



YT3700

Linear & Rotary Digital Smart positioner with enhanced diagnostics

YT3700 series Smart Valve Positioner accurately controls valve stroke in response to an input signal of 4~20mA from the controller. Built-in micro-processor optimizes the positioner's performance and provides unique functions such as Auto-Calibration, PID Control, and HART Protocol Communications.



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 HAR-r-.
- ◆ Aluminium Enclosure Polyester powder coated to resist the corrosion process; available on request Stainless steel housing (YT3750)
- ◆ LCD display enables users to monitor the positioner status
- ◆ Positioner operates normally even there are sudden changes in supply pressure and / or high vibration environment.
- ◆ User will easily understand the method of using 4 buttons because it work same in all versions of firmware interfaces
- ◆ When unexpected situation like momentary blackout happens, YT3700 boot-time only take 0.5 second and this can minimize the travel of valve which consequentially increase the safety of system.
- ◆ Various information about positioner can be processed by HART communication
- ◆ Valve system is stable by sending analog feedback signal.
- ◆ PID parameters can easily adjusted in the field without additional communicator.
- ◆ The pressure of Air filter regulator is sent to Actuator directly with using A/M switch.
- ◆ Split range such as 4-20mA, 12-20mA is available.
- ◆ Setting Zero and Span as partial section is available by Hand Calibration function.

Smart Positioners YT-3700

Online diagnostics

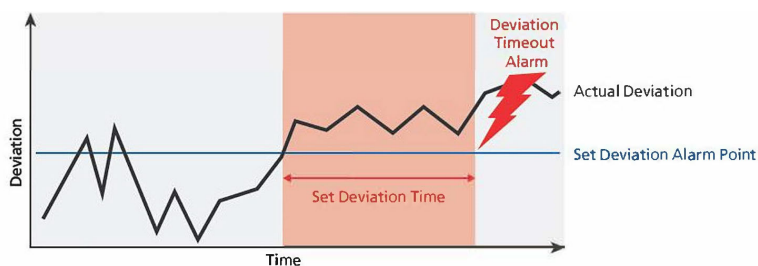
These digital smart positioners employ continuous monitoring and graphic display of valve position, set point target vs time and internal circuit board temperature vs time.

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).

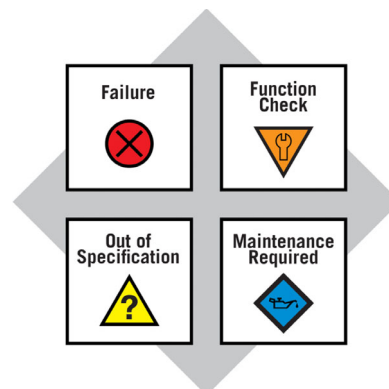


An embedded memory in the YT-3700 series can store up to 11 PST test results and up to 20 alarm logs. Through DTM, the history of files will be easy to detect and the valve system integrity easily verified.

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

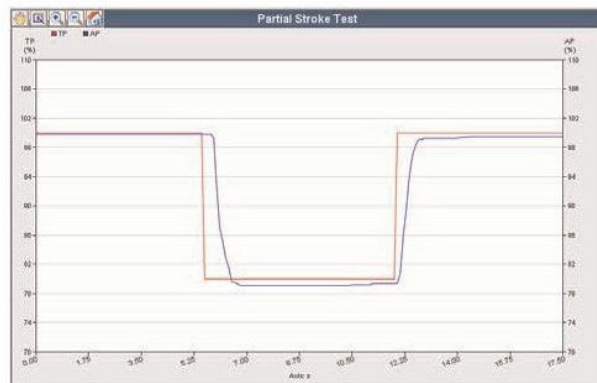
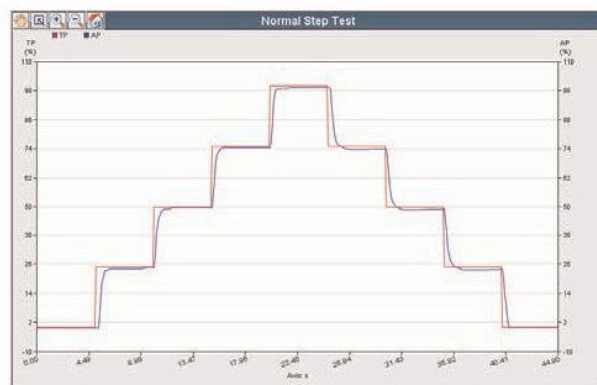
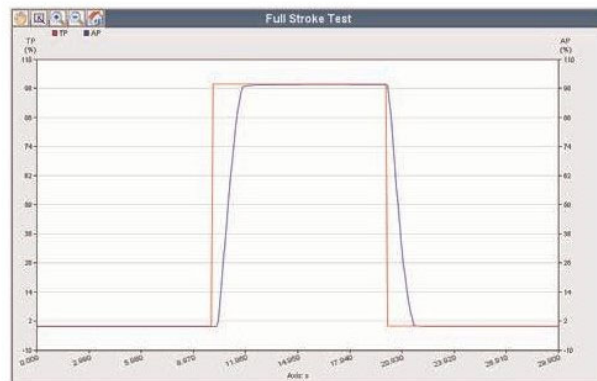


