

# Smart Positioners YT-3300 / YT-3303 / YT-3301 / YT-3350

Item Type	YT-3300	YT-3303	YT-3301	YT-3350	
Input Signal	4 to 20 mA DC				
Supply Pressure	0.14 to 0.7 MPa = 1.4 to 7 bar = 20 to 102 psi				
Stroke	Linear Type	10 to 150 mm (0.4 to 6")			
	Rotary Type	55 to 110°			
Impedance	Max. 500 Ω @ 20 mA DC				
Air Connection	Rc 1/4, 1/4 NPT, G 1/4		1/4 NPT		
Gauge Connection	Rc 1/8, 1/8 NPT		1/8 NPT		
Conduit	G 1/2, 1/2 NPT, M20x1.5P		G1/2		
Operating Temp.	Standard Type	-30 to +85 °C (-22 to +185 °F)			
	Low Temp. Type	-40 to +85 °C (-40 to +185 °F)			
	Arctic Temp. Type	-55 to +85 °C (-67 to +185 °F)			
	LCD	withstands -55 to +85 °C (-67 to +185 °F) only visible above -40 °C (-40 °F)			
Linearity	±0.5% F.S.				
Hysteresis	±0.5% F.S.				
Sensitivity	±0.2% F.S.				
Repeatability	±0.3% F.S.				
Air Consumption	Below 2 LPM (sup = 0.14 MPa) Below 0.08 CFM (sup = 20 psi)				
Flow Capacity	70 LPM (sup = 0.14 MPa) 2.47 CFM (sup = 20 psi)				
Output Characteristics	Linear, EQ%, Quick Open, User Set (5 or 18 Points)				
Material	Aluminium Diecasting	Aluminium Diecasting	Stainless Steel 316		
Ingress Protection	NEMA 4X, IP66	IP66	IP66, IP54	NEMA 4X, IP66	
Explosion Protection Type	<b>ATEX, IECEx, EAC</b> Ex ia IIC T5/T6 Gb, Ex ia IIIC T100°C/T85°C Db IP66 <b>CCC</b> Ex ia IIC T5/T6 Gb Ex iaD 21 T100/T85 <b>KCs</b> Ex ia IIC T5/T6, Ex iaD IIIC T100°C/T85°C <b>CSA</b> CSA certificate <b>FM</b> Class I, Div 1, Groups ABCD Class I, Zone 0 AEx ia IIC Class II/III, Div 1, Groups EFG Class I, II, III, Div 2, Groups ABCDEFG NEMA Type 4X, IP66, IP54 AMBIENT TEMP: -40 - 60°C (T5) / -40 - 40°C (T6) <b>NEPSI (only YT-3300/3350)</b> Ex ia IIC T5/T6 <b>INMETRO</b> Ex ia IIC T5/T6 Gb, Ex ia IIIC T100°C/T85°C Db				
Communication (Option)	HART (ver.7)				
L/S Rating	Mechanical Type (Omron)	AC 125 V, 3 A DC 30 V, 2 A	-	-	AC 125 V, 3 A DC 30 V, 2 A
	Proximity Type (P&F)	DC 8.2 V 8.2 mA	-	-	DC 8.2 V 8.2 mA
Weight	Body	2 kg (4.4 lb)	2.2 kg (4.9 lb)	5.1 kg (11.2 lb)	-
	Remote Sensor	-	-	1 kg (2.1 lb)	-

## Product Code

**YT-3300 - L - S - N - 2 - 4 - 2 - 4 - S - (1)**

### Model

YT-3300 = Aluminium housing  
 YT-3303 = Aluminium housing with right side lever  
 YT-3301 = Aluminium housing with remote sensor  
 YT-3350 = Stainless steel housing

### Motion Type

L = Linear  
 R = Rotary

### Acting Type

S = Single  
 D = Double

### Explosion Protection

N = Non-explosion  
 i = Intrinsically Safe ATEX, IECEx, KCs, INMETRO, NEPSI  
 E = Intrinsically Safe EAC  
 A = Intrinsically Safe CSA, FM  
 Z = Intrinsically Safe CCC

