

Last % process output value in automatic control is accepted as process output value of manual control and manual control continues to run.

ALARM LATCH CANCELING

Alarm latch canceling is not performed.

If there is an alarm output with latching and there is no alarm status, latching operation will be finished by the device. When it is finished, this parameter becomes Automatically.

diSP LiSt: Function Selection for Top and Bottom Display

It defines the function of the top display. This parameter determines which value is shown in top display.

Process value (PV) is shown in top display

Difference between process set value and process value(SV-PV) is shown in top display.

It defines the function of the bottom display. This parameter determines which value is shown in bottom

Process set value (SV) is shown in bottom display.

% Output value that is applied to process control output is shown in bottom display.

PinP ConF:Process Input Type and Relevant Parameters

Process Input Type

TC Process Input Type

RTD input type selection

---Voltage / Current input type selection.

TC Input Selection

This parameter is active if TC input type is selected.

- L (-100°C;850°C) or (-148°F;1562°F)
- L (-100.0°C;850.0°C) or (-148.0°F;999.9°F)
- J (-200°C;900°C) or (-328°F;1652°F)
- J (-199.9°C;900.0°C) or (-199.9°F;999.9°F)
- K (-200°C;1300°C) or (-328°F;2372°F)
- K (-199.9°C;999.9°C) or (-199.9°F;999.9°F)
- R (0°C;1700°C) or (32°F;3092°F)
- R (0.0°C;999.9°C) or (32.0°F;999.9°F)
- S (0°C;1700°C) or (32°F;3092°F)
- S (0.0°C;999.9°C) or (32.0°F;999.9°F)
- T (-200°C;400°C) or (-328°F;752°F)
- T (-199.9°C;400.0°C) or (-199.