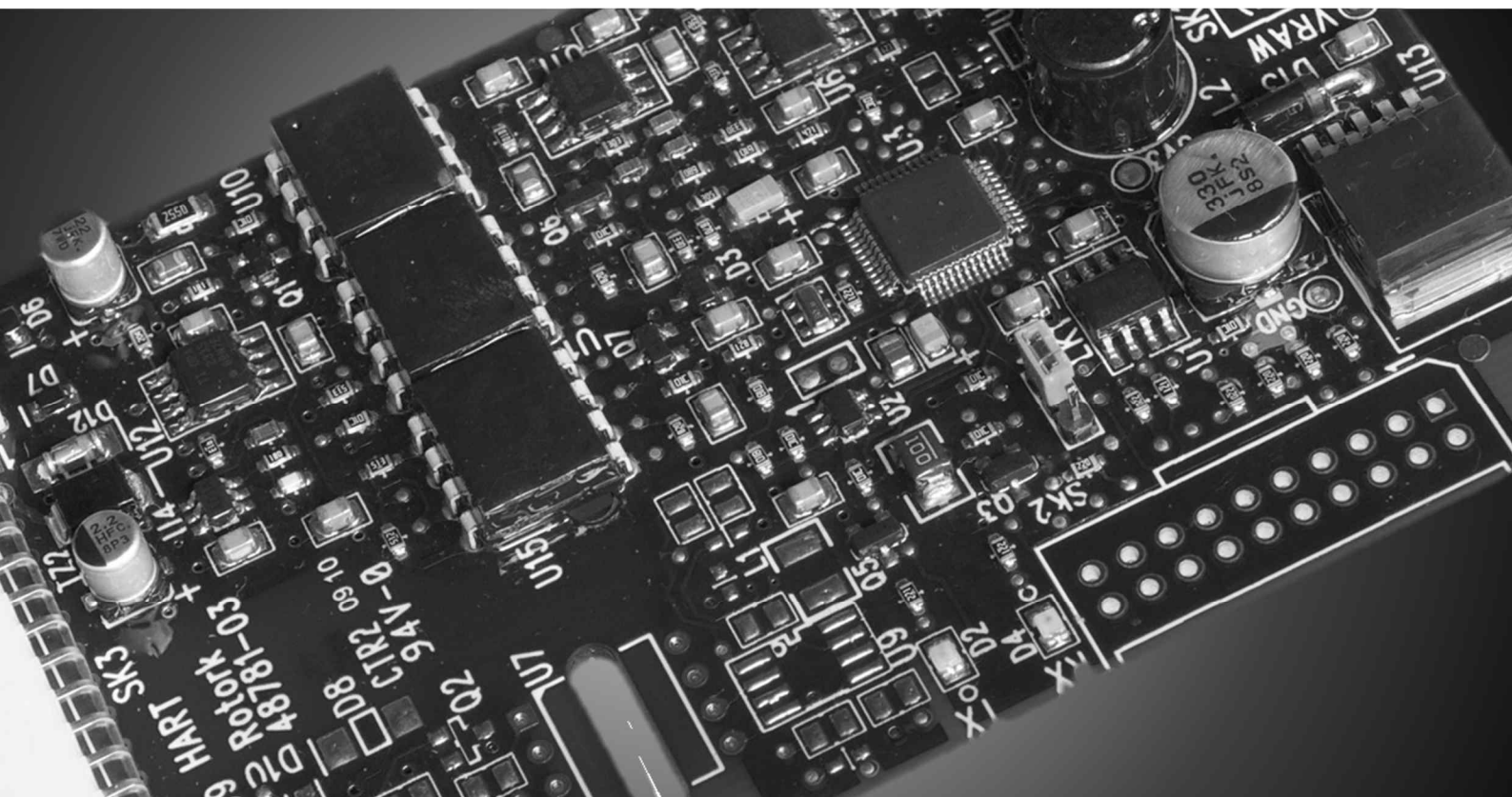


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for Future Generations

YT-2XXX EDD User Instruction



HART 
COMMUNICATION PROTOCOL

YT-2XXX
Device Rev 1

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A INTRODUCTION

EDD (Electronic Device Description) provided for YT-2500 / YT-2600 Smart Positioner by the company must be required for the **Rotork YTC Limited's** automatic calibration, diagnosis function and control parameter configuration, etc.

UI (User Interface) and technical information of YT-2XXX EDD User Manual are explained based on the FDI development tools provided by FieldComm Group.

EDD files are installed in many Host Systems including Asset Management System of AMS Device Manager, PDM, etc. and as each Host System may differently interpret UI of EDD, there might be some differences from the description from the YT-2XXX EDD User Manual. However, the same functions are provided because they use the same EDD.

For inquiries regarding Host System technicality or EDD installation, you can contact your Host System company.

A1 EDD FILE DOWNLOAD

- How to download the file from the website of Rotork YTC Limited.

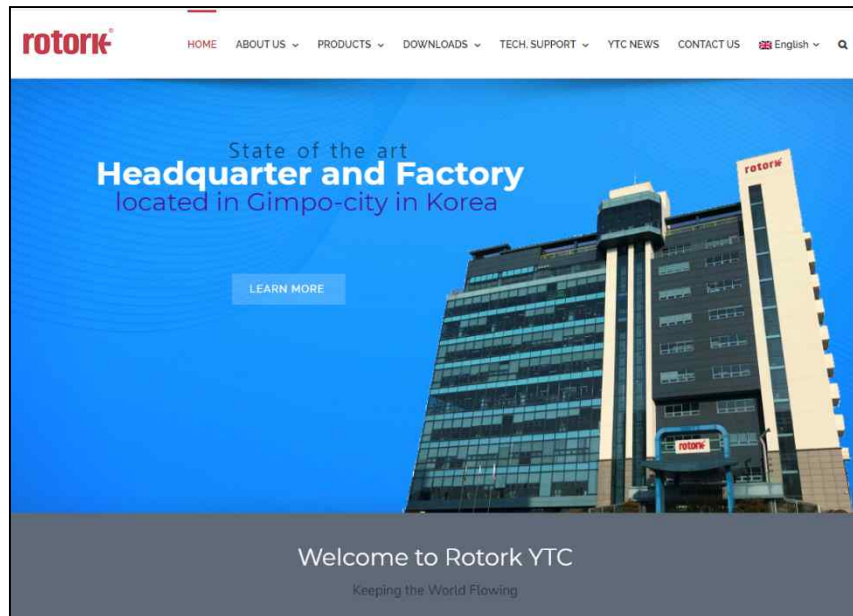


Figure 1 Rotork YTC Limited's website

1-1. Go to <http://www.ytc.co.kr>.