### Lever Type

Linear YT-3300/3350	Rotary	
0 = 10 to 40 mm	1 = M6 x 34L	fork type
1 = 20 to 100 mm	2 = M6 x 63L	
2 = 90 to 150 mm	3 = M8 x 34L	
3 to 6 = Adapter type	4 = M8 x 63L	
Linear YT-3301/3303	5 = NAMUR (YT-3301)	
1 = 10 to 40 mm		
2 = 20 to 70 mm		
3 = 50 to 100 mm		
4 = 100 to 150 mm		

### Conduit & Air Connection

1 = G1/2 - Rc1/4  
 2 = G1/2 - 1/4 NPT  
 (YT-3350 only available with conduit connection code 2)  
 3 = G1/2 - G1/4  
 4 = M20 - 1/4 NPT (YT-3303 and YT-3301 will come with electrical conduit adaptors)  
 5 = 1/2 NPT - 1/4 NPT  
 (YT-3303 and YT-3301 will come with electrical conduit adaptors)

### Communications

0 = None  
 2 = HART protocol communication  
 3 = Profibus PA communication protocol (only YT-3300/3350)  
 4 = Foundation Fieldbus (only YT-3300/3350)

### Output Options

0 = None  
 1 = 4 to 20 mA feedback  
 2<sup>1</sup> = Limit Switch - Mechanical Type (YT-3300 and YT-3350 only)  
 3<sup>2</sup> = Limit Switch - Proximity Type (YT-3300 and YT-3350 only)  
 4<sup>1</sup> = 4 to 20 mA + Limit Switch - Mechanical Type (YT-3300 and YT-3350 only)  
 5<sup>2</sup> = 4 to 20 mA + Limit Switch - Proximity Type (YT-3300 and YT-3350 only)

### Operating Temp. (Non-explosionproof)<sup>3</sup>

S = -30 to +85 °C (-22 to +185 °F) (N/A for EAC)  
 L = -40 to +85 °C (-40 to +185 °F)  
 A = -55 to +85 °C (-67 to +185 °F) (only available with EAC certification)

### Cable Length (YT-3301 only)

Option for YT-3301 only. Standard cable length is 5 m.  
 1 = 5 m  
 2 = 10 m  
 3 = 15 m  
 4 = 20 m

### Notes:

- Only S, L of Operating Temperature are available for 2, 4 of Output Options.
- Only S of Operating Temperature is available for 3, 5 of Output Options.
- This option is just the normal operating temperature of the product and is not related to explosion protection temperature. See certificates for explosion protection temperature.

# Smart Positioners YT-3700 / YT-3750

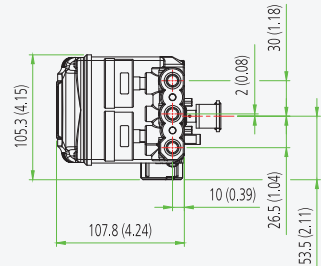
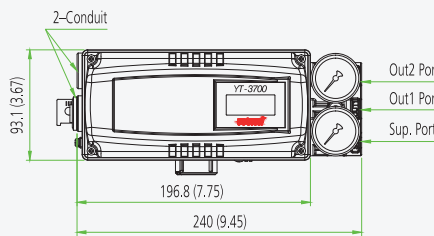
Digital smart positioner with enhanced diagnostics

## Design features

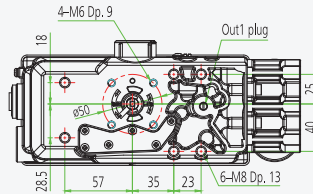
- Enhanced diagnostic** (including offline and online) to fully check the integrity of the system. Valve signature, advanced step tests and Partial Stroke Testing (PST) can be operated from local or remote positions. Device Description (DD) and Device Type Manager (DTM) files allow for full software compatibility.
- Visual diagnostic info** to NE107 standard for a user-friendly analysis with a severity alarm scale and a clear visual identification locally on the display or remotely through HART®.
- Digital input/output configurable** depending on the application and customer preferences. Multiple options are available e.g. start a pre-set PST event or receive error alarms, tailoring interaction with the device as necessary.
- Auto tuning** functionality.
- Non-contact sensor** for increased performance for high frequency operating valves and an enhanced lifetime.



