1 EU-TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 2014/34/EU**

3 **EU-Type Examination Certificate No:** **FM10ATEX0039X**

4 **Equipment or protective system: (Type Reference and Name)** **Quartz QN, QX and QC Series Valve Position Monitors**

5 **Name of Applicant:** **Neles USA Inc. dba StoneL**

6 **Address of Applicant:** **26271 US Hwy 59**
Fergus Falls, MN 56537,
United States of America

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

8 FM Approvals Europe Ltd, notified body number 2809 in accordance with Article 17 of Directive 2014/34/EU of 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report number:

3039143EC dated 17th November 2010

9 Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

EN IEC 60079-0:2018; EN 60079-11:2012 and EN 60529:1991+A1:2000+A2:2013

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

11 This EU-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 2014/34/EU. 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:

QN and QX Series:

II 1 G Ex ia IIC T6…T1 Ga Ta*, IP66 IP67

QC Series:

II 1 G Ex ia IIC T6…T5 Ga Ta*, IP66

*See description

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13 **Description of Equipment or Protective System:**

The “QN”, “QC” and “QX” Series Valve Position Monitors consist of sensors, potentiometers and transmitters of various designs enclosed in an aluminum alloy or stainless steel enclosure with either an aluminum, stainless steel or a clear Lexan cover that provide monitoring of a valves position. The enclosure is rated to IP66 and IP67. The sensors covered are: a) Dual Module Namur sensors, b) Maxx-Guard proximity sensors, c) N Type Namur sensors (P + F) d) A Type Namur sensors (P + F) and e) B Type Namur sensors (P + F). The transmitters covered are 5_, 7_ and T_. The potentiometers covered are B_ and C_.

The Dual Module Namur Sensors consist of two (top & bottom) solid state switches and a rotating cam which has a top and bottom metal target mounted on a plastic part connected to a cam. Access to field wiring is by way of separate cables which enter the enclosure through a cable entry and connect to terminals of a terminal block.

The Maxx-Guard proximity sensor models consist of top & bottom reed switches and a rotating cam which has magnets mounted on a plastic part connected to a cam. Access to field wiring is by way of separate cables which enter the enclosure through a cable entry and connect to terminals of a terminal block. The PCBA and all components except for two LEDs are encapsulated.

The Namur “N” proximity models consist of solid state inductive proximity sensors (P + F NJ2-V3-N-V5, PTB00ATEX2032X) and a rotating cam which has a metal target mounted on a plastic part connected to a cam. Access to field wiring is by way of separate cables which enter the enclosure through a cable entry and connect to terminals of a terminal block.

The Namur “A” proximity models consist of solid state inductive proximity sensors (P + F NJ2-12GK-SN, PTB00ATEX2049X) and a rotating cam which has a metal target mounted on a plastic part connected to a cam. Access to field wiring is by way of separate cables which enter the enclosure through a cable entry and connect to terminals of a terminal block.

The Namur “B” proximity models consist of solid state inductive proximity sensors (P + F NJ5-30GK-S1N, PTB00ATEX2049X) and a rotating cam which has a metal target mounted on a plastic part connected to a cam. Access to field wiring is by way of separate cables which enter the enclosure through a cable entry and connect to terminals of a terminal block.

The Transmitter option “5O” and “7O” consist of a direct drive potentiometer wired to a pcb that provides a 4-20mA signal. The transmitter option can include addional switches/sensors by replacing the second digit “O” with a sensor option digit (example “5N” or “7N”, etc…). Therefore the “transmitter” parameters (for “5” and “7”) are listed separately from the additional switch/sensor parameters (“N” or any other sensor option). Access to field wiring is by way of separate cables which enter the enclosure through a cable entry and connect to terminals of a terminal block.