1-2. Click ② "DTM/DD" from the ① "DOWNLOADS" menus.

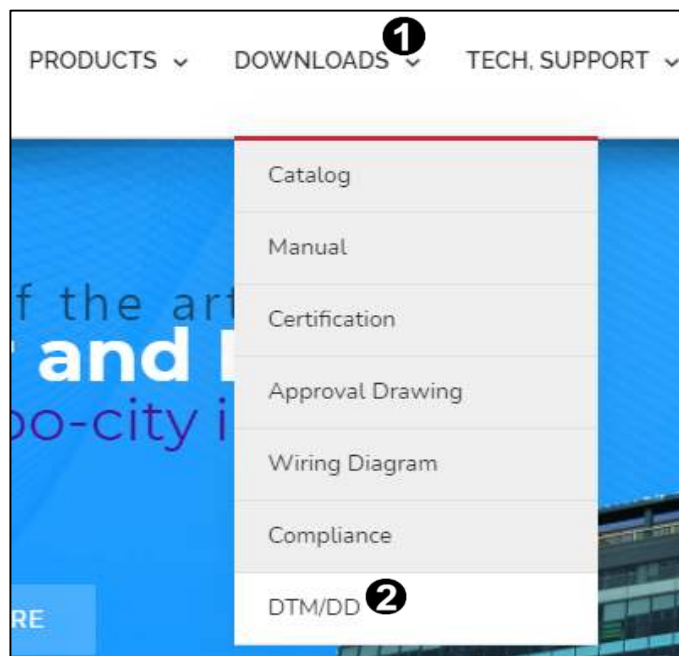














Figure 2 EDD file download path in website.

1-3. Check ❶ **“Model”** which EDD needs and **EDD** from the file ❷ **“TYPE”**, then click ❸ **“Download”** icon on the right side of the applicable line to start downloading the file.

English

Search

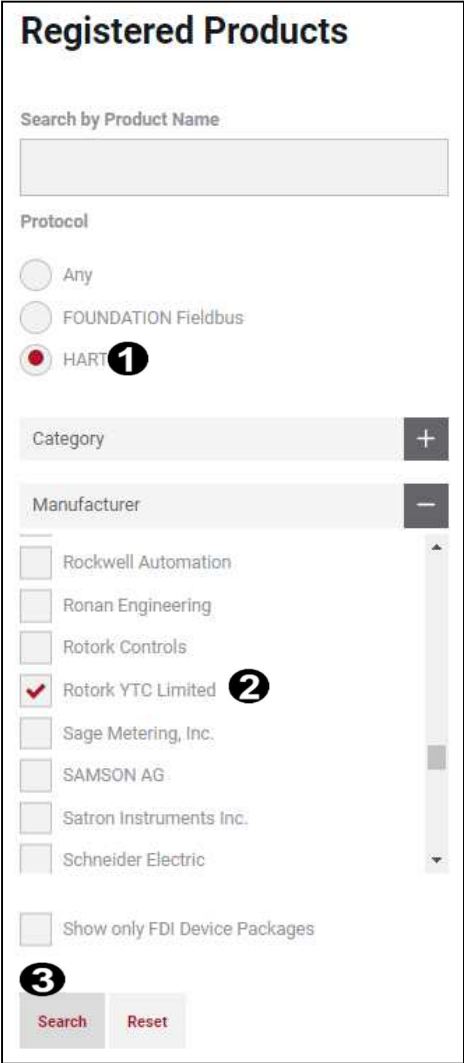
| No. | Model | TYPE | HART Version | Revision | Download |
|-----|--------------|--------------------------|--------------|-----------|---|
| 1 | YT-2500 | EDD | 5 | 204 |  |
| 2 | YT-2500 | EDD for 475 communicator | 5 | 204 |  |
| 3 | YT-2600 | EDD | 5 | 204 |  |
| 4 | YT-2600 | EDD for 475 communicator | 5 | 204 |  |
| 5 | YT-2700 | EDD | 5 | 204 |  |
| 6 | YT-2700 | EDD for 475 communicator | 5 | 204 |  |
| 7 | YT-2500 | EDD | 5 | 204 |  |
| 8 | YT-2500 | EDD for 475 communicator | 5 | 204 |  |
| 9 | YT-3400 | EDD | 7 | 0803 |  |
| 10 | YT-3400 | EDD for 475 communicator | 7 | 0803 |  |
| 11 | YT-3300/3400 | DTM | 7 | 15.0.51 |  |
| 12 | YT-3700 | EDD | 7 | 101 |  |
| 13 | YT-3700 | EDD for 475 communicator | 7 | 101 |  |
| 14 | YT-3700 | DTM | 7 | 1.0.0.264 |  |

Showing 1 to 14 of 14 Entries

Figure 3 EDD/DTM file provided by Rotork YTC Limited

■ How to download file on FieldComm Group

- 1-1. Go to <https://www.fieldcommgroup.org/registered-products>
- 1-2. Select **①** “HART” from the Protocol, and **②** “Rotork YTC Limited” from Manufacturer as same as the below.
- 1-3. If you click **③** “Search”, it displays EDD currently registered on the FieldComm as shown on the **[Figure 5]**.



Registered Products

Search by Product Name

Protocol

☐ Any

☐ FOUNDATION Fieldbus

☒ HART **①**

Category **+**

Manufacturer **-**

☐ Rockwell Automation

☐ Ronan Engineering

☐ Rotork Controls

☒ Rotork YTC Limited **②**

☐ Sage Metering, Inc.

☐ SAMSON AG

☐ Satron Instruments Inc.

☐ Schneider Electric

☐ Show only FDI Device Packages

③

Search Reset

Figure 4 Search for EDD on FieldComm Group Website

1-4. Click **4** “YT-2XXX” on the screen.

