

# ROTARY ELECTROPNEUMATIC POSITIONER YTC YT3300R

## FEATURES

The YT3300R positioner is intended for proportional control of single or double-acting 1/4 turn control valves.

The 4 to 20 mA proportional control signal is compared to the valve position and the pressure in the actuator is adjusted accordingly to match the valve position proportionally to the signal, independent of the differential pressure across the valve. The electrical power supply is provided by the voltage carrying the control signal (2 wires).



The YT3300R positioner has an LCD display and self-calibration and manual adjustment functions. Different executions are available, including the HART communication protocol.

The positioners are delivered equipped with a pressure gauge block and have a manual mode.

## AVAILABLE MODELS

|                       | Standard             |
|-----------------------|----------------------|
| Control signal        | 4÷20 mA              |
| Pneumatic connections | 1/4" NPT-F           |
| Electric connections  | G1/2                 |
| Valve stroke          | 2 à 35 mm<br>> 35 mm |
| Body                  | Aluminium            |
| Cover                 | Aluminium            |



## LIMITS OF USE

|                   | Standard       | ATEX              |
|-------------------|----------------|-------------------|
| Protection rating | IP66           | Ex ia IIC T6 / T5 |
| Temperature       | -30 ... +85°C  |                   |
| Air pressure      | 1,4 à 7 bar    |                   |
| Voltage           | 8,5 ÷ 30V      |                   |
| Maximum flow      | 70 l/min       |                   |
| Impédance         | 4500 Ω @ 30VCC |                   |

## EXECUTIONS

|      | Control<br>4÷20 mA | Feedback<br>4÷20 mA | 2 limit<br>switches | 2 limit switches<br>+ 4÷20 mA feedback |
|------|--------------------|---------------------|---------------------|----------------------------------------|
| IP66 | 3267001            | 3267002             | 3267003             | 3267005                                |

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## IDENTIFICATION

| Model   | Motion Type     | Acting Type     | Explosion Protection             | Lever Type        |                   | Conduit - Air Connection *2 | Communication   | Option                               | Operating Temp        |
|---------|-----------------|-----------------|----------------------------------|-------------------|-------------------|-----------------------------|-----------------|--------------------------------------|-----------------------|
| YT-3300 | <b>L</b> Linear | <b>S</b> Single | <b>N</b> Non-Explosion           | <b>0</b> 10~40mm  | <b>1</b> M6 × 34L | <b>1</b> G1/2 - PT1/4       | <b>0</b> NONE   | <b>0</b> NONE                        | <b>S</b> -30°C ~ 85°C |
| YT-3350 | <b>R</b> Rotary | <b>D</b> Double | <b>I</b> ATEX, IECEx, NEPSI, KCs | <b>1</b> 20~100mm | <b>2</b> M6 × 63L | <b>2</b> G1/2 - NPT1/4      | <b>2</b> + HART | <b>1</b> + PTM                       | <b>L</b> -40°C ~ 85°C |
|         |                 |                 | <b>A</b> CSA, FM                 | <b>2</b> 90~150mm | <b>3</b> M8 × 34L | <b>3</b> G1/2 - G1/4        |                 | <b>2</b> + L/S (Mechanical Type)     |                       |
|         |                 |                 |                                  | <b>3</b> 16~30mm  | <b>4</b> M8 × 63L | <b>4</b> M20 - NPT1/4 *3    |                 | <b>3</b> + L/S (Proximity Type)      |                       |
|         |                 |                 |                                  | <b>4</b> 16~60mm  | <b>5</b> NAMUR    | <b>5</b> NPT1/2 - NPT1/4    |                 | <b>4</b> + PTM+L/S (Mechanical Type) |                       |
|         |                 |                 |                                  | <b>5</b> 16~100mm |                   |                             |                 | <b>5</b> + PTM+L/S (Proximity Type)  |                       |
|         |                 |                 |                                  | <b>6</b> 90~150mm |                   |                             |                 |                                      |                       |

\*1 Lever 3~6 is adapter lever type.

\*2 YT-3350 is available for No.2 ONLY.