### YT-3700 Aluminium Enclosure



### YT-3700 Aluminium Enclosure With Limit Switches and Dome Indicator



### YT-3750 STS316 Enclosure



Dimensions: mm (Inches \*)

# Smart Positioners YT-3700 / YT-3750

## Online diagnostics

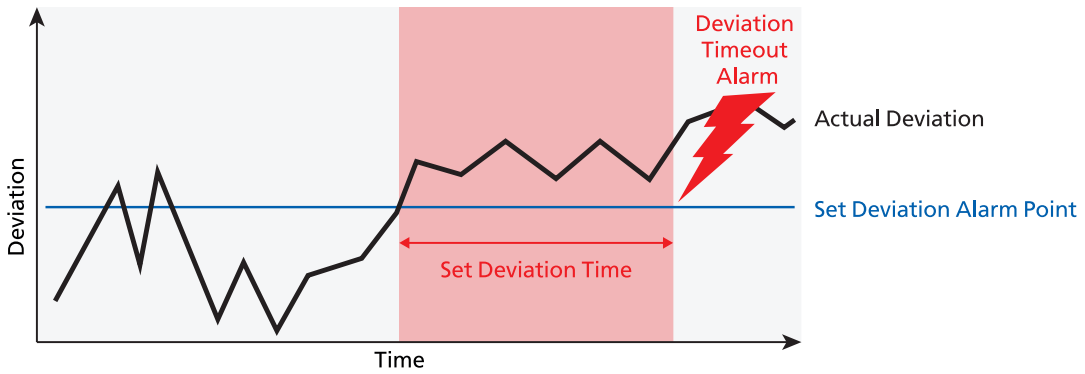
These digital smart positioners employ continuous monitoring and graphic display of valve position, set point target vs time and internal circuit board temperature vs time.

Steady state deviation online analysis can detect:

- Friction in the valve or actuator
- Leakage in pneumatics
- Insufficient supply pressure



A deviation time out alarm occurs when the difference between the target position and the actual position exceeds the preset deviation alarm point (for more than the preset deviation time).



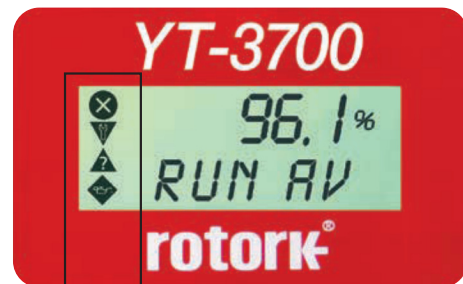
## Alarms

An embedded memory in the YT-3700 series can store up to 11 PST test results and up to 20 alarm logs. Through DTM, the history of files will be easy to detect and the valve system integrity easily verified.

Examples of YT-3700 user configurable alarm/status based on NE107 status signal:

- Critical NVM failure
- Travel sensor failure
- RAM defect
- Drive Signal
- Temperature signal
- Deviation
- Travel accumulator
- Cycle counter
- Full close/open count
- PST failure
- Auto calibration failure

Note: Alarm severity can be set by operator



	<b>Failure</b> High severity
	<b>Check function</b> Signal temporarily invalid
	<b>Out of specification</b> Medium severity
	<b>Maintenance required</b> Low severity