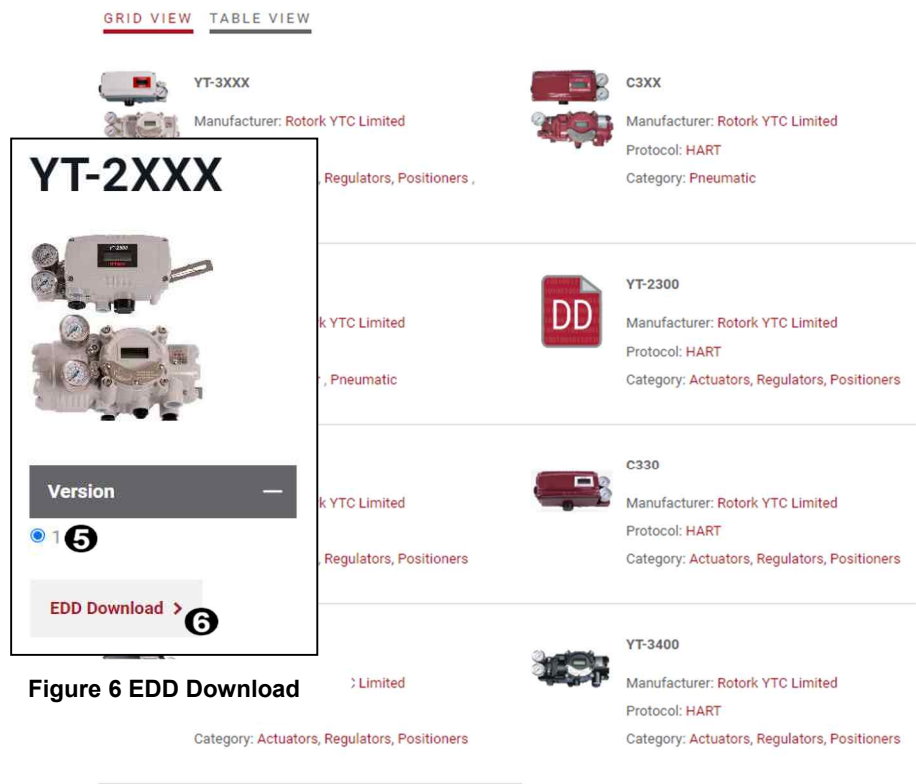


Figure 6 EDD Download



Figure 5 EDD registered in FieldComm Group

1-5. Select **5** “VERSION”, and then click **6** “EDD DOWNLOAD” to download an EDD file.

| Device | Software Revision (Device: SOFT REV) | EDD Version |
|---------------------|---|----------------|
| YT-2500/ YT-2600 | More than v2.0.01 | 1 |

A2 DEFINITION

-

B ONLINE MENU

■ Hierarchy of Online menus

| | | |
|--|--|--------------------------|
| Process Variables <i>(Page 13)</i> | PV <i>(Primary Variable)</i> | |
| | SV <i>(Secondary Variable)</i> | |
| | TV <i>(Tertiary Variable)</i> | |
| | QV <i>(Quaternary Variable)</i> | |
| | Loop Current | |
| | Trend | |
| Commissioning <i>(Page 14)</i> | SP | |
| | Cotrol Mode | |
| | Control Mode and SP Application | |
| | AP | |
| | Deviation | |
| Configuration | Calibration <i>(Page 14 >> B3.1 Calibration)</i> | Auto Calibration |
| | | Analog Input Trim |
| | | Acting Type |
| | | Travel Zero |
| | | Travel End |
| | | Analog Input Zero |
| | | Analog Input End |
| | Control Parameters <i>(Page 16 >> B3.2 Control Parameters)</i> | Deadband |
| | | KP UP |
| | | KP DN |
| | | TI UP |
| | | TI DN |
| | | KD UP |
| | | KD DN |
| | | PT UP |
| | | PT DN |
| | | GAP |
| | | GP |
| | | GI |
| | | GD |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| | |
|--|-----------------------------|
| | ESR UP |
| | ESR DN |
| | Auto Deadband |
| Input Config <i>(Page 16 >> B3.3 Input Config)</i> | Signal Direction |
| | Split Range Mode |
| | Custom Zero |
| | Custom End |
| | Tight Shut Close |
| | Tight Shut Open |
| | Transfer Function |
| | User Char 5P |
| | User Char 21P |
| Output Config <i>(Page 18 >> B3.4 Output Config)</i> | PTM Direction |
| | Analog Output Zero |
| | Analog Output End |
| | HT Direction |
| | Back Calculation |
| | AO Function |
| | AO Logic |
| Device Config <i>(Page 19 >> B3.5 Device Config)</i> | Action |
| | ITP |
| | Write Protect |
| | Device reset |
| | Factory Defaults |
| | Reset Configuration Changed |
| | Lock Device Status |
| | Lock/Unlock Device |

HART Config
(Page 20 >> B3.6 HART Config)

HART Dynamic Var

Polling address

Number Response Preambles

Loop Current Mode

Identify
(Page 21 >> B3.7 Identify)

Device Image

Device Type

Model Name

Fail Mode

Device Identifier

HART Protocol Revision

Device Revision

Software Revision

Hardware Revision

Tag

Long Tag

Date

Descriptor

Message

Final Assembly Number

Diagnostics

Read Event Log
(Page 22 >> Read Event Log)

Self Test
(Page 22 >> Self test)

Status Monitoring
(Page 22 >> B4.1 Status Monitoring)

Monitoring

FieldDevice Status

Standardized Status 0

Standardized Status 1

Process Status

Device Status

Reset Alarm Bit

Diagnostics Configuration
(Page 26 >> B4.2 Diagnostics Configuration)

Limit

Review

(Page 27 >> B5 Review)

Manufacturer

Device Type

Model Name

Fail Mode

Device Identifier

Configuration Change Counter

Tag

Long Tag

Date

Descriptor

Message

Final Assembly Number

Number Request Preambles

Number Response Preambles

HART Protocol Revision

Device Revision

Software Revision

Hardware Revision

Feedback Sensor Type

Valve Open Time

Valve Close Time

Acting Type

Lever Type

B1 PROCESS VARIABLES

→ The function to monitor process status is included.



Figure 7 Process Variables

B1.1 Dynamic Variables

It provides 4 variables of ①Primary Variable (PV), ②Secondary Variable (SV), ③Tertiary Variable (TV), ④Quaternary Variable (QV). They correspond to Dynamic Variables of the HART Communication Protocol. Except PV, the rest of the dynamic variables can be changed to Device Variables which are provided by YT-2500 / YT-2600 and used mapping with the dynamic variables.

(Please, refer to Online → Configuration → HART Config → [<B3.6.2>](#))

B1.2 Loop Current

Loop Current is DC analog input signal (4-20mA), which is the value of input signal (4-20mA) flowing between Control System and Field Device.

B1.3 Trend ⑤

- **Trend:** It displays SP(Set Point) and AP(Actual Position) on real-time trend chart.