\*3 M20 adapter is attached to conduit entry

## DIRECTIVES AND MANUFACTURING STANDARDS

| Subject       | Standard                                         | Subject                  | Standard                                                          |
|---------------|--------------------------------------------------|--------------------------|-------------------------------------------------------------------|
| CE            | EN 61000-6-4:2007 + A1:2011<br>EN 61000-6-4:2005 | Protection rating        | IEC 60529:2001<br>IEC 60529:2006                                  |
| CEM Directive | 2014/30/UE                                       | ATEX 2014/34 UE (option) | II 2G Ex ia IIC T5/T6 Gb<br>II 2D Ex ia IIIC T100°C/T85°C Db IP6X |
| SIL2          | IEC 61508-1-2-4-7:2010                           | Quality assurance        | ISO 9001:2009<br>ISO 9001:2008                                    |

## CONSTRUCTION

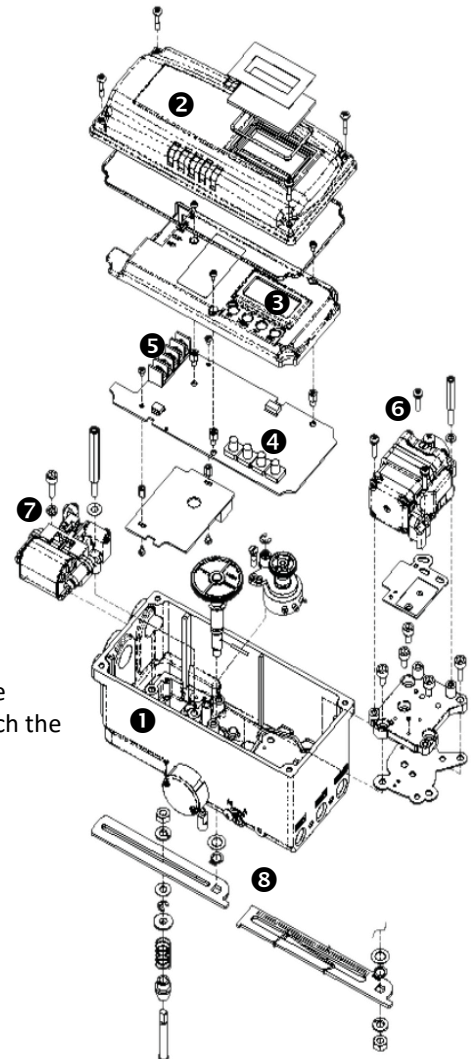
|   | Item                         |
|---|------------------------------|
| 1 | Aluminium epoxy coated body  |
| 2 | Aluminium epoxy coated cover |
| 3 | LCD display                  |
| 4 | Controls                     |
| 5 | Terminals                    |
| 6 | Pilot block                  |
| 7 | Position sensor              |
| 8 | Lever                        |

## FUNCTIONNING

The pneumatic power supply of the YT3300R positioner must be at least Class 2 or 3 (ISO8573.1)

The control signal is compared to the valve position and, depending on the result of the comparison, the air pressure in the engine is adjusted to match the position to the signal.

The LCD display shows the position in percentage of travel



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## ASSEMBLY

The positioner can be adapted to all types of linear actuator, the coupling kits available are particularly intended for actuators with NAMUR yoke

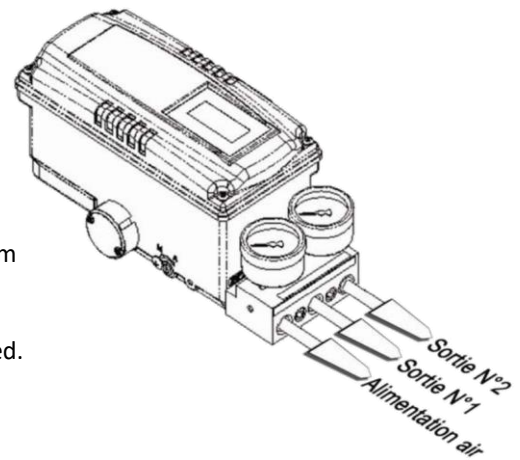
## PNEUMATIC CONNECTIONS

The supply air quality of the YT3300R positioner must be at least Class 2 or 3 (ISO8573.1), the installation of a regulator filter is recommended (30 µ).

