

EU - Type Examination Certificate

- (1)
- (2) Equipment and protective systems intended for use in potentially explosive atmospheres – **Directive 2014/34/EU**
- (3) EU - Type Examination Certificate Number

EPS 19 ATEX 1 145 X

Revision 1

- (4) Equipment: Smart Positioner type YT-3700/YT-3750/YT-3701/YT-3702/YT-3703,
YT-3700+LS (dry-contact, non-contact)/YT-3750+LS (dry-contact, non-contact)
- (5) Manufacturer: Rotork YTC Limited
- (6) Address: 81, Hwanggeum-ro 89 beon-gil,
Yangchon-eup, Gimpo-si, Gyeonggi-do,
Republic of Korea
- (7) This equipment and any acceptable variation thereto are specified in the annex to this certificate and the documentation therein referred to.
- (8) Bureau Veritas Consumer Products Services Germany GmbH, notified body No. 2004 in accordance with Article 21 given in the Directive 2014/34/EU of the European Parliament and of the Council 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 and protective systems intended for use in potentially explosive atmospheres, given in Annex II of the Directive. The examination and test results are recorded in the confidential documentation under the reference number 19TH0328.
- (9) Compliance with the essential health and safety requirements has been assured by compliance with:

EN IEC 60079-0:2018

EN 60079-11:2012

- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the annex to this certificate.
- (11) This EU - Type Examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 2014/34/EU. Further requirements of this Directive apply to the manufacture of this equipment and its placing on the market. Those requirements are not covered by this certificate.
- (12) The marking of the equipment shall include the following:

 II 2G Ex ia IIC T5/T6 Gb

 II 2D Ex ia IIIC T100°C/T85°C Db IP6X



Certification department of explosion protection

Hamburg, 2021-10-29



U. Feike

(13)

Annex

(14) **EU - Type Examination Certificate EPS 19 ATEX 1 145 X**

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(15) Description of equipment:

The YT-3700/YT-3750/YT-3701/YT-3702/YT-3703 and YT-3700+LS (dry-contact, non-contact)/YT-3750+LS (dry-contact, non-contact) are electro pneumatic positioners to control linear and rotary valves. The pressure is regulated by an inductive torque motor and the position of the pneumatic valve is measured by a potentiometer.

The YT-3700/YT-3750/YT-3701/YT-3702/YT-3703 and YT-3700+LS (dry-contact, non-contact)/YT-3750+LS (dry-contact, non-contact) have as an option a superimposed HART signal. Additionally, the PTM module as another option serves as feedback for the position of the valve. Two optional limit switches (contacts) can be built in. All circuits are supplied by intrinsically safe power supplies with linear characteristic. The different intrinsically safe circuits are galvanically isolated against each other and against ground.

The version YT-3701/YT-3702 is equipped with an external potentiometer as position sensor. The isolation voltage is 500V. Only the original units "Linear Feedback Module" and "Rotary Feedback Module", manufactured by the company Rotork YTC Limited may be connected via the "Cable Connector".

As external position sensors only the original units "Linear Feedback" and "Rotary Feedback Module", manufactured by the company Rotork YTC Limited may be connected via the "Cable Connector".

The versions YT-3700/YT-3750 are prepared for the connection of a contactless Hall-effect potentiometer (NCS) as position sensor.

Electrical data:

Supply circuit (versions YT-3700/YT-3750/YT-3701/YT-3702/YT-3703 and YT-3700+LS(dry-contact, non-contact) /YT-3750+LS(dry- contact, non-contact)) type of protection Intrinsic Safety Ex ia IIC/IIB maximum values:

$U_i = 28 \text{ V}$
 $I_i = 93 \text{ mA}$
 $P_i = 651 \text{ mW}$
Linear characteristic
 $C_i = 0.6 \text{ nF}$ differentially between the lines or 2.2 nF against ground
 $L_i = 10 \text{ } \mu\text{H}$

The supply circuit is galvanically isolated against earth.