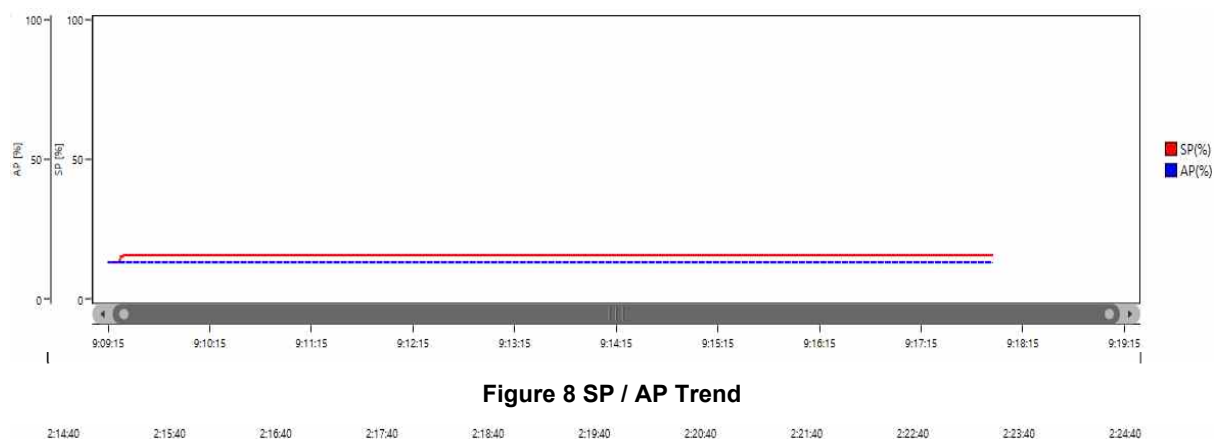


Figure 8 SP / AP Trend

B2 COMMISSIONING


→ It includes functions to use for commissioning.

B2.1 SP(%)

It can read or write input signal input supplied to Positioner in [%].

To use write function, Control Mode should be set in **<Fixed Value>** .

B2.2 Control Mode

| | |
|---|--|
|  | Ensure to match the actual acting type with the currently operating Actuator Type to avoid functional problems if the actual acting type of Actuator is different from the setting values. |
|---|--|

| Control Mode | Description |
|--------------|---|
| Normal | It is normal Control Model, positioner can be controlled by receiving analog signal of 4-20mA. |
| Fixed Value | It is remotely controlled, and positioner can be controlled by entering [%] values to <B2 → 1.SP> . ※ When it is in the status of Fixed Value, it cannot be controlled by analog signal of external 4-20mA. |

Figure 9 Control Mode

B2.3 Control Mode and SP Application

it applies the current settings of SP (Clause 1) and Control Mode (Clause 2) to the product.

B2.4 AP(%)

It Indicates the current opening of a valve in [%].

B2.5 Deviation(%)

It indicates the difference between the Current Target Position (TP) and the Actual Position (AP) in [%].


B3 CONFIGURATION

B3.1 Calibration

→ It includes functions related to positioner calibration.

B3.1.1 Auto Calibration

→ Positioner automatically sets parameters to control valves.

| | |
|---|--|
|  | The execution of this operation affects the currently running process. Therefore, it must be carried out by authorized personnel under a commissioning situation where normal operation is stopped, or when the safety of the entire process is secured. |
|---|--|

| <i>Parameters</i> | <i>Description</i> |
|---------------------------|--|
| Auto Calibration 1 | It sets the Zero Point and the End Point of valves. |
| Auto Calibration 2 | It re-sets all parameters necessary to operate valves. ※For the initial installation, it is recommended to use Auto Calibration 2. |

Figure 10 Auto Calibration


B3.1.2 Analog Input Trim

➔ It includes functions to calibrate analog input signal of positioner.

1. **Analog Input Zero Trim** : it sets the Zero Point of analog input signal. It must be executed when 4mA is entered in positioner.
2. **Analog Input End Trim** : it sets the End Point of analog input signal. It must be executed when 20mA is entered in positioner .

B3.1.3 Acting Type

➔ It is used to change the settings of the positioner to Single or Double, depending on the actuator Type.

| | |
|--|---|
|  | <p>If the actual operation method of the actuator and the set value are different, performance problems may occur, so please match the operation method of the actuator being used.</p> |
|--|---|

B3.1.4 Travel Zero / End

➔ It can manually set the Zero Point and the End Point of valves.

B3.1.5 Analog Input Zero / End

➔ It functions the same with the Section <3. *Analog Input Trim*>, which can manually maneuver the Zero Point and End Point of analog input.

B3.2 Control Parameters

➔ It includes parameters and functions related to Positioner Control.

B3.2.2 Control Parameters

| Parameter | Description | Default value | Limits |
|---------------|--|---------------|-------------------|
| Deadband | It indicates the size of the allowable deviation that is set near the target position. | 0.3 % | 0.1-10.0 % |
| KP UP | Forward proportional control parameter | 1 | 0.1-50.0 |
| KP DN | Reverse proportional control parameter | 1 | 0.1-50.0 |
| TI UP | Forward integral control time | 1 s | 0.1-50.0 s |
| TI DN | Reverse integral control time | 1 s | 0.1-50.0 s |
| KD UP | Forward derivative control gain | 1 | 0.1-50.0 |
| KD DN | Reverse derivative control gain | 1 | 0.1-50.0 |
| PT UP | Piezo open time to minimum movement, Forward | 10 ms | 0.1-50.0 ms |
| PT DN | Piezo open time to minimum movement, Reverse | 10 ms | 0.1-50.0 ms |
| GAP | It sets the range of control (%) in which Gap Control operates. <Target Position (%) of the valve – the current position (%) of the valve = GAP (%)> | 1 | 0.1-5.0 % |
| GP | When entering in the control range of GAP, $KP \times GP$ | 1 | 0.1-5.0 |
| GI | When entering in the control range of GAP, $TI \times GI$ | 1 | 0.1-5.0 |
| GD | When entering in the control range of GAP, $KD \times GD$ | 1 | 0.1-5.0 |
| ESR UP | Error rate to speed reduction zone, Forward | 1 % | 0-100 % |
| ESR DN | Error rate to speed reduction zone, Reverse | 1 % | 0–100% |
| Auto Deadband | It is used to adjust the deadzone size automatically when a hunting occurs due to valve friction. | Disabled | Disabled, Enabled |

Figure 11 Control Parameters

B3.3 Input Config

Loop Current which is input to positioner is finally converted to TP (Target Position) through signal converters as the below Block Diagram so to control valves.

Input Config menu can set parameters of input signal converters as shown as [Figure 12].