The pneumatic supply (7 bar maximum) is connected to the left ¼"NPT port of the pressure gauge block. The recommended tube size is 6x8 mm

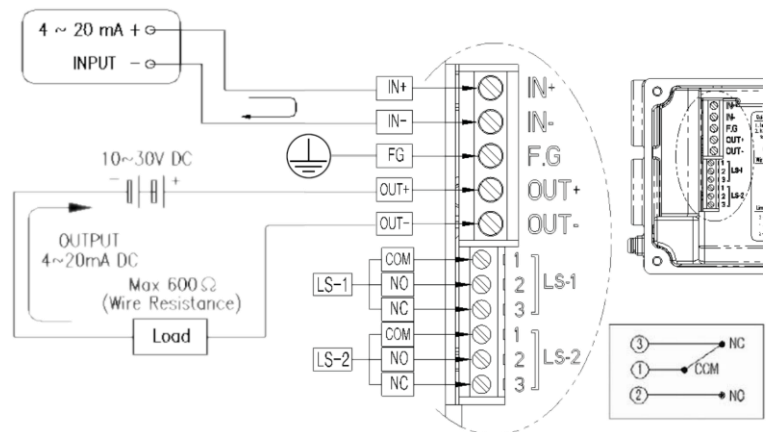
Outputs 1 and 2 correspond to direct (1) and reverse (2) output.

In the case of a single-acting actuator, the unused output must be closed.



## ELECTRICAL CONNECTIONS

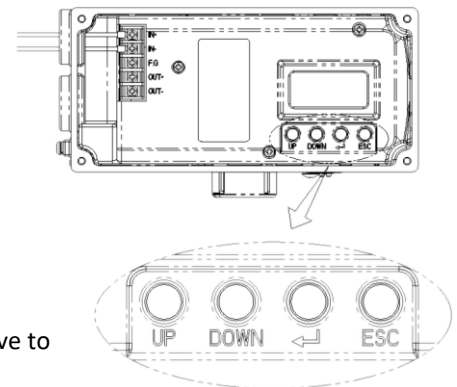
| Terminal | Description                         |
|----------|-------------------------------------|
| IN+      | + 4÷20 mA Control signal            |
| IN-      | - 4÷20 mA Control signal            |
| F.G      | Earth connection                    |
| OUT+     | + 4÷20 mA Feedback                  |
| OUT-     | - 4÷20 mA Feedback                  |
| LS-1     | 1 - COM Limit switch common N°1     |
|          | 2 - NO NO limit switch terminal N°1 |
|          | 3 - NC NC limit switch terminal N°1 |
| LS-2     | 1 - COM Limit switch common N°2     |
|          | 2 - NO NO limit switch terminal N°2 |
|          | 3 - NC NC limit switch terminal N°2 |



## SETTINGS

The YT3300 positioner has as standard an LCD display and four keys allowing you to display and configure the different settings.

|      |                                |
|------|--------------------------------|
| UP   | Menu navigation,               |
| DOWN | selection of values            |
| ↵    | Validation, access to submenus |
| ESC  | Return to previous menu        |



Numerous settings are available to the user to adapt the behavior of the valve to the characteristics of the installation.

In particular, it is possible to adjust the PID, the valve curve, the dead zone (hysteresis), the split-range mode, etc.

Optional equipment such as limit switches, position transmitter or HART communication can also be configured, if installed.

The YT3300R positioner has several self-learning modes.

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## SELF-CALIBRATION

Auto calibration allows the positioner to find and adjust zero and travel, as well as other parameters (PID).