Offline diagnostics

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

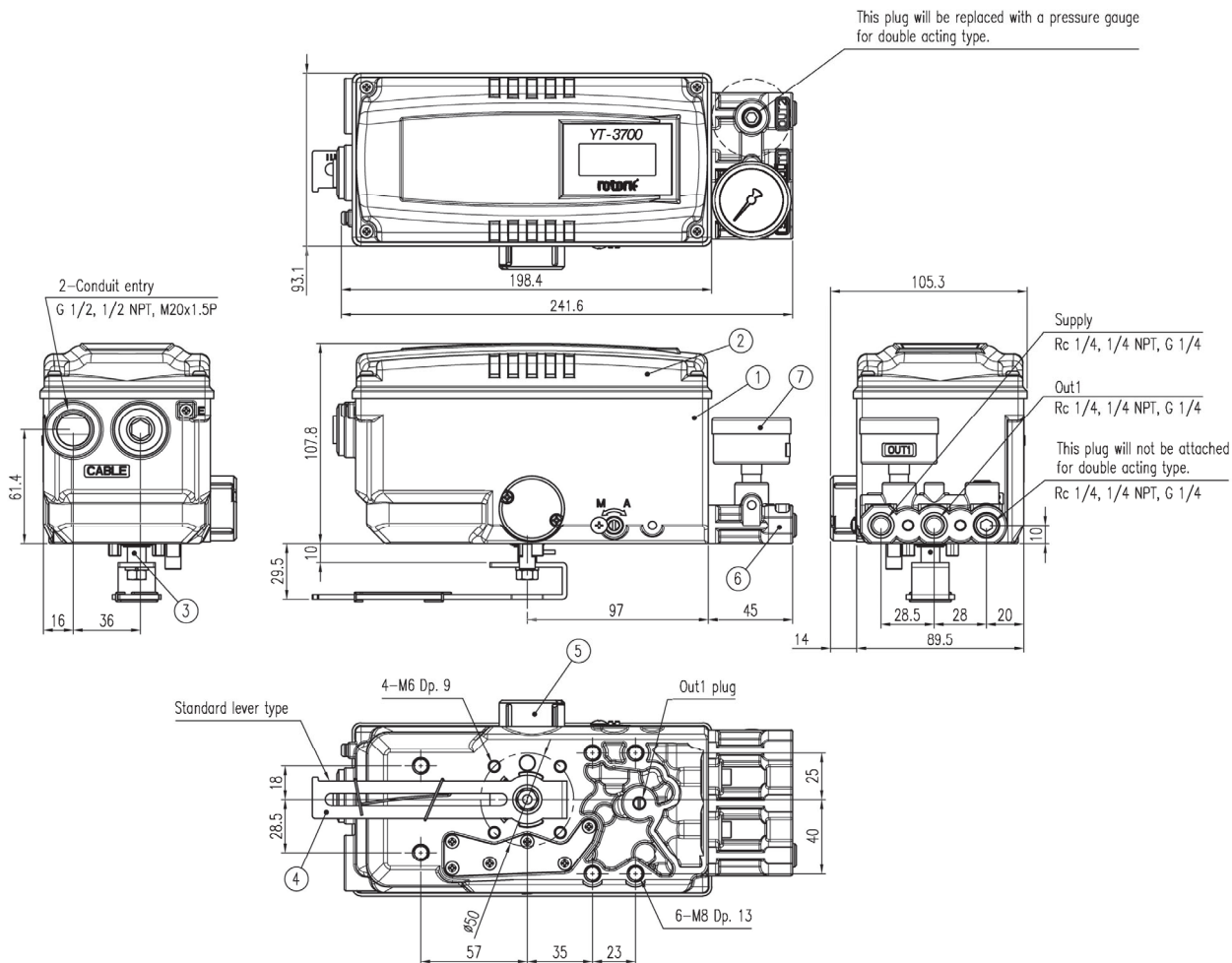
TECHNICAL DATA

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		Rc1/4, 1/4NPT, G1/4
Gauge Connection		Rc1/8, 1/8NPT
Conduit		G1/2, M20, 1/2NPT
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, 21 points)
Material		Aluminium Diecasting