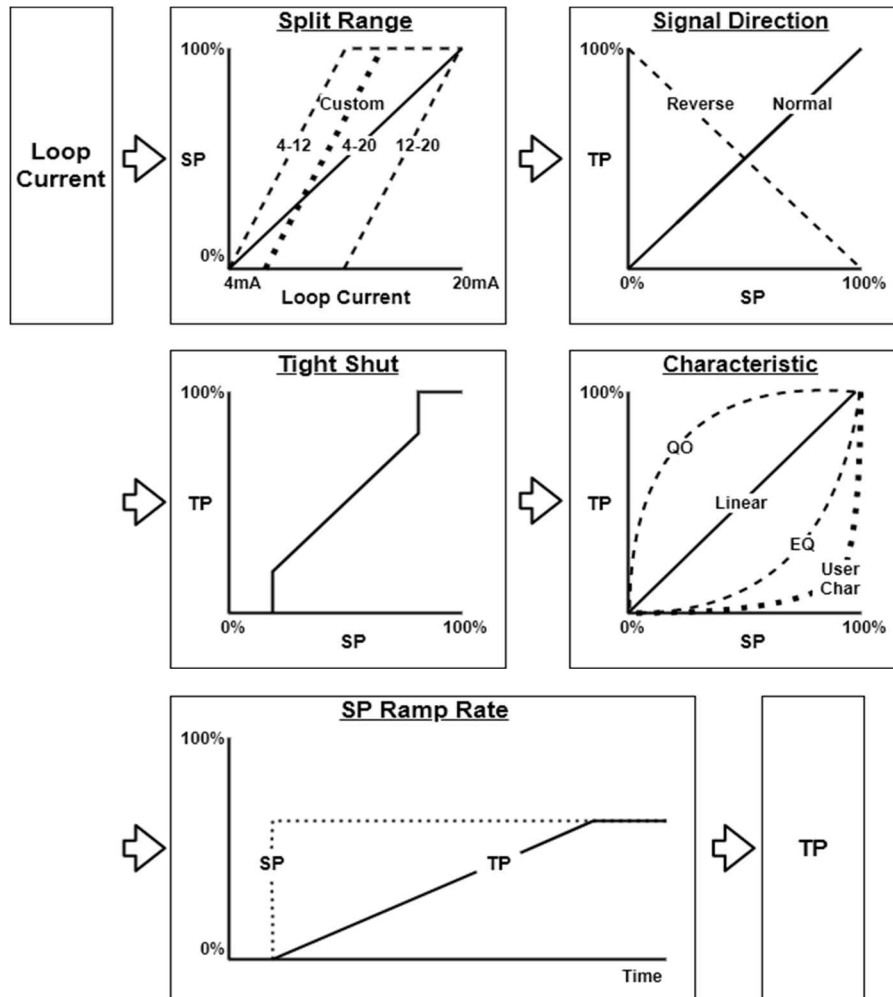


Figure 12 Input signal converter.

B3.3.1 Input Config Parameters Composition for models

| Parameter | YT-2500 | YT-2600 |
|-------------------|---------|---------|
| Signal Direction | O | O |
| Split Range Mode | O | O |
| Custom Zero | O | O |
| Custom End | O | O |
| Tight Shut Close | O | O |
| Tight Shut Open | O | O |
| Transfer Function | O | O |
| User Char 5P | O | O |
| User Char 21P | O | O |

Figure 13 Input Config Parameter Composition for models

B3.3.2 Input Config Parameters

| Parameter | Description | Default value | Limits |
|-------------------|--|---|--|
| Signal Direction | It can be set to increase (Normal) or decrease (Reverse) the TP value as the SP value increases. | Normal | Normal, Reverse |
| Split Range Mode | It is used to set the range of the input signal to control the entire stroke of the valve. | 4-20 | 4-20, 4-12, 12-20, Custom |
| Custom Zero | It is used to set the origin of Custom Range when Split Range Mode is set to Custom. | 4 mA | 4-20 mA |
| Custom End | It is used to set the end of Custom Range when Split Range Mode is set to Custom. | 20 mA | 4-20 mA |
| Tight Shut Close | When SP below the set value is detected, the valve is operated to close fully. | 0.3 % | 0-100 % |
| Tight Shut Open | When SP above the set value is detected, the valve is operated to open fully. | 100 % | 0-100 % |
| Transfer Function | Set valve characterization curve | Linear | Linear, EQ, QO, User Char5 ⁵ , User Char21 ⁶ |
| User Char 5P | It can set 5 points at intervals of 4mA (25%). | UChar5P(1) : 0 % UChar5P(2) : 25 % UChar5P(3) : 50 % UChar5P(4) : 75 % UChar5P(5) : 100 % | 0-100% |
| User Char 21P | It can set 21 points at intervals of 0.8mA (5%). | UChar21P(1) : 0 % UChar21P(2) : 5 % UChar21P(3) : 10 % ... UChar21P(20) : 95 % UChar21P(21) : 100% | 0-100% |

Figure 14 Input Config Parameters

1. User characteristic curves of 5 points can be set from 0% to 100% in 25% increments.
2. User characteristic curve of 21 points can be set from 0% to 100% in 5% increments.

B3.4 Output Config

➔ It can set parameters related to analog and digital signals from which positioner outputs.

B3.4.1 Output Config Parameter Composition for models

| Parameter | YT-2500 | YT-2600 |
|--------------------|---------|---------|
| PTM Direction | O | O |
| Analog Output Zero | O | O |
| Analog Output End | O | O |
| HT Direction | O | O |
| Back Calculation | O | O |
| AO Function | O | O |
| AO Logic | O | O |

Figure 15 Output Config parameter composition for models

B3.4.2 Output Config Parameters

| Parameter | Description | Default value | Limits |
|--------------------|--|---------------|---|
| PTM Direction | It is used to determine to set whether the PTM output will increase from 4 mA to 20 mA (Normal) or decrease from 20 mA to 4 mA (Reverse) when the current AP value increases. | Normal | Normal, Reverse |
| Analog Output Zero | Setting origin corresponding to 4 mA of PTM output | | 0 – 4095 |
| Analog Output End | Setting endpoint corresponding to 20 mA of PTM output | | 0 – 4095 |
| HT Direction | Setting the direction of increase or decrease of AP values delivered to the master by HART communication | Normal | Normal, Reverse |
| Back Calculation | This function can recalculate the output AP(<i>Actual Position</i>) value which is changed by the flow characteristics (<i>B3.3.2. Input Config Parameters → Transfer Function</i>) setting mode to display it linearly in proportion to actual input current. | Disabled | Disabled, Enabled |
| AO Function | This function can set in a specific mode to output Namur NE43 alarm signals through Analog Output (the same PTM). | Disabled | Disabled, Travel Hi Limit, Travel Lo Limit, Deviation, Loop Current Low, Maintenance, Failure, Out of Specification, Function Check |
| AO Logic | This function can set a signal range to be output from Analog Output port if an event set in AO function happens. | Lo | Hi, Lo |

Figure 16 Output Config Parameters

B3.5 Device Config

B3.5.1 Device Config Parameters

| Parameter | Description | Default value | Limits |
|---------------|---|---------------|-------------------|
| Action | Set the valve operating direction | Direct | Direct, Reverse |
| ITP | Interpolation mode setting to compensate the linearity and accuracy for a linear actuator | Disabled | Disabled, Enabled |
| Write Protect | It enables (Yes) or disables (No) the lock for the parameters. | No | No, Yes |

Figure 17 Device Config Parameters

Device Reset

It resets positioner.