The Transmitter option “TO” consists of a solid state sensing circuit that provides a 4-20mA signal. The transmitter option can include additional switches/sensors by replacing the second digit “O” with a sensor option digit (example “TR”, etc…). Therefore the “transmitter” parameters (for “T”) are listed separately from the additional switch/sensor parameters (“R” or any other sensor option). Access to field wiring is by way of separate cables which enter the enclosure through a cable entry and connect to terminals of a terminal block.

The Potentiometer option “BO” and “CO” consist of a direct drive potentiometer wired to a terminal block. The potentiometer option can include additional switches/sensors by replacing the second digit “O” with a sensor option digit (example “BN” or “CN”, etc…). Therefore the “Potentiometer” parameters (for “B” and “C”) are listed separately from the additional switch/sensor parameters (“N” or any other

sensor option). Access to field wiring is by way of separate cables which enter the enclosure through a cable entry and connect to terminals of a terminal block.

QNabcdef-g.Valve Position Monitor.

a = Function: 2J, 4J, 5J, 7J, BJ, CJ, 2M, 4M, 5M, 7M, BM, CM, 5O, 7O, TO, BO, CO, 2N, 4N, 5N, 6N, 7N, TN, BN, CN, 2A, 4A, 5A, 7A, TA, BA, CA, 2B, 44, 54, 74, B4, C4, 45, 5R, 7R, TR, BR or CR
b= Enclosure: D, R, A, K, T, N, Z, or Q
c= Junction: 02, 03, 05, or 06
d= Shaft Output: X, S, N or H
e= Visual Indication: X, G, R, C, 1, 2, 3, 4, 5, 0, B, E, Y, H, J, K, M, P, N, D, A, S, T, U, V or W
f= Branding: A or M
g= Options: '1-5 alpha or numeric digits for special and marketing identification'

*When a = 5O, 7O
For T4 Ta* = -40ºC to +80ºC
Entity Limitation Parameters: Ui = 30 Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0 H, Pi = 0.75 W

*When a = TO
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Transmitter: Ui = 30 Vdc, Ii = 100 mA, Ci = 3 nF, Li = 0 H, Pi = 0.75 W
Solenoid Connection Terminals: Ui = 30 Vdc, Ii = 120 mA

*When a = BO, CO
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters: Ui = 26 V, Ii = 14 mA, Pi = 50 mW, Ci = 0 nF, Li = 0 mH

*When a = 2J, 4J, 2M, 4M
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Switch/Sensor: Ui = 30 Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0.8 mH, Pi = 2.0 W

*When a = 5J, 7J, 5M, 7M
For T4 Ta* = -40ºC to +80ºC
Energy Limitation Parameters:
Switch/Sensor: Ui = 30 Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0.8 mH, Pi = 2.0 W
Transmitter: Ui = 30 Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0 H, Pi = 0.75 W

*When a = BJ, CJ, BM, CM
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Switch/Sensor: Ui = 30 Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0.8 mH, Pi = 2.0 W
Potentiometer: Ui = 26 Vdc, Ii = 14 mA, Ci = 0 nF, Li = 0 mH, Pi = 50mW

*When a = 44
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Sensor Module: Ui = 22V, Ii = 120 mA, Pi = 2W, Ci = 98 nF, Li = 0.8 mH
Solenoid Connection Terminals: Ui = 30V, Ii = 120mA

*When a = 54, 74
For T4 Ta* = -40ºC to +80ºC
Energy Limitation Parameters:

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Sensor Module: Ui = 22V, Ii = 120 mA, Pi = 2W, Ci = 98 nF, Li = 0.8 mH
Solenoid Connection Terminals: Ui = 30V, Ii = 120mA
Transmitter: Ui = 30 Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0 H, Pi = 0.75 W

*When a = B4, C4
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Sensor Module: Ui = 22V, Ii = 120 mA, Pi = 2W, Ci = 98nF, Li = 0.8 mH
Solenoid Connection Terminals: Ui = 30V, Ii = 120mA
Potentiometer: Ui = 26 Vdc, Ii = 14 mA, Ci = 0 nF, Li = 0 mH, Pi = 50mW