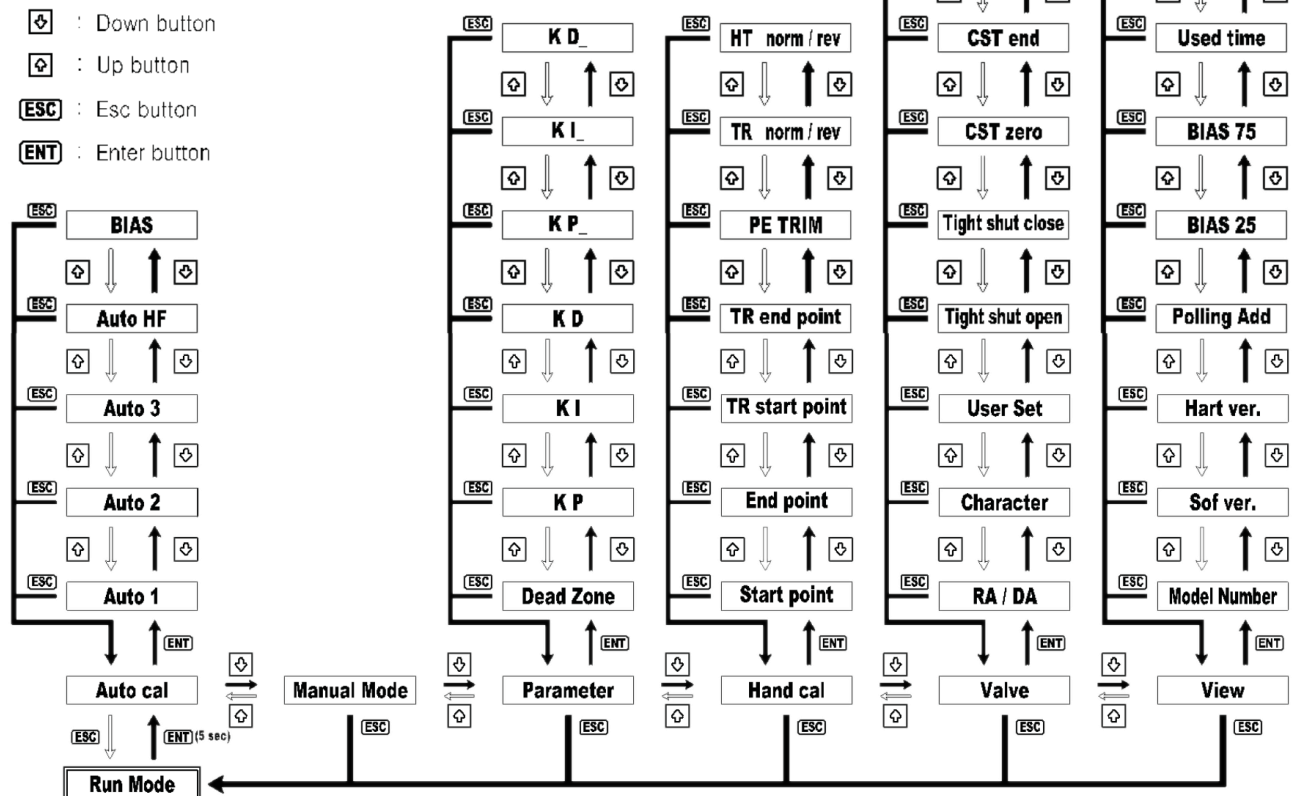
During the first start-up after assembly it is recommended to run the AUTO2 self-calibration, which adjusts all parameters.

The AUTO1 self-calibration adjusts the zero and the travel without modifying the other parameters, this choice is suitable after maintenance (skip step 4).

|   | Steps of auto-calibration                                                                                                                                                         | Display        |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 1 | The control signal is activated at 50% (12 mA), the positioner is in RUN mode, the display indicates:                                                                             | 300%<br>RUN PV |
| 2 | Press the key $\leftarrow$ for 6 seconds the display indicates:                                                                                                                   | AUTO CAL       |
| 3 | Press the key $\leftarrow$ the display indicates:                                                                                                                                 | AUTO 1         |
| 4 | Press the key DOWN, the display indicates:                                                                                                                                        | AUTO 2         |
| 5 | Press the key $\leftarrow$ , the positioner controls the valve to search for its references (2 to 3 minutes) then stops the self-calibration is completed. The display indicates: | COMPLETE       |

## OTHER PARAMÈTERS

Other parameters can be adjusted in the menu, following the displayed tree:



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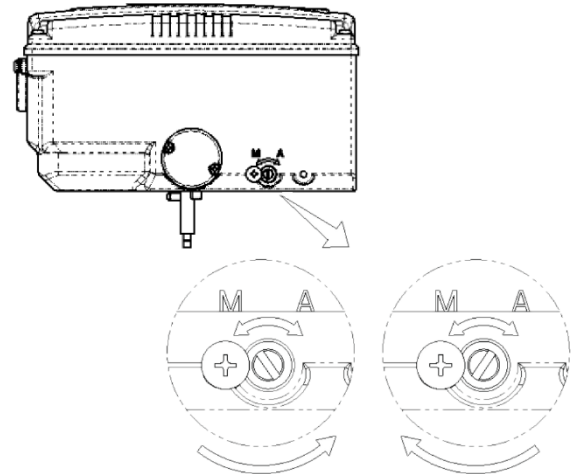
## MANUAL OPERATION

The AUTO/MANUAL (A/M) selector allows you to bypass the positioner and direct the supply pressure directly to the actuator.