Factory Default

It resets all parameters stored in the positioner to initial factory setting.

Reset Configuration Changed

It is used to clear the Configuration Changed bit in the HART field device status.

Lock/Unlock Device

This locks the positioner so that other masters in the local or network cannot change the positioner's parameters or use diagnostics.

B3.6 HART Config

B3.6.1 Mapping of HART Dynamic Variables

For the three (3) Dynamic Variables except PV, each of seven (7) Device Variables provided by YT-2500 / YT2600 can be mapped to configure process variables to the customer demands. To change configuration, you can set the values of the parameters listed in the below table as the dynamic variable.

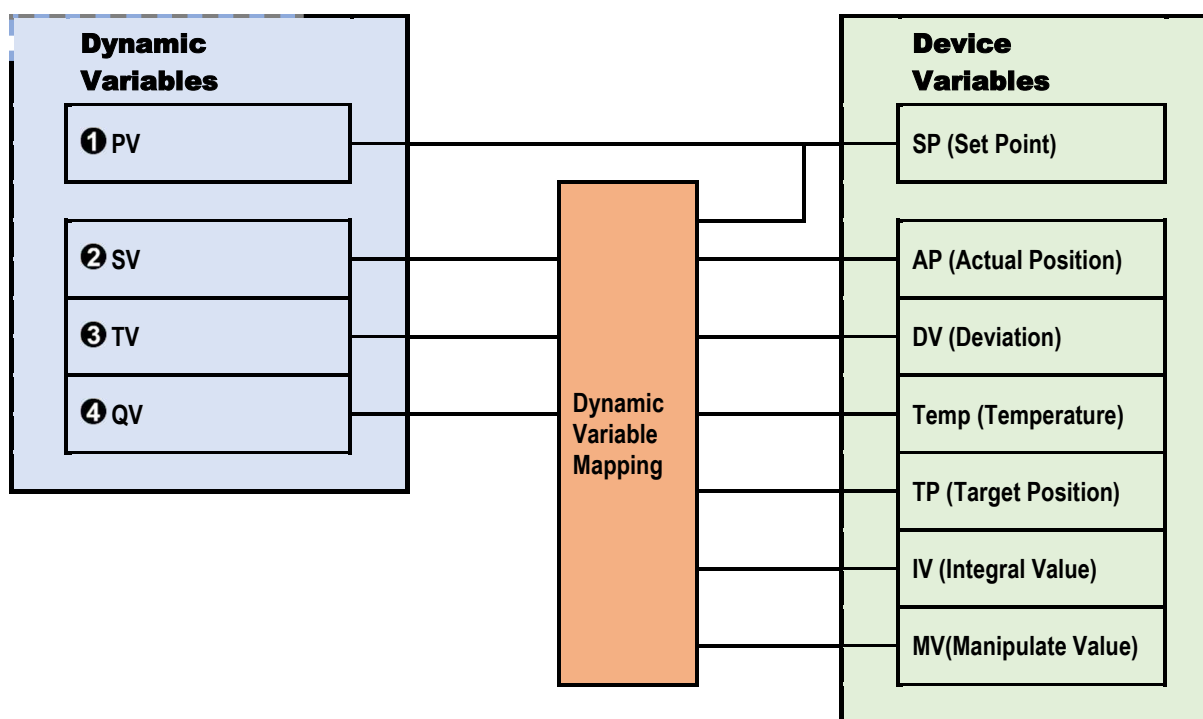


Figure 18 Dynamic Variable Mapping

B3.6.2 HART Config Parameters

| Parameter | Description | Default value | Limits |
|---------------------------|-----------------------------------|---------------|-------------------|
| PV is | Device Variable is mapping in PV. | SP | SP |
| SV is | Device Variable is mapping in SV. | AP | All |
| TV is | Device Variable is mapping in TV. | DV | All |
| QV is | Device Variable is mapping in QV. | Temp | All |
| Polling Address | It sets HART Polling Address. | 0 | 0 - 63 |
| Number Response Preambles | It sets HART Response Preambles. | 5 | 5 - 20 |
| Loop Current Mode | Loop Current Mode | Enabled | Disabled, Enabled |

Figure 19 HART Config Parameters

B3.7 Identify

| Parameter | Description |
|------------------------|---|
| Device Image | It indicates an image of the product. |
| Device Type | It indicates the type of the product. |
| Model Name | It indicates the model of the product. (ex. In YT-2500L, In 'YT-2600L', 'L' is an abbreviation for Linear. L: Linear, R: Rotary) |
| Fail Mode | It indicates the failure option of the product (Fail Safe or Fail Freeze) |
| Device Identifier | It indicates the unique identifier for the HART device. (Serial number) |
| HART Protocol Revision | It indicates HART Protocol Revision of the product |
| Device Revision | It indicates Field Device Revision of the product. |
| Software Revision | It indicates Software Revision of the product. |
| Hardware Revision | It indicates Hardware Revision of the product. |
| Tag | It indicates the tag of the field device. (up to 8 characters) |
| Long Tag | It indicates the long tag of the field device. (up to 32 characters) |
| Date | Date |
| Descriptor | It is additional description about the field device. |
| Message | User message |
| Final Assembly Number | It is intended to identify the specific device in relation to the devices installed on the entire site. |

Figure 20 Identify

B4 DIAGNOSTICS

- It can check the current status of Positioner or set in diagnosis-related parameters of Positioner.