*When a = 45
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Sensor Module: Ui = 22V, Ii = 120 mA, Pi = 0.4W, Ci = 3 nF, Li = 0 mH
Solenoid Connection Terminals: Ui = 30V, Ii = 120mA

*When a = 5R, 7R
For T4 Ta* = -40ºC to +80ºC
Energy Limitation Parameters:
Sensor Module: Ui = 22V, Ii = 120 mA, Pi = 0.4W, Ci = 3 nF, Li = 0 mH
Solenoid Connection Terminals: Ui = 30V, Ii = 120mA
Transmitter: Ui = 30 Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0 H, Pi = 0.75 W

*When a = TR
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Sensor Module: Ui = 22Vdc, Ii = 120 mA, Pi = 0.4W, Ci = 3 nF, Li = 0 mH
Solenoid Connection Terminals: Ui = 30V, Ii = 120 mA
Transmitter: Ui = 30 Vdc, Ii = 100 mA, Ci = 3 nF, Li = 0 H, Pi = 0.75 W
Solenoid Connection Terminals: Ui = 30V, Ii = 120 mA

*When a = BR, CR
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Sensor Module: Ui = 22V, Ii = 120 mA, Pi = 0.4W, Ci = 3 nF, Li = 0 mH
Solenoid Connection Terminals: Ui = 30V, Ii = 120mA
Transmitter: Ui = 26 Vdc, Ii = 14 mA, Ci = 0 nF, Li = 0 mH, Pi = 50mW

* When a = 2N, 4N, 6N

For T6, Ta*=	For T5, Ta*=	For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-25°C to +56°C	-25°C to +68°C	-25°C to +80°C	16	25	34	40	0.05
-25°C to +49°C	-25°C to +61°C	-25°C to +80°C	16	25	64	40	0.05
-25°C to +28°C	-25°C to +40°C	-25°C to +68°C	16	52	169	40	0.05
-25°C to +13°C	-25°C to +25°C	-25°C to +53°C	16	76	242	40	0.05

* When a = 5N, 7N
Switch/Sensor:

For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-25°C to +80°C	16	25	34	40	0.05
-25°C to +80°C	16	25	64	40	0.05

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-25°C to +68°C	16	52	169	40	0.05
-25°C to +53°C	16	76	242	40	0.05

Transmitter; Ui = 30Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0 H, Pi = 0.75 W

* When a = TN
Switch/Sensor

For T6, Ta*=	For T5, Ta*=	For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-25°C to +56°C	-25°C to +68°C	-25°C to +80°C	16	25	34	40	0.05
-25°C to +49°C	-25°C to +61°C	-25°C to +80°C	16	25	64	40	0.05
-25°C to +28°C	-25°C to +40°C	-25°C to +68°C	16	52	169	40	0.05
-25°C to +13°C	-25°C to +25°C	-25°C to +53°C	16	76	242	40	0.05

Transmitter: Ui = 30 Vdc, Ii = 100 mA, Ci = 3 nF, Li = 0 H, Pi = 0.75 W
Solenoid Connection Terminals: Ui = 30 Vdc, Ii = 120 mA

* When a = BN, CN
Switch/Sensor:

For T6, Ta*=	For T5, Ta*=	For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-25°C to +56°C	-25°C to +68°C	-25°C to +80°C	16	25	34	40	0.05
-25°C to +49°C	-25°C to +61°C	-25°C to +80°C	16	25	64	40	0.05
-25°C to +28°C	-25°C to +40°C	-25°C to +68°C	16	52	169	40	0.05
-25°C to +13°C	-25°C to +25°C	-25°C to +53°C	16	76	242	40	0.05