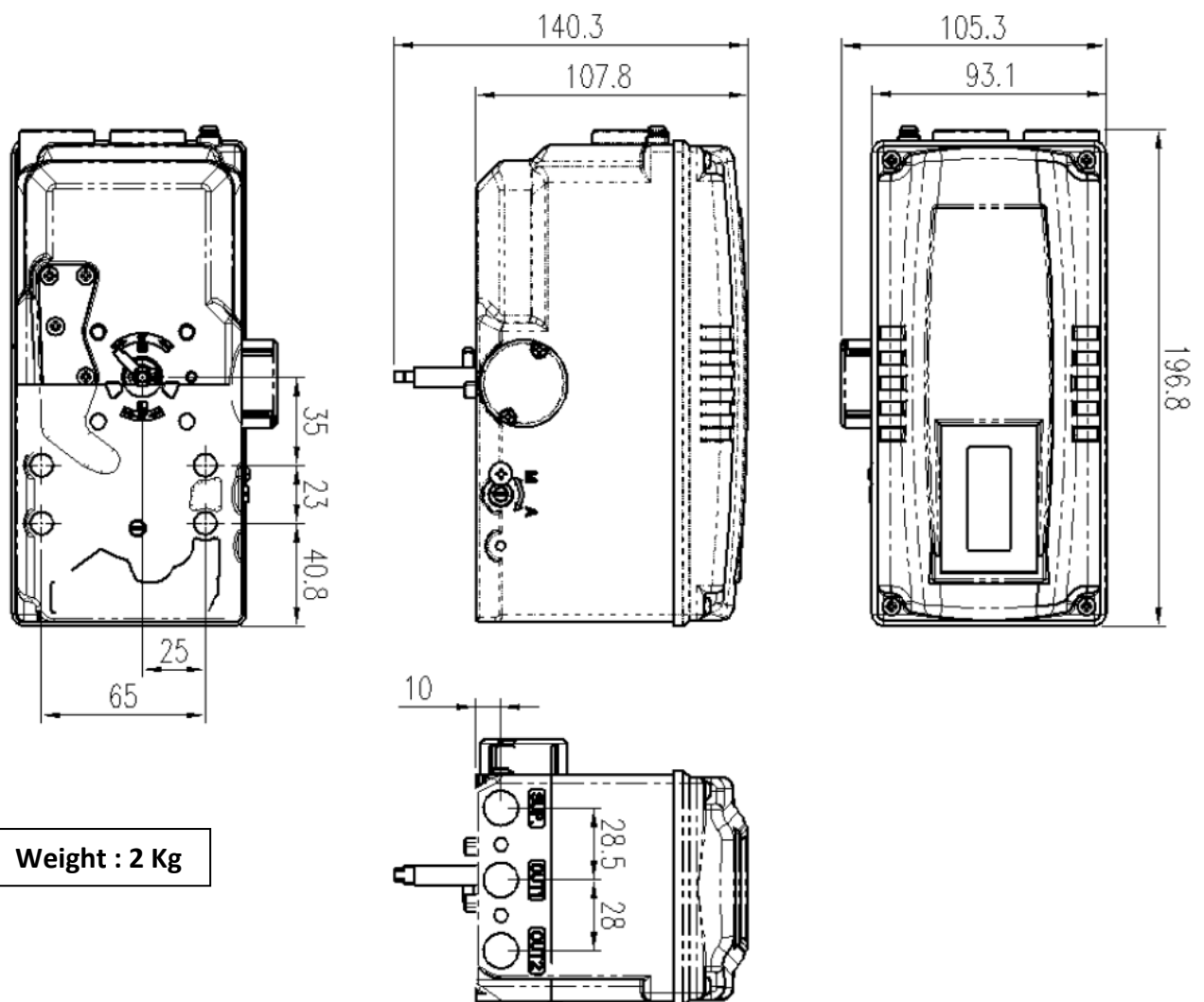
In the AUTO position, the 4÷20 mA signal controls the valve

In MANUAL mode, the valve position can be adjusted by modulating the supply pressure using the pressure regulator.

Loosen the lock using a Phillips screwdriver, orient the A/M control using a flat screwdriver.



## DIMENSIONS



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