■ Read Event Log

Read Event Log

Occurrence and clearance are recorded up to 20 events such as self-diagnosis activation, failure, or deviation from the set values in positioner. The latest event is automatically erased when the number of recorded events exceed 20

| Event Log | |
|---------------------|--------------------------------------|
| Operation Time(sec) | Log Message |
| 595206 | Event [Deviation Time out] occurred. |
| 595182 | Event [Zero Point Drift] occurred. |
| 564745 | Event [Deviation Time out] occurred. |
| 564721 | Event [Zero Point Drift] occurred. |
| 534288 | Event [Deviation Time out] occurred. |
| 534264 | Event [Zero Point Drift] occurred. |
| 528365 | Event [Zero Point Drift] removed. |
| 524765 | Event [Deviation Time out] occurred. |

Figure 21 Event Log

| Parameter | Description |
|---------------------|---|
| Operation Time(sec) | The accumulated operating time after the positioner is turned on. |
| Log Message | Event occurred to positioner |

■ Self test

Self test

Fault diagnosis of positioner memory (RAM, NVM) and validity check of main parameters.

B4.1 Status Monitoring

B4.1.1 Monitoring

- The YT-2500 / YT-2600 provides the users with various operational status or HART communication status which can impact a life or maintenance of valves, actuators, and positioners.

B4.1.1.1 NE107 Status

- When an alarm is set on to various failures or events with processes or devices on the site, alarms can be activated more than necessary, which may cause users to overlook critical alarms. YT-2500 / YT-2600 provides 4 statuses with key priorities in a simple form of Namur NE107 so that the information which must be conveyed to users can be easily understood. The NE107 statuses are "Failure", "Function Check", "Out of Specification", "Maintenance Required" as in the priority, and they are shown in symbols as below to help users acknowledge the current status.






| Symbol | Status | Description |
|---|----------------------|--|
|  | Normal | Normal state. |
|  | Failure | A failure has occurred in which the positioner or control valve cannot operate normally. |
|  | Function Check | It is performing an operation to check the function of the positioner or control valve. |
|  | Out of Specification | A condition outside the set specification of the positioner or control valve was detected. |
|  | Maintenance Required | It is in a state that requires maintenance. |

Figure 22 NE107 Status

B4.1.1.2 Counters

| Counter | Description |
|----------------|---|
| Tvl Acum | The accumulation of valve travel (%) |
| Cycle Cnt | The accumulation of the number of times the valve has changed direction. It is accumulated only when the valve change direction while Cycle Count Deadband is exceeded. |
| Piezo0 Cnt | The Accumulated operating counts of the Piezo0. |
| Piezo1 Cnt | The Accumulated operating counts of the Piezo1. |
| Full Open Cnt | The accumulated number of times the valve has been fully open. |
| Full Close Cnt | The accumulated number of times the valve has been fully closed. |
| STX Count | The accumulated number of messages coming from HART Master |
| ACK Count | The accumulated number of messages Positioner has responded to HART Master. |
| BACK Count | The accumulated number of messages that positioner has transmitted at HART Burst mode. |
| Run Time | Total time accumulated while positioner is turned on. |

Figure 23 Counters

B4.1.1.3 Diag Variables Update

Diag Variables Update

It updates monitoring variables by retrieving the recent data from positioner.

B4.1.2 Status

- ➔ It displays the current operational status of positioner. Alarms of the applicable status must be activated for the below status Bits.

B4.1.2.1 Field Device Status

| Status Bit | Description |
|------------------------------------|---|
| Primary Variable Out of Limits | The variable mapping with PV(<i>Primary Variable</i>) deviated from Upper Limit or Lower Limit. |
| Non-Primary Variable Out of Limits | The variable mapping with SV(<i>Secondary Variable</i>), TV(<i>Tertiary Variable</i>), QV(<i>Quaternary Variable</i>) deviates from Upper Limit or Lower Limit. |
| Loop Current Saturated | Loop Current reached to Upper Limit or Lower Limit. |
| Loop Current Fixed | Loop Current is kept in a fixed value and does not respond to extrinsic input. |
| More Status Available | It reads the additional status information on the device, and the additional information is displayed in Process & Device Status. <i>Please refer to B4.1.2.4 Process Status, and B4.1.2.5 Device Status</i> |
| Cold Start | Positioner is reset or blackout occurs. |
| Configuration Changed | Configuration (parameter) of positioner is in the process of change. |
| Device Malfunction | Positioner detects a serious error in the operation. |

Figure 24 Field Device Status

B4.1.2.2 Standardized Status 0

| Status Bit | Description |
|---------------------------------------|--|
| Device Variable Simulation Active | The device is currently in simulation mode, and the current Device Variables do not represent the process. |
| Non-Volatile Memory Defect | Non-Volatile Memory test failed, or a defect occurred. |
| Volatile Memory Defect | Volatile Memory test failed, or a defect occurred. |
| Watchdog Reset Executed | Watchdog reset is executed. |
| Power Supply Conditions Out of Range | Power supply or voltage is out of the acceptable range. |
| Environmental Conditions Out of Range | Internal or environmental conditions are out of the acceptable range. |
| Electronic Defect | A hardware defect which is not related to sensors is detected. |
| Device Configuration Locked | The device is in status of Write-protect or locked. |

Figure 25 Standardized Status 0

B4.1.2.3 Standardized Status 1

| Status Bit | Description |
|---|--|
| Status Simulation Active | Status Simulation Mode is activated. |
| Discrete Variable Simulation Active | The device is in Simulation Mode and more than one Discrete Variable do not represent the process. |
| Event Notification Overflow | Event alarm is not recorded due to overflow. |
| Battery or Power Supply needs Maintenance | Changing or recharging batteries requires. |

Figure 26 Standardized Status 1

B4.1.2.4 Process Status

➔ It indicates actuator and valve status which impact on the process

| Status Bit | Description |
|--------------------------|--|
| Travel High Limit | It is active when the travel exceeds Travel Upper Limit (Tvl Upper Alarm Point). |
| Travel Low Limit | It is active when the travel falls below Travel Lower Limit (Tvl Lower Alarm Point). |
| Deviation Time Out | It is active when actual deviation greater than the preset Deviation (Deviation DB) persists longer than the preset Deviation Time. |
| Travel Cutoff High Limit | It is active when the travel exceeds the available high stroke of the valve/actuator. The available stroke is already set during auto calibration. |
| Travel Cutoff Low Limit | It is active when the travel is below the available low stroke of the valve/actuator. The available stroke is already set during auto calibration process. |
| Loop Current Low Limit | It is active if the input current falls below 3.8 mA. |

Figure 27 Process Status Bit

➔ The Table of Process Status Function Operability by Model (O : Operable, X : Not operable)

| Status Bit | YT-2500 | YT-2600 |
|--------------------------|---------|---------|
| Travel High Limit | O | O |
| Travel Low Limit | O | O |
| Deviation Time Out | O | O |
| Travel Cutoff High Limit | O | O |
| Travel Cutoff Low Limit | O | O |
| Loop Current Low Limit | O | O |