Potentiometer; Ui = 26Vdc, Ii = 14 mA, Ci = 0 nF, Li = 0 mH, Pi = 50mW

* When a = 2A, 4A

For T6, Ta*=	For T5, Ta*=	For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-40°C to +57°C	-40°C to +69°C	-40°C to +80°C	16	25	34	50	0.15
-40°C to +52°C	-40°C to +64°C	-40°C to +80°C	16	25	64	50	0.15
-40°C to +34°C	-40°C to +46°C	-40°C to +74°C	16	52	169	50	0.15
-40°C to +22°C	-40°C to +34°C	-40°C to +61°C	16	76	242	50	0.15

* When a = 5A, 7A
Switch/Sensor:

For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-40°C to +80°C	16	25	34	50	0.15
-40°C to +80°C	16	25	64	50	0.15
-40°C to +74°C	16	52	169	50	0.15
-40°C to +61°C	16	76	242	50	0.15

Transmitter; Ui = 30Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0 H, Pi = 0.75 W

* When a = TA
Switch/Sensor

For T6, Ta*=	For T5, Ta*=	For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-40°C to +57°C	-40°C to +69°C	-40°C to +80°C	16	25	34	50	0.15

-40°C to +52°C	-40°C to +64°C	-40°C to +80°C	16	25	64	50	0.15
-40°C to +34°C	-40°C to +46°C	-40°C to +74°C	16	52	169	50	0.15
-40°C to +22°C	-40°C to +34°C	-40°C to +61°C	16	76	242	50	0.15

Transmitter: Ui = 30 Vdc, Ii = 100 mA, Ci = 3 nF, Li = 0 H, Pi = 0.75 W
Solenoid Connection Terminals: Ui = 30 Vdc, Ii = 120 mA

* When a = BA, CA
Switch/Sensor:

For T6, Ta*=	For T5, Ta*=	For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-40°C to +57°C	-40°C to +69°C	-40°C to +80°C	16	25	34	50	0.15
-40°C to +52°C	-40°C to +64°C	-40°C to +80°C	16	25	64	50	0.15
-40°C to +34°C	-40°C to +46°C	-40°C to +74°C	16	52	169	50	0.15
-40°C to +22°C	-40°C to +34°C	-40°C to +61°C	16	76	242	50	0.15

Potentiometer; Ui = 26Vdc, Ii = 14 mA, Ci = 0 nF, Li = 0 mH, Pi = 50mW

* When a = 2B

For T6, Ta*=	For T5, Ta*=	For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-25°C to +57°C	-25°C to +69°C	-25°C to +80°C	16	25	34	100	0.20
-25°C to +52°C	-25°C to +64°C	-25°C to +80°C	16	25	64	100	0.20
-25°C to +34°C	-25°C to +46°C	-25°C to +74°C	16	52	169	100	0.20
-25°C to +22°C	-25°C to +34°C	-25°C to +61°C	16	76	242	100	0.20

QXabcdef-g.Valve Position Monitor.

a = Function: 2J, 4J, 5J, 7J, BJ, CJ, 2M, 4M, 5M, 7M, BM, CM, 5O, 7O, TO, BO, CO, 2N, 4N, 5N, 6N, 7N, TN, BN, CN, 2A, 4A, 5A, 7A, TA, BA, CA, 2B, 44, 54, 74, B4, C4, 45, 5R, 7R, TR, BR or CR
b= Enclosure: R, T, K or N
c= Junction: 02, 03, 05, or 06
d= Shaft Output: X, S, N or H
e= Visual Indication: X, G, R, C, 1, 2, 3, 4, 5, 0, B, E, Y, H, J, K, M, P, N, D, A, S, T, U, V or W
f= Branding: A or M
g= Options: '1-5 alpha or numeric digits for special and marketing identification'

*When a = 5O, 7O
For T4 Ta* = -40ºC to +80ºC
Entity Limitation Parameters: Ui = 30 Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0 H, Pi = 0.75 W

*When a = TO
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Transmitter: Ui = 30 Vdc, Ii = 100 mA, Ci = 3 nF, Li = 0 H, Pi = 0.75 W
Solenoid Connection Terminals: Ui = 30 Vdc, Ii = 120 mA