Explanation of on-screen icons

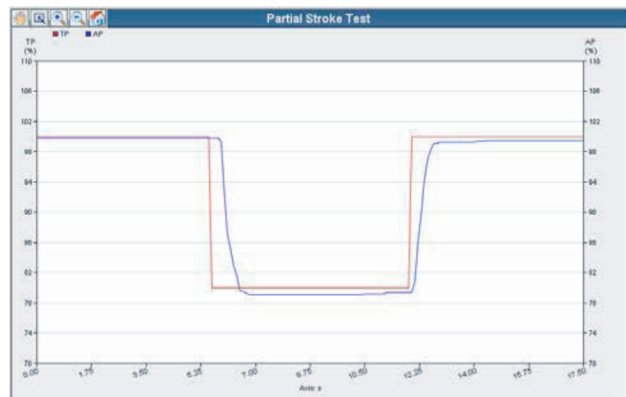
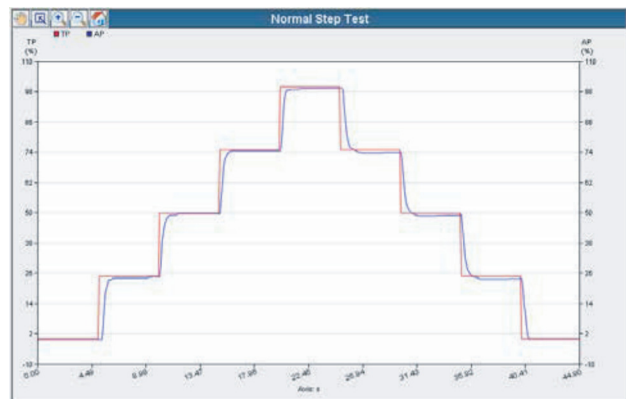
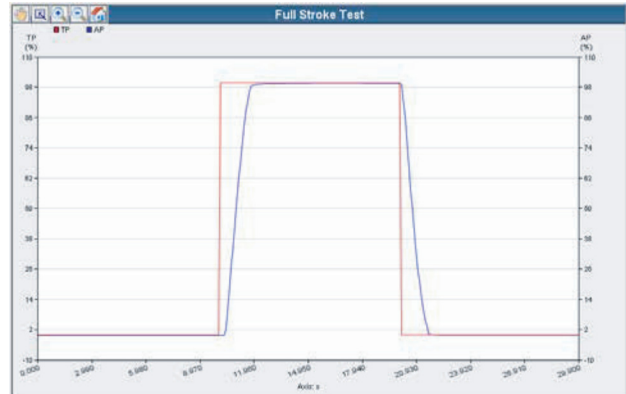
# Smart Positioners YT-3700 / YT-3750

## Offline diagnostics

Automated package tests, checking integrity and dynamic behavior:

- Valve signature
- 25% step test
- Large step test
- Performance step test

These tests provide data to validate system performances. The system allows a reference to be set for further analysis highlighting performance shifts for predictive maintenance.



## Partial Stroke Test capabilities

### Automated PST functionality:

Configurable parameters

- PST interval [days]
- Position tolerance [%]
- PST start position [%]
- Target position [%]
- PST time out limit [sec]
- Target position hold time [sec]
- PST ramp up/down [%/sec] to reduce risks of overshooting system

### Test activation via:

- Local positioner menu
- Remote DI control push button
- Remote HART® connection

