

Torque motor technology with communications

Design features

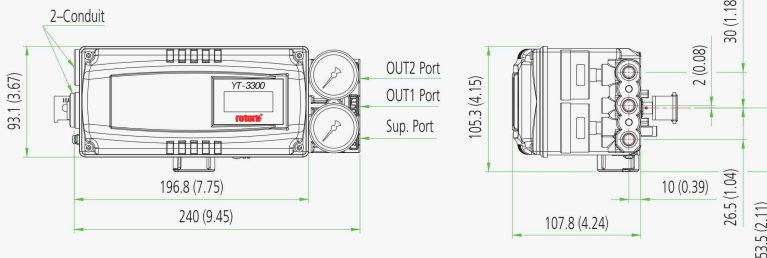
- **Auto calibration.** Simple menu structure with options to auto-calibrate all parameters or zero and end points only.
- **LCD display.** Alphanumeric digital display for process values and calibration.
- **Partial Stroke Test (PST).** Fully-adjustable Partial Stroke Test. All functionality can be performed and selected locally, through push buttons, or remotely with communication protocol.
- **Analogue Output.** Analogue and digital feedback signals with 4-20 mA, mechanical and proximity switch options.
- **PID control.** Pre-calibrated and user-configurable variables via front panel pushbutton menu.
- **Auto/manual switch.** Enables closed-loop automatic valve position control or manual positioning via the A/M switch. The manual mode is useful for troubleshooting, calibration, system testing or as a manual bypass.
- **HART® communication.** Allows commands, position feedback and diagnostics to be sent digitally over the current loop.
- **Profibus Process Automation (PA).** Manages equipment via a process control system in process automation applications. The PA variant is designed for use in hazardous areas (Ex zones 0 and 1). The Physical Layer, with over the bus power, limits current flows so that

explosive conditions are not created, even if a malfunction occurs. The number of devices attached to a PA segment is limited by this feature. However, PA uses the same protocol as DP, and can be linked to a DP network using a coupler device. The much faster DP acts as a backbone network for transmitting process signals to the controller. This means that DP and PA can work tightly together, especially in hybrid applications where process and factory automation networks operate side by side.

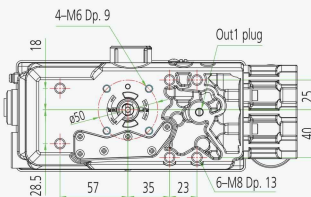
- **Foundation Fieldbus.** A bi-directional communications protocol used for communications among field devices and the control system. It utilises twisted pair or fibre media to communicate between multiple nodes (devices) and the controller. The controller requires only one communication point to communicate with up to 32 nodes, this is a significant improvement over the standard 4-20 mA communication method which requires a separate connection point for each communication device on the controller system.
- **Front panel pushbuttons for configuration.** Four robust and positive acting pushbuttons for field configuration.
- **Non-contact sensor** for increased performance for high frequency operating valves and an enhanced lifetime.



YT-3300 aluminium enclosure



YT-3350 STS16 enclosure



Dimensions: mm (Inches *)

Item type		YT-3300	YT-3350
Input signal		4-20 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 ¼, ¼ NPT, G ¼	¼ NPT
Gauge connection		⅛ NPT	
Conduit		G ½, M20, ½ NPT	G ½
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)	
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, 21 Points)	
Material		Aluminium Diecasting	Stainless Steel 316
Ingress protection		NEMA 4X, IP66 (excluding the pressure gauges)	
Explosion protection type	ATEX / IECEx / UKEX / CCC / NEPSI / INMETRO Ex ia IIC T5/T6 Gb Ex ia IIIC T100°C/T85°C Db		
	KCs Ex ia IIC T6/T5 Ex iaD IIIC T85°C/T100°C		
	CSA CSA certificate		
	FM Class I, Div 1, Groups A, B, C & D Class I, Zone 0 AEx ia IIC Class II/III, Div 1, Groups E, F & G Class I/II/III, Div 2, Groups A, B, C, D, F & G NEMA Type 4X, IP66, IP54		
	PESO (YT-3300 only) Ex ia IIC T6/T5 Gb Ambient temp.: -40 to +60 °C (T5) / -40 to +40 °C (T6)		
SIL		SIL2 and SIL3 Non-interference device statement for SIS	
Communication (option)		HART (ver.7) Profibus PA ¹ Foundation Fieldbus ¹	
L/S rating	Mechanical type (Omron)	125 VAC, 3 A / 30 VDC, 2 A	
	Proximity type (P&F)	8.2 VDC, 8.2 mA	
Weight		2 kg (4.4 lb)	5.1 kg (11.2 lb)

Product code

YT-3300 - L - S - N - 2 - 4 - 2 - 4 - S

Model

YT-3300 = Aluminium housing
YT-3350 = Stainless steel housing

Motion type

L = Linear
R = Rotary

Acting type

S = Single
D = Double

Explosion protection

N = Non-explosion proof
i = Intrinsically safe ATEX, IECEx, KCs, NEPSI, INMETRO, PESO (YT-3300 only)
A = Intrinsically safe CSA, FM
AG = Intrinsically safe CSA, FM - tapped exhaust
Z = Intrinsically safe CCC, NEPSI

Lever type

Linear		Rotary
0 = 10 to 40 mm	standard adapter type	1 = M6 x 34L
1 = 20 to 100 mm		2 = M6 x 63L
2 = 90 to 150 mm		3 = M8 x 34L
3 = 16 to 30 mm		4 = M8 x 63L
4 = 16 to 60 mm		5 = NAMUR
5 = 16 to 100 mm		
6 = 90 to 150 mm		fork type

Conduit & air connection

1 = G ½ - Rc ¼ (N/A for YT-3350)
2 = G ½ - ¼ NPT
3 = G ½ - G ¼ (N/A for YT-3350)
4 = M20 - ¼ NPT (N/A for YT-3350)
5 = ½ NPT - ¼ NPT (N/A for YT-3350)

Communications

0 = None
2 = HART protocol communication
3 = Profibus PA¹
4 = Foundation Fieldbus¹

Output options

0 = None
1 = 4-20 mA Analogue Output
2² = Limit switch (2ea) - mechanical type
3³ = Limit switch (2ea) - proximity type
4² = 4-20 mA Analogue Output + limit switch (2ea) - mechanical type
5² = 4-20 mA Analogue Output + limit switch (2ea) - proximity type

Operating temp. (non-explosion proof)⁴

S = -30 to +85 °C (-22 to +185 °F)
L = -40 to +85 °C (-40 to +185 °F)
A = -55 to +85 °C (-67 to +185 °F) (Non-explosion proof only)

Notes:

1. Only available for N, i (ATEX/IECEx only) of explosion protection and 0 of output options. Potentiometer feedback sensor is only applicable. Arctic temperature option is not available.
2. Only S, L of operating temperature are available for 2, 4 of output options. This option is only available with potentiometer feedback sensor.
3. Only S of operating temperature is available for 3, 5 of output options. This option is only available with potentiometer feedback sensor.
4. 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.