*When a = BO, CO
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters: Ui = 26 V, Ii = 14 mA, Pi = 50 mW, Ci = 0 nF, Li = 0 mH

*When a = 2J, 4J, 2M, 4M
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Switch/Sensor: Ui = 30 Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0.8 mH, Pi = 2.0 W

*When a = 5J, 7J, 5M, 7M
For T4 Ta* = -40ºC to +80ºC
Energy Limitation Parameters:
Switch/Sensor: Ui = 30 Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0.8 mH, Pi = 2.0 W
Transmitter: Ui = 30 Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0 H, Pi = 0.75 W

*When a = BJ, CJ, BM, CM
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Switch/Sensor: Ui = 30 Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0.8 mH, Pi = 2.0 W
Potentiometer: Ui = 26 Vdc, Ii = 14 mA, Ci = 0 nF, Li = 0 mH, Pi = 50mW

*When a = 44
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Sensor Module: Ui = 22V, Ii = 120 mA, Pi = 2W, Ci = 98 nF, Li = 0.8 mH
Solenoid Connection Terminals: Ui = 30V, Ii = 120mA

*When a = 54, 74
For T4 Ta* = -40ºC to +80ºC
Energy Limitation Parameters:
Sensor Module: Ui = 22V, Ii = 120 mA, Pi = 2W, Ci = 98 nF, Li = 0.8 mH
Solenoid Connection Terminals: Ui = 30V, Ii = 120mA
Transmitter: Ui = 30 Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0 H, Pi = 0.75 W

*When a = B4, C4
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Sensor Module: Ui = 22V, Ii = 120 mA, Pi = 2W, Ci = 98nF, Li = 0.8 mH
Solenoid Connection Terminals: Ui = 30V, Ii = 120mA
Potentiometer: Ui = 26 Vdc, Ii = 14 mA, Ci = 0 nF, Li = 0 mH, Pi = 50mW

*When a = 45
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Sensor Module: Ui = 22V, Ii = 120 mA, Pi = 0.4W, Ci = 3 nF, Li = 0 mH
Solenoid Connection Terminals: Ui = 30V, Ii = 120mA

*When a = 5R, 7R
For T4 Ta* = -40ºC to +80ºC
Energy Limitation Parameters:
Sensor Module: Ui = 22V, Ii = 120 mA, Pi = 0.4W, Ci = 3 nF, Li = 0 mH
Solenoid Connection Terminals: Ui = 30V, Ii = 120mA
Transmitter: Ui = 30 Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0 H, Pi = 0.75 W

*When a = TR
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Sensor Module: Ui = 22Vdc, Ii = 120 mA, Pi = 0.4W, Ci = 3 nF, Li = 0 mH

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Solenoid Connection Terminals: Ui = 30V, Ii = 120 mA
Transmitter: Ui = 30 Vdc, Ii = 100 mA, Ci = 3 nF, Li = 0 H, Pi = 0.75 W
Solenoid Connection Terminals: Ui = 30V, Ii = 120 mA

*When a = BR, CR
For T5 Ta* = -40ºC to +80ºC; For T6 Ta* = -40°C to +65°C
Energy Limitation Parameters:
Sensor Module: Ui = 22V, Ii = 120 mA, Pi = 0.4W, Ci = 3 nF, Li = 0 mH
Solenoid Connection Terminals: Ui = 30V, Ii = 120mA
Transmitter: Ui = 26 Vdc, Ii = 14 mA, Ci = 0 nF, Li = 0 mH, Pi = 50mW

* When a = 2N, 4N, 6N

For T6, Ta*=	For T5, Ta*=	For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-25°C to +56°C	-25°C to +68°C	-25°C to +80°C	16	25	34	40	0.05
-25°C to +49°C	-25°C to +61°C	-25°C to +80°C	16	25	64	40	0.05
-25°C to +28°C	-25°C to +40°C	-25°C to +68°C	16	52	169	40	0.05
-25°C to +13°C	-25°C to +25°C	-25°C to +53°C	16	76	242	40	0.05