Ingress Protection		IP66
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)
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

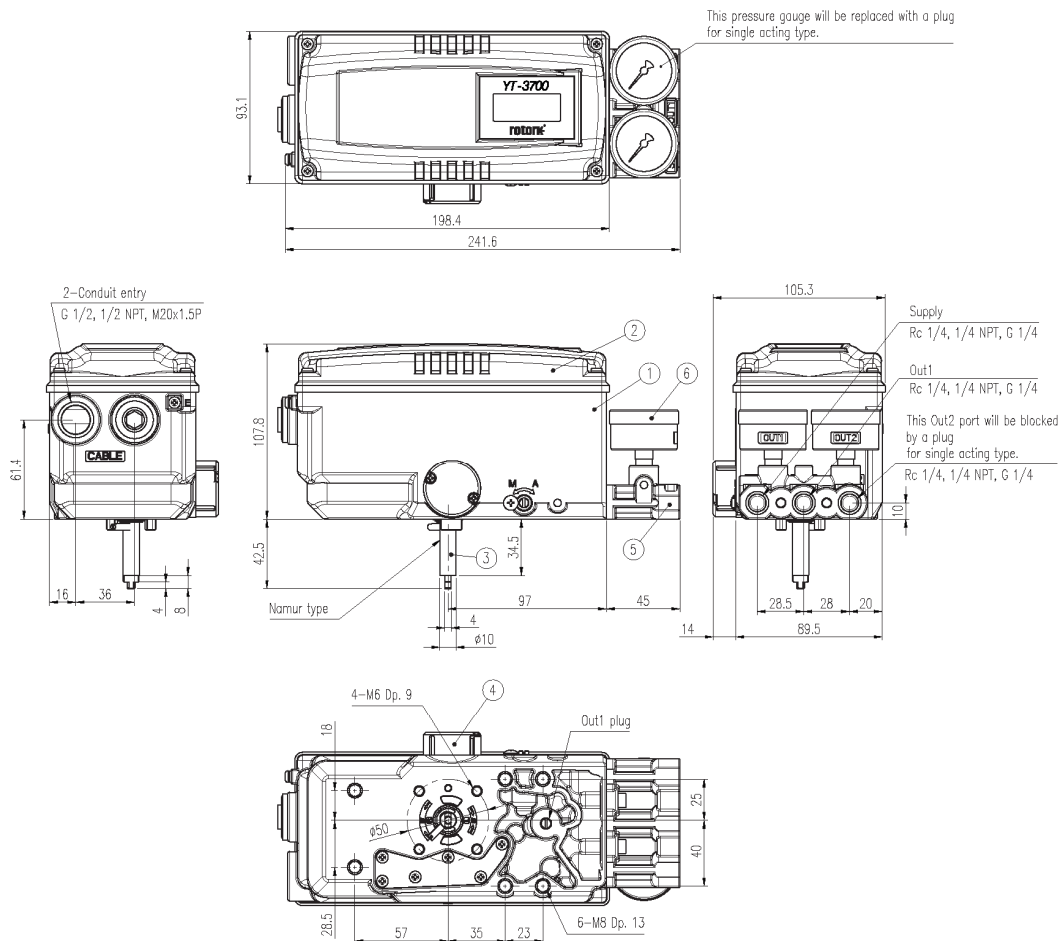
OPTIONS

HART PROTOCOL	LIMIT SWITCHES (Mechanical Type)
POSITION TRANSMITTER (4+20mA)	LIMIT SWITCHES (ProximityType)

YT3700L / YT3750L DIMENSIONS



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