

(1) **EC Type Examination Certificate (Translation)**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres – Directive 94/9/EC

(3) EC Type Examination Number

TÜV 98 ATEX 1354



(4) Equipment: Level Control Device Type NK 31

(5) Manufacturer: Hectronic AG

(6) Address: Aaraustr. 69
CH-5200 Brugg

(7) The equipment and any acceptable variation thereto are specified in the Appendix to this certificate and the documents therein referred to.

(8) TÜV Hannover/Sachsen-Anhalt e.V., TÜV CERT certification body, notified body no. 0032 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment 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 the confidential report no. 98/PX11080.

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

EN 50 014:1997 EN 50 020:1994

(10) An "X" behind the certificate number indicates that the equipment is subject to special conditions for safe use specified in the Appendix to this certificate.

(11) This EC Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance with Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment.

(12) The marking of the equipment shall include the following:

II (1) G [EEx ia] IIC

(13)

A P P E N D I X

(14) **EC Type Approval Certificate No. TÜV 98 ATEX 1354**

(15) Description of the equipment

The Level Control Device NK31 is used for the intrinsically safe feeding of optical sensors as well as for the secure galvanic separation of intrinsically safe and non-intrinsically safe circuits.

The permissible ambient temperature is -25 °C to +55°C.

Electrical data

Supply circuit..... U = 90...125V DC, U_m = 253 V
(Terminals 1 and 2) U = 100...230 V AC, U_m = 253V

Sensor and AFS
circuit..... protection class intrinsic safety EEx ia IIC/IIB
(Terminals 21, 22, 23 or EEx ib IIC/IIB
and 17, 18, 19)

Max. values: U₀=13,6 V
I₀=72,9 mA
P=248 mW

Characeristic: linear

Effective internal capacitance: 48nF
The effective internal inductances are negligibly small.

EEx ia / EEx ib resp.	IIC	IIB
Max. permissible external inductance	7,5 mH	30 mH
Max. permissible external capacitance	772 nF	5,2µF

A certified intrinsically safe circuit may be connected to the intrinsically safe AFS circuit. Here, the regulations for the connection of intrinsically safe circuits must be observed.

Maximum values of a connected, intrinsically safe circuit:

U₀ = 10V
I₀ = 155 mA

Relay circuits.....	Alternating voltage	Direct voltage		
(Terminals 4, 5, 6 and 7, 8, 9)	U = 230 V I = 5 A	U = 30 V I = 5 A	60 V 1 A	100V 0,5 A

Alarm signal / button.....approx. 11 V DC, Ri = 10 kΩ
(Terminals 11 and 12)

The sensor and AFS circuit is securely galvanically separated from non-intrinsically safe circuits up to a peak value of 375 V.

- (16) The test documents are listed in test report no. 98/PX11080.
- (17) Special conditions
none
- (18) Essential Health and Safety Requirements
no additional ones

1. SUPPLEMENT

to

EC Type Examination Certificate No. TÜV 98 ATEX 1354

Manufacturer: Hectronic GmbH
Allmendstrasse 15
D-79848 Bonndorf

Former production
site: Hectronic AG
Aarauerstrasse 69
CH-5200 Brugg

From now on, the Level Control Device NK31 may be manufactured according to the test documents listed in the test report. The modifications affect the electrical data of the device as well as the type designation, which is NK31X 24V.

Electrical data

Supply circuit..... U = 18 ... 60 V DC, $U_m = 60$ V DC
U = 18 ... 42 V AC, 50 ... 60 Hz, $U_m = 42$ V AC
P approx. 3 W

All other electrical data as well as all other indications apply unchanged for this 1. Supplement.

The test documents are listed in test report no. 01YEX 126 950.

Translation

2. SUPPLEMENT

to Certificate No. TÜV 98 ATEX 1354

Equipment: Level Control Device type NK 31.

Manufacturer: Hectronic AG
Address: Aarauerstr. 69
5200 Brugg
Schweiz

Order number: 8000555101
Date of issue: 2009-03-19

Amendments:

The standards used for assessment had been updated.

The electrical data and all other data apply unchanged for this supplement.

The equipment incl. of this supplement meets the requirements of these standards:

EN 60079-0:2006 **EN 60079-11:2007** **EN 60079-26:2007**

The marking must include the following:

 **II (1) G [Ex ia Ga] IIC**

(16) The test documents are listed in the test report No. 09 203 555101.

(17) Special conditions for safe use

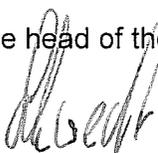
none

(18) Essential Health and Safety Requirements

no additional ones

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, accredited by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the certification body



Schwedt

Translation

3. SUPPLEMENT

to Certificate No. TÜV 98 ATEX 1354

Equipment: Level Control Device type NK 31.

Manufacturer: Hectronic AG
 Address: Aaraustr. 69
 5200 Brugg
 Switzerland

Order number: 8000556276
 Date of issue: 2009-12-13

Amendments:

The technical data and the layout of the PCB had been changed and the standards used for assessment had been updated.
 In the future the device may also be manufactured according to the test documents listed in the test report.

The equipment incl. of this supplement meets the requirements of these standards:

EN 60079-0:2009 EN 60079-11:2007 EN 60079-26:2007

The technical data are changed as follows:

For Level Control Device type NK 31.

Supply circuit..... U = 90...125 V DC, U_m = 253 V
 (Terminals 1 and 2) U = 100...230 V AC, U_m = 253 V, 50 ... 60 Hz

For Level Control Device type NK 31._24V

Supply circuit..... U = 18...60 V DC, U_m = 60 V DC
 (Terminals 1 and 2) U = 18...42 V AC, U_m = 42 V, 50 ... 60 Hz

For all devices

Sensor circuit A - C..... in type of protection intrinsic safety Ex ia IIC/IIB
 (Terminals 21 and 23) resp. Ex ib IIC/IIB

Maximum values:
 U_o = 13.6 V
 I_o = 12 mA
 P_o = 41 mW
 Characteristic line: linear

3. Supplement to Certificate No. TÜV 98 ATEX 1354

Sensor circuit B - C..... in type of protection intrinsic safety Ex ia IIC/IIB
(Terminals 21 and 22) resp. Ex ib IIC/IIB

Maximum values:
 $U_o = 13.6 \text{ V}$
 $I_o = 51 \text{ mA}$
 $P_o = 174 \text{ mW}$
Characteristic line: linear

All other electrical data and details remain unchanged for this supplement.

The marking still reads as follows:

 II (1) G [Ex ia Ga] IIC

(16) The test documents are listed in the test report No. 10 203 556276.

(17) Special conditions for safe use

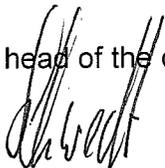
none

(18) Essential Health and Safety Requirements

no additional ones

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, accredited by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the certification body



Schwedt

Hanover office, Am TÜV 1, 30519 Hanover, Tel.: +49 (0) 511 986-1455, Fax: +49 (0) 511 986-1590