* When a = 5N, 7N
Switch/Sensor:

For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-25°C to +80°C	16	25	34	40	0.05
-25°C to +80°C	16	25	64	40	0.05
-25°C to +68°C	16	52	169	40	0.05
-25°C to +53°C	16	76	242	40	0.05

Transmitter; Ui = 30Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0 H, Pi = 0.75 W

* When a = TN
Switch/Sensor

For T6, Ta*=	For T5, Ta*=	For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-25°C to +56°C	-25°C to +68°C	-25°C to +80°C	16	25	34	40	0.05
-25°C to +49°C	-25°C to +61°C	-25°C to +80°C	16	25	64	40	0.05
-25°C to +28°C	-25°C to +40°C	-25°C to +68°C	16	52	169	40	0.05
-25°C to +13°C	-25°C to +25°C	-25°C to +53°C	16	76	242	40	0.05

Transmitter: Ui = 30 Vdc, Ii = 100 mA, Ci = 3 nF, Li = 0 H, Pi = 0.75 W
Solenoid Connection Terminals: Ui = 30 Vdc, Ii = 120 mA

* When a = BN, CN
Switch/Sensor:

For T6, Ta*=	For T5, Ta*=	For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-25°C to +56°C	-25°C to +68°C	-25°C to +80°C	16	25	34	40	0.05
-25°C to +49°C	-25°C to +61°C	-25°C to +80°C	16	25	64	40	0.05
-25°C to +28°C	-25°C to +40°C	-25°C to +68°C	16	52	169	40	0.05
-25°C to +13°C	-25°C to +25°C	-25°C to +53°C	16	76	242	40	0.05

Potentiometer; Ui = 26Vdc, Ii = 14 mA, Ci = 0 nF, Li = 0 mH, Pi = 50mW

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* When a = 2A, 4A

For T6, Ta*=	For T5, Ta*=	For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-40°C to +57°C	-40°C to +69°C	-40°C to +80°C	16	25	34	50	0.15
-40°C to +52°C	-40°C to +64°C	-40°C to +80°C	16	25	64	50	0.15
-40°C to +34°C	-40°C to +46°C	-40°C to +74°C	16	52	169	50	0.15
-40°C to +22°C	-40°C to +34°C	-40°C to +61°C	16	76	242	50	0.15

* When a = 5A, 7A
Switch/Sensor:

For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-40°C to +80°C	16	25	34	50	0.15
-40°C to +80°C	16	25	64	50	0.15
-40°C to +74°C	16	52	169	50	0.15
-40°C to +61°C	16	76	242	50	0.15

Transmitter; Ui = 30Vdc, Ii = 100 mA, Ci = 66 nF, Li = 0 H, Pi = 0.75 W

* When a = TA
Switch/Sensor

For T6, Ta*=	For T5, Ta*=	For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-40°C to +57°C	-40°C to +69°C	-40°C to +80°C	16	25	34	50	0.15
-40°C to +52°C	-40°C to +64°C	-40°C to +80°C	16	25	64	50	0.15
-40°C to +34°C	-40°C to +46°C	-40°C to +74°C	16	52	169	50	0.15
-40°C to +22°C	-40°C to +34°C	-40°C to +61°C	16	76	242	50	0.15

Transmitter: Ui = 30 Vdc, Ii = 100 mA, Ci = 3 nF, Li = 0 H, Pi = 0.75 W
Solenoid Connection Terminals: Ui = 30 Vdc, Ii = 120 mA

* When a = BA, CA
Switch/Sensor:

For T6, Ta*=	For T5, Ta*=	For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-40°C to +57°C	-40°C to +69°C	-40°C to +80°C	16	25	34	50	0.15
-40°C to +52°C	-40°C to +64°C	-40°C to +80°C	16	25	64	50	0.15
-40°C to +34°C	-40°C to +46°C	-40°C to +74°C	16	52	169	50	0.15
-40°C to +22°C	-40°C to +34°C	-40°C to +61°C	16	76	242	50	0.15