Option circuit "PTM" (versions YT-3700/YT-3750/YT-3701/YT-3702/YT-3703 and YT-3700+LS(dry-contact, non-contact)/ YT-3750+LS(dry-contact, non-contact)), type of protection Intrinsic safety Ex ia IIC/IIB maximum values:

$U_i = 28 \text{ V}$
 $I_i = 93 \text{ mA}$
 $P_i = 651 \text{ mW}$
Linear characteristic
 $C_i = 0.6 \text{ nF}$ differentially between the lines or 2.2 nF against ground
 $L_i = 10 \text{ } \mu\text{H}$

The PTM circuit is galvanically isolated against earth and the other circuits.

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YT-3701, YT-3702 Maximum supply values for the potentiometer:

$U_o = 6.51 \text{ V}$
 $I_o = 93 \text{ mA}$
 $I_{o_wiper} = 6 \text{ mA}$
 $P_o = 0.465 \text{ W}$
 $C_i = 13 \mu\text{F}$
 $L_i = 0 \mu\text{H}$
 Trapezoidal characteristic

Option circuits "Limit switches 1 and 2" (only version YT-3700+LS(dry-contact)/YT 3750+LS(dry-contact)) type of protection Intrinsic Safety Ex ia IIC/IIB maximum values:

$U_i = 28 \text{ V}$
 $I_i = 93 \text{ mA}$
 $P_i = 651 \text{ mW}$
 Linear characteristic
 $C_i = 0 \text{ nF}$
 $L_i = 0 \mu\text{H}$

The limit switch circuits are galvanically isolated against earth. All circuits are galvanically isolated against each other and all other circuits.

Smart Positioner can also be equipped with two non-contact limit switches type NJ1,5-F-N, manufactured by Pepperl & Fuchs and already certified by the notified body PTB under PTB 00 ATEX 2032 X. Some smaller changes in the circuit have been done. They are valid for all versions.

Type of protection Intrinsic Safety Ex ia IIC/IIB resp. Ex ib IIC/IIB

The limit switches are supplied each by an certified intrinsic safe current circuit.

Maximum values:

$U_o = 16 \text{ V}$
 $I_o = 25 \text{ mA}$
 $P_o = 34 \text{ mW}$
 $C_i = 30 \text{ nF}$
 $L_i = 50 \mu\text{H}$

Type 1	Type 2	Type 3	Type 4
$U_i = 16 \text{ V}$	$U_i = 16 \text{ V}$	$U_i = 16 \text{ V}$	$U_i = 16 \text{ V}$
$I_i = 25 \text{ mA}$	$I_i = 25 \text{ mA}$	$I_i = 52 \text{ mA}$	$I_i = 76 \text{ mA}$
$P_i = 34 \text{ mW}$	$P_i = 64 \text{ mW}$	$P_i = 169 \text{ mW}$	$P_i = 242 \text{ mW}$



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Additional Option:

Digital IN&OUT

Two additional circuits are available for some versions. They serve for a direct communication with the microprocessor on the main-board. The circuits are isolated against each other and by optocouplers against the other circuits. They are supplied by two power supply units with the maximum values:

$U_i = 28 \text{ V}$

$I_i = 93 \text{ mA}$

$P_i = 651 \text{ mW}$

Linear characteristic

$C_i = 0 \text{ nF}$

$L_i = 0 \text{ }\mu\text{H}$

Housing variant YT-3702 can be used for the connection of a junction box for external linear or rotary potentiometers. The electrical data remain unchanged

(16) Reference number: 19TH0328

(17) Special conditions for safe use:

The ambient temperature range deviates from the standard temperature range and amounts to:

Temperature class T5 / T100°C: -40 °C to +60 °C

Temperature class T6 / T85°C: -40 °C to +40 °C.

Equipment must be protected from high risk of mechanical impact hazard and high electrostatic charge hazards.

(18) Essential health and safety requirements:

Met by compliance with standards.



Certification department of explosion protection

Hamburg, 2021-10-29