1.3.1 by a static pressure of 42 bar for 60 seconds, which is four times the reference pressure. Based on this, the routine Pressure Test on the enclosure is not necessary.

[16]

Report No.

Project Report No.: 10CA64878 (Hazardous Location Testing)

Documents:

**Description:**

**Drawing No.:**

**Rev. Level:**

**Date:**

M5/M6 EXPLOSION-PROOF PULSE GENERATOR MODEL NO. SCHEME AND IDENT LABEL	D30360	N	2012-11-09
M5/M6 EXPLOSION-PROOF PULSE GENERATOR M5 GENERAL ARRANGEMENT	Sheet 1 of 6		
M5/M6 EXPLOSION-PROOF PULSE GENERATOR M5 GENERAL ARRANGEMENT	D30360	N	-
M5/M6 EXPLOSION-PROOF PULSE GENERATOR M5 GENERAL ARRANGEMENT	Sheet 2 of 6		
M5/M6 EXPLOSION-PROOF PULSE GENERATOR M5 GENERAL ARRANGEMENT	D30360	N	-
M5/M6 EXPLOSION-PROOF PULSE GENERATOR 5/8" SHAFT/HOUSING DETAILS	Sheet 3 of 6		
M5/M6 EXPLOSION-PROOF PULSE GENERATOR 1" & 1 1/8" SHAFT/HOUSING DETAILS	D30360	N	-
M5/M6 EXPLOSION-PROOF PULSE GENERATOR 2" & 2 3/8" SHAFT/HOUSING DETAILS	Sheet 4 of 6		
ENCODER INSTRUCTIONS M6-4, M6-5, M6-6, M6-7	D30360	N	-
	Sheet 5 of 6		
ENCODER INSTRUCTIONS M5-4, M5-5, M5-6, M5-7	D30360	N	-
	Sheet 6 of 6		
	M6-4, M6-5, M6-6, M6-7	-	2012-11-09
	5 Sheets		
	M5-4, M5-5, M5-6, M5-7	-	2012-11-21
	5 Sheets		

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Special conditions for safe use:

- The M5/M6 Encoders must not be opened in Flammable Atmosphere or when energized.
- The ambient temperature range is: -20 °C ≤ T<sub>amb</sub> ≤ 80 °C or -40 °C ≤ T<sub>amb</sub> ≤ 80 °C
- Contact the manufacturer on the flameproof joint specifications.
- Socket head cap screws holding the flameproof cover onto the encoder have a minimum yield strength of 1220 N/mm<sup>2</sup>.

[18]

Essential Health and Safety Requirements

Concerning ESR this Schedule verifies compliance with the ATEX directive only. The manufacturer's Declaration of Conformity declares compliance with other relevant Directives.

Additional information

The flameproof encoders, types M5 and M6 have in addition passed the tests for Ingress Protection to IP 66 in accordance with EN60529: 1991/A1 2001.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in ANNEX III to Directive 94/9/EC of the European Parliament and the Council of 23 March 1994.