Potentiometer; Ui = 26Vdc, Ii = 14 mA, Ci = 0 nF, Li = 0 H, Pi = 50mW

* When a = 2B

For T6, Ta*=	For T5, Ta*=	For T4…T1, Ta*=	Ui V	Ii mA	Pi mW	Ci nF	Li mH
-25°C to +57°C	-25°C to +69°C	-25°C to +80°C	16	25	34	100	0.20
-25°C to +52°C	-25°C to +64°C	-25°C to +80°C	16	25	64	100	0.20
-25°C to +34°C	-25°C to +46°C	-25°C to +74°C	16	52	169	100	0.20
-25°C to +22°C	-25°C to +34°C	-25°C to +61°C	16	76	242	100	0.20

QCabcdef-g.Valve Position Monitor.

a = Function: 45
b= Enclosure: K, N, R or T
c= Junction: 03 or 06
d= Shaft Output: X, S, N or H
e= Visual Indication: X, G, R, C, 1, 2, 3, 4, 5, 0, B, E, Y, H, J, K, M, P, N, D, A, S, T, U, V or W
f= Branding: A or M
g= Options: '1-5 alpha or numeric digits for special and marketing identification'

*When a = 45
For T5 Ta* = -55ºC to +80ºC; For T6 Ta* = -55°C to +65°C
Energy Limitation Parameters:
Sensor Module: Ui = 22V, Ii = 120 mA, Pi = 0.4W, Ci = 3 nF, Li = 0 H
Solenoid Connection Terminals: Ui = 30V, Ii = 120mA

See also FM08ATEX0008X for Quartz QX and QC series with type of protection "d"..

14 **Specific Conditions of Use:**

1. Parts of the enclosure are non-conducting and may generate an ignition-capable level of electrostatic charge under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions which might cause a build up of electrostatic charge on non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.
2. When installed within a EPL Ga location, the aluminium alloy enclosure shall be installed in such a manner as to prevent the possibility of sparks resulting from friction or impact.
3. Using the box provided on the nameplate, the user shall permanently mark the type of protection chosen for the specific installation. Once the type of protection has been marked it shall not be changed.

15 **Essential Health and Safety Requirements:**

The relevant EHSRs that have not been addressed by the standards listed in this certificate have been identified and assessed in the confidential report identified in item 8.

16 **Test and Assessment Procedure and Conditions:**

This EU-Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for CE Marking, FM Approvals Europe Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

This Certificate has been issued in accordance with FM Approvals Europe Ltd's ATEX Certification Scheme.

17 **Schedule Drawings**

A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by the Notified Body.

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18 **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
25th November 2010	Original Issue.
04th June 2013	Supplement 1: Report Reference: Report 3039143rev130430 dated 28th May 3013. Description of the Change: Change to model code structure adding Chinese Visual. Indicator digits. Minor documentation change.
11th July 2014	Supplement 2: Report Reference: Report 3048436 dated 01st July 2014. Description of the Change: • The following function options have been added: 5O,7O,5J,7J,5M,7M,5N,7N,5A,7A,54, and 74 • Added function option 6N • Added enclosure options Z, T, Q, and N • Updated Temperature Class to T6 • Updated entity parameters for _N and _A options to match P+F ATEX Certificates • Removed branding option "N" • Added Model "QX" • Updated editions of EN 60079-0 and EN 60529
22nd February 2016	Supplement 3: Report Reference: 3055582 dated 19th February 2016. Description of the Change: • Update Standards • Various revisions to the product • Update ambient temperature ratings • Consolidate model options and add new module options.
15th May 2017	Supplement 4: Report Reference: RR208761 dated 11th May 2017. Description of the Change: • Reorganized and clarified model code. • Updated standards used for certification. • Added Specific Condition of Use 3. • Added reference to FM08ATEX0008X, covering protection concept 'd', in section 13. • Updated certificate to EU format.
14th August 2018	Supplement 5: Report Reference: 3064023 dated 31st July 2018. Description of the Change: Added sensor module option "T_".
23rd October 2019	Supplement 6: Report reference - PR452032 dated 09th October 2019. Description of the Change: Addition of "2B" function option. Added "QC" section. Addition of IP66. Updated to edition EN IEC 60079-0:2018 standard. Changed Notified Body information and number, now 2809. "5_" and "7_" function option parameters changes. Updated documentation.
22nd April 2020	Supplement 7: Report reference – RR222856 dated 21st April 2020. Description of the Change: Company name change.