# Smart Positioners YT-3700 / YT-3750

Item Type	YT-3700	YT-3750
Input Signal	4 to 20 mA DC	
Supply Pressure	0.14 to 0.7 MPa = 1.4 to 7 bar = 20 to 102 psi	
Stroke	Linear Type	10 to 150 mm (0.4 to 6")
	Rotary Type	55 to 110°
Impedance	Max. 500 Ω @ 20 mA DC	
Air Connection	Rc1/4, 1/4NPT, G1/4	1/4NPT
Gauge Connection	Rc1/8, 1/8NPT	1/8NPT
Conduit	G1/2, M20, 1/2NPT	G1/2
Operating Temp.	Standard Type	-30 to +85 °C (-22 to +185 °F)
	Low Temp. Type	-40 to +85 °C (-40 to +185 °F)
	Arctic Temp. Type	-55 to +85 °C (-67 to +185 °F)
	LCD	withstands -55 to +85 °C (-67 to +185 °F) only visible above -40 °C (-40 °F)
Linearity	±0.5% F.S.	
Hysteresis	±0.5% F.S.	
Sensitivity	±0.2% F.S.	
Repeatability	±0.3% F.S.	
Air Consumption	Below 2 LPM (sup = 0.14 Mpa) Below 0.07 CFM (sup = 20 psi)	
Flow Capacity	70 LPM (sup = 0.14 MPa) 2.47 CFM (sup = 20 psi)	
Output Characteristics	Linear, EQ%, Quick Open, User Set (5 or 21 Points)	
Material	Aluminium Diecasting	Stainless Steel 316
Ingress Protection	Ip66, Type 4x	
Explosion Protection Type	<b>ATEX / IECEx</b> Ex ia IIC T5/T6 Gb Ex ia IIIC T100°C/T85°C Db IP 6x	
	<b>CCC</b>	Ex ia IIC T5/T6 Gb Ex iaD 21 T100/T85
	<b>KCs</b>	Ex ia IIC T6/T5 Ex ia IIIC T85°C/T100°C
	<b>FM</b>	Intrinsically Safe. See the product manual for the detail.
	<b>CSA</b>	Intrinsically Safe. See the product manual for the detail.
	<b>INMETRO</b>	Ex ia IIC T6/T5 Gb Ex ia IIC T85°C/T100°C Db IP66
	<b>NEPSI</b>	Ex ia IIC T5/T6 Gb, Ex iaD 21 T100/T85
	<b>EAC</b>	Intrinsically Safe. See the product manual for the detail.
Communication (Option)	HART (ver.7)	
L/S Rating	Mechanical Type (Omron)	AC 125 V, 3 A / DC 30 V, 2 A
	Proximity Type (P&F)	DC 8.2 V 8.2 mA
Weight	2 kg (4.4 lb)	5.1 kg (11.2 lb)
Digital Input	Low level control voltage 0 to 5 VDC High level control voltage 11 to 28 VDC Max current < 4 mA	
Digital Output	Supply voltage 5 to 28 VDC Low level current < 1 mA High level current > 2.1 mA @5 VDC, < 14mA @28 VDC	

## Product Code

**YT-3700 - L - S - N - 2 - 4 - 2 - 4 - S**

### Model

YT-3700 = Aluminium housing  
YT-3750 = Stainless steel housing

### Motion Type

L = Linear  
R = Rotary (in case of a switches request the device will have visual position indicator as standard)

### Acting Type

S = Single  
D = Double

### Explosion Protection

N = Non-explosion  
i = Intrinsically Safe ATEX, IECEx, KCs  
A = Intrinsically Safe CSA, FM (Both S and L of Operating Temp. available.)  
E = Intrinsically Safe EAC  
Z = Intrinsically Safe CCC

### Lever Type

Linear Rotary  
0 = 10 to 40 mm 5 = NAMUR  
1 = 20 to 100 mm  
2 = 90 to 150 mm

### Conduit & Air Connection

1 = G1/2 - Rc1/4  
2 = G1/2 - 1/4 NPT (YT-3750 is available for No. 2 ONLY)  
3 = G1/2 - G1/4  
4 = M20 - 1/4 NPT  
5 = 1/2 NPT - 1/4 NPT

### Communication Protocols

2 = HART communication

### Output Options

0 = None  
1 = 4 to 20 mA feedback  
4<sup>1</sup> = 4 to 20 mA feedback + Limit Switch - Mechanical Type (potentiometer drive without digital I/O communication)  
5<sup>2</sup> = 4 to 20 mA feedback + Limit Switch - Proximity Type (potentiometer drive without digital I/O communication)

### Operating Temp. (Non-explosion proof)<sup>3</sup>

S = -30 to +85 °C (-22 to +185 °F) (N/A for EAC)  
L = -40 to +85 °C (-40 to +185 °F)  
A = -55 to +85 °C (-67 to +185 °F) (only available with EAC certification)

#### Notes:

1. Only S, L of Operating Temperature are available for 4 of Output Options
2. Only S of Operating Temperature is available for 5 of Output Options
3. This option is just the normal operating temperature of the product and is not related to explosion protection temperature. See certificates for explosion protection temperature.