Figure 28 Process Status Function Operability by Model

B4.1.2.5 Device Status

➔ It indicates status which impacts on the positioner performance.

| Status Bit | Description |
|--------------------------|---|
| Local Operation Active | It indicates the positioner is being operated by manual operation through LUI (Local User Interface). |
| Auto Calibration Running | It is active when auto-calibration is in progress. |
| Position Snsr High Limit | It is active when the value read from position sensor is out of range. |
| Position Snsr Low Limit | It is active when the value read from position sensor is out of range. |
| Critical NVM Fail | It is active if there is a failure in the NVM (Non-volatile Memory) parameters which are important in the positioner operation. |
| Non Critical NVM Fail | It is active if there is a failure in the NVM (Non-volatile Memory) parameters which are not related to the positioner operation. |
| Not Calibrated | It is active when auto-calibration has not done after installation. |
| Auto Calibration Fail | It is active when auto-calibration has failed. |
| Position Snsr Fail | Location sensors of positioner are not in normal operation. |
| Temperature Snsr Fail | It is active when internal temperature sensor has failed. |

Figure 29 Device Status Bit

➔ The Table of Process Status Function Operability by Model (O : Operable, X : Not operable)

| Status Bit | YT-2500 | YT-2600 |
|--------------------------|---------|---------|
| Local Operation Active | O | O |
| Auto Calibration Running | O | O |
| Position Snsr High Limit | O | O |
| Position Snsr Low Limit | O | O |
| Critical NVM Fail | O | O |
| Non Critical NVM Fail | O | O |
| Not Calibrated | O | O |
| Auto Calibration Fail | O | O |
| Position Snsr Fail | O | O |
| Temperature Snsr Fail | O | O |

Figure 30 Device Status Function Operability by Model

B4.1.3 Reset Alarm Bit

➔ The functions below can deactivate Status Bit.

Reset Auto Calibration Running

It deactivates Auto Calibration Running Status Bit.

Reset Critical NVM Fail

It deactivates Critical NVM Fail Status Bit.

Reset Non Critical NVM Fail

It deactivates Non Critical NVM Fail Status Bit.

Reset Auto Calibration Fail

It deactivates Auto Calibration Fail Status Bit.

B4.2 Diagnostics Configuration

B4.2.1 Limit

➔ It sets the limit of accumulated value of the status counter in positioner, the conditions of alarm activation, and whether there should be alarm or not.

B4.2.1.1 Deviation

| Parameter | Description | Default value | Limits |
|-----------------|---|---------------|-------------------|
| Deviation | The difference between the target position (%) – current position (%) | - | - |
| Deviation DB | Once Actual deviation is greater than Deviation DB, the Timer for detecting Deviation Time Out Alarm begins to operate. | 1 % | 0-10 % |
| Deviation Time | The reference time for detecting Deviation Time Out Alarm under the conditions that Actual deviation remains greater than Deviation DB. | 60 s | 0-300 s |
| Deviation Alarm | With this Enabled, Deviation Time Out Alarm is triggered when actual deviation greater than the preset Deviation DB persists longer than the preset Deviation Time. | Enabled | Disabled, Enabled |

Figure 31 Deviation Parameters

B4.2.1.2 Travel Hi/Lo Limit

| Parameter | Description | Default value | Limits |
|-----------------------|--|---------------|-------------------|
| AP | The current position of valve (%) | - | - |
| Tvl Lower Alarm Point | Lowest position to cause an alarm | 0 % | -10-50 % |
| Tvl Lower Alarm | With this Enabled, Travel Low Limit Alarm is activated when actual valve position moves lower than the preset Tvl Lower Alarm Point. | Enabled | Disabled, Enabled |
| Tvl Upper Alarm Point | Highest position to cause an alarm | 100 % | 0-120 % |
| Tvl High Alarm | With this Enabled, Travel High Limit Alarm is activated when actual valve position moves higher than the preset Tvl Lower Alarm Point. | Enabled | Disabled, Enabled |

Figure 32 Travel Hi/Lo Parameters

B5 REVIEW

| Parameter | Description |
|------------------------------|---|
| Manufacturer | It indicates the manufacturer. |
| Device Type | It indicates the type of model. |
| Model Name | It indicates the model of the product. (ex. In YT2500L, It indicates 'L' of YT2500L is Linear. L: Linear, R: Rotary) |
| Fail Mode | It indicates the failure option of the product (Fail Safe or Fail Freeze) |
| Device Identifier | The serial number of the field device |
| Configuration Change Counter | The number of which configuration (parameter) of the device is changed |
| Tag | Tag on the field device |
| Long Tag | Tag on the field device |
| Date | Date |
| Descriptor | Additional description on the field device. |
| Message | User Message |
| Final Assembly Number | It is intended to identify the specific device in relation to the devices installed on the entire site. |
| Number Request Preambles | Number of Request Preambles |
| Number Response Preambles | Number of Response Preambles, the number of Preambles to send to Host from the field device. |
| HART Protocol Revision | HART Protocol Revision of the product |
| Device Revision | Device Revision of the product |
| Software Revision | Software Revision of the product |
| Hardware Revision | Hardware Revision of product |
| Feedback Sensor Type | It indicates the type of position sensor. (NCS: Non-Contact Sensor, Potentiometer) |
| Valve Open Time | It is a value which is automatically recorded after Auto Calibration 2 is activated, it indicates that the time takes until the valve becomes fully open from full closed. |
| Valve Close Time | It is a value which is automatically recorded after Auto Calibration 2 is activated, it indicates that the time takes until the valve becomes fully closed from fully open. |
| Acting Type | Types of Valve actuation (Single, Double) |
| Lever Type | Types of levers (Standard, Adapter) |

Figure 33 Review

C OFFLINE MENU

- ➔ In case that the current device is changed into a new one, some of the already installed parameters can be uploaded in the Offline, and then downloaded to the new device to be replaced.

The parameters which can be uploaded on Offline Menu and downloaded to the device are the same with the Offline Menu hierarchy below.

■ Offline Menu Hierarchy

| | |
|--------------|----------------------|
| Input Config | Tight Shut Close |
| | Tight Shut Open |
| | Transfer Function |
| | User Char 5P |
| | User Char 21P |
| HART Config | PV is |
| | SV is |
| | TV is |
| | QV is |
| Identify | Model Name |
| | Feedback Sensor Type |
| | Fail Mode |
| | Tag |
| | Long tag |
| | Date |
| | Descriptor |

A dark, stylized world map with a grid overlay, serving as a background for the website information section.

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A full listing of our worldwide sales and service network is available on our website.

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