

[1] **EU - TYPE EXAMINATION CERTIFICATE**
[2] **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres**
Directive 2014/34/EU

- [3] EU – Type Examination Certificate Number ACE24ATEX004X Rev00
- [4] Product Proximity Vibration Sensor AR4xx series
- [5] Manufacturer Ariya Fartak Novian Co.
- [6] Address No. 50, 1st Bahar Alley, Bakhshayesh St.,
West Sarv St., Saadat Abad, Tehran, Iran
- [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] Advanced Consulting and Engineering Iberia SL (A.C.&E. Iberia S.L.), Notified body Accreditation nº: NB3024 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive
The examination and test results are recorded in the confidential Report nº. EX_EXI001_24_24-195
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0: 2018 Explosive atmospheres - Part 0: Equipment - General requirements.
EN 60079-11:2012 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
- [10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the point 17 of This certificate.
- [11] This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- [12] The marking of the equipment or protective system shall include the following:

 II 2G Ex ib IIB T6...T3 Gb

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Date: 04/04/2024



**Advanced Consulting and Engineering
Iberia SL**
Notified Body No NB3024

Matteo Marconi, CEO

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[13] **SCHEDULE**

[14] EC-Type Examination Certificate No: ACE24ATEX004X Rev00

[15] Description of equipment
AR4xx series

This proximity system allows contactless measurement of the relative displacement of moving machine elements. It is particularly suitable for measuring the relative vibration and axial position of rotating machine shafts, such as those found in steam, gas and hydraulic turbines, as well as in alternators, turbo-compressors and pumps. The system is based around a AR4xx series intrinsically safe non-contact transducer and a signal conditioner. Together, these form a calibrated proximity system in which each component is interchangeable. The system outputs a voltage or current proportional to the distance between the transducer tip and the target, such as a machine shaft.

Sensor manufacturing range:

Item	Code Number	Sensor Tip	Measuring Range
01	AR 401	5 mm	1mm
02	AR402	8 mm	2 mm
03	AR 412	11 mm	4 mm

Sensor Order Information

Code Number	Thread	Unthread Length	Shell Length	Probe Cable Length	Armour	Total Length
AR 401	01: 1/4 UNF 28	00	30	10	01: With Armour	05: 5m
AR402	02: M8*1	for example, 01 (1mm) and 010 (10mm)	for example, 30(30mm) and 100 (100mm)	for example, 10(1m) and 90 (9m)	00: Without Armour	09: 9m
AR 412	03: M10*1 3/8 UNF					10: 10m

Extension Cable Code:

Code Number	Cable Length	certificate	Armor	Total Length
ARC 401	40	00: Standard	00: without	05: 5m
ARC 402	for example, 40(4m) and 90 (9m)	01: Ex Certificate	01: with	09: 9m
ARC 412				

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Electronic Connection:

The sensor connected with BNC to conditioner so conditioner input is sensor and the output is signal that is according to distance between sensor tip and target

Output:

Ui(maximum dc voltage) : 24V

0-24 volt (as Power of conditioner)

Ground (as Power of conditioner)

Signal: (-2 to -18 according API670)

Current consumption from power supply is 6.8 mA (min), 7.12 mA (normal), 7.39 mA (max)

The power could be calculated by multiplying 24 Vdc to current in each case.

Input Signal:

Conditioner send an sinusoid voltage to sensor tip, this voltage is minimum when sensor tip is very close to target (0.2mm) and is normal when distance between target and sensor is 1mm, and is maximum when distance between target and sensor is 2mm.

Minimum Distance between target and sensor:

Vpp min=4v

Vrms min=1.414v

F=893khz

Normal Distance between target and sensor:

Vpp min=5.12v

Vrms min=1.81v

F=886khz

Maximum Distance between target and sensor:

Vpp min=6.027v

Vrms min=2.13v

F=883khz

The sensor spec is as below:

R=2.53 Ω

L=30.4 μ H

Intrinsic safety precautions and parameters:

Environmental condition:

-10°C to +75°C for class T6

-10°C to +90°C for class T5

-10°C to +125°C for class T4

-10°C to +160°C for class T3

Sensor parameters:

Ui = 24 V

Ii = 8 mA

Li = 30.4 μ H

Ci = 0

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The sensor protected in:
Normal operation and with the application of non-countable faults
Normal operation and with application of one countable fault plus non-countable faults

Cable characteristics:

AR401 cable	
Type of cable	SFF-75-1.5
Inner conductor	1/0.41±0.005
Insulation	1.5±0.05
Wire braid	Single shield
Jacket	2.65±0.1
Conductor Resistance	Ω/km ≤155
Inductance	mH/km 1.371
Capacitance	≤pF/m 70

AR402 and AR412 cable	
Type of cable	SFF-75-2
Inner conductor	1/0.41±0.005
Insulation	2.2±0.05
Wire braid	Double-deck
Jacket	3.65±0.1
Conductor Resistance	Ω/km ≤145
Inductance	mH/km 1.37
Capacitance	≤pF/m 70

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[13] **SCHEDULE**

[14] EC-Type Examination Certificate No: ACE24ATEX004X Rev00

[16] Test documents are listed in the test report nº
Test report No: 23/Ex ib/8478/C 09/03/2024

[17] Special conditions for safe use
The dependence of the temperature class to se ambient temperature correspond to the data in the section [15] “Environmental condition”
The Proximity Vibration Sensor AR4xx may only be operated in a certified intrinsically safe circuit
The operating instructions must be observed

[18] Essential Health and Safety Requirements
Assured by compliance with harmonized standards mentioned in [9]

[19] Documents and technical datasheets:

Title	Object	Revision	Date
Datasheet for resin material	2-021072_1	02	21/10/2023
Datasheet for polyamide core	2-021073	02	21/10/2023
Material analysis for metallic body	2-021074_3	02	21/10/2023
Manufacturer’s Technical file	021076	02	21/10/2023

The documents above-mentioned are strictly confidential and they are of only use of authorities.
A copy of the documents are saved by A.C.&E. Iberia S.L.

[20] Certificate History

Number of certificate	Rev.	Comments	Date
ACE24ATEX004X Rev00	00	First emission	04/04/2024

Date: 04/04/2024



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