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Date	Description
20th April 2022	Supplement 8: Report reference – RR231394 dated 5th April 2022. Description of the Change: Document updates and the 2nd Specific Condition of Use was update to read “EPL Ga” location instead of Zone 0 locations.

Blueprint Report

Neles USA Inc. dba StoneL (1000001486)

Class No 3610

Original Project I.D. 3039143

Certificate I.D. FM10ATEX0039X

Drawing No.	Revision Level	Drawing Title	Last Report
000149	H	Quartz QN Series ATEX Ex ia Models	RR231394
000185	F	Model Description, Quartz QX Series, Atex Ex ia	RR231394
000225	C	Model Description, Quartz QC series, ATEX, IECEx Ex ia	RR231394
105026	I	Electrical Information, Quartz QN-QX Series	RR231394
105180	G	Enclosure Information, Quartz QX series, Ex d	RR231394
105193	F	I.S. CONTROL, QUARTZ SERIES	PR452032
105283	H	Quartz QN Ex ia Series Product Marking	RR231394
105406	E	Installation, Maintenance and Operating Instructions	RR231394
105414	E	Declaration of Conformity	RR231394
105478	B	Product Marking, Quartz QC Series, ATEX IECEx Ex d Ex i	RR231394
200011	D	Schematic, 4-20mA Transmitter	3048436
200134	A	Schematic, Dual NAMUR Sensor, Ext range	3039143
200219	C	Schematic, 45 Dual Module, Namur	3055582
200270	B	SCHEMATIC, QUARTZ TRANSMITTER	3064023
412016	A	Switch, Proximity Sensor "N", P&F	3039143
412021	A	Switch, Bare reed, SPST	3039143
412060	D	Switch, Bare reed, SPST	3055582
412145	B	Sensor, NAMUR, P+F "A" Sensor	3039143
412150	A	Switch, SPDT. Low Power, 1 Amp Max	3039143
412170	B	Switch, BRD, ASSY., "M"	3039143
412179	A	Switch, SPDT, 60W, 1AMP Max	RR231394
414178	C	Block, Terminal, 6 and 12 Pole	3048436
418007	G	PCB, 4-20mA Position Transmitter, Populated	RR222856
418022	A	PCB, raw, StoneL Maxx-Guard switch	3048436
418026	R	Board, Populated, NAMUR Dual Module	PR452032
418028	I	Board, unpopulated NAMUR	RR208761
418068	C	PCB, 4-20mA Position Transmitter, Unpopulated	RR222856
418412	C	Board, 45 Dual Module, Unpopulated	3055582
418413	C	Board, 45 Dual Module, Populated	3055582
418442	B	PCB, QUARTZ TRANSMITTER	3064023
418443	C	BOARD ASSEMBLY, QUARTZ TRANSMITTER	RR222856
422004	B	Potentiometer	RR208761
422020	A	Potentiometer, High Performance 0.1% Lin.	3048436
432022	A	Potting, SYLGARD, 170A/170B	3039143
432029	A	Urethane Potting, CONATHANE EN-14, Mixed	3039143
432038	B	Urethane potting, Epic Resins D9970 clear, mixed	3055582
434365	C	Block, Terminal , Sauro, 8 Pt, Hoz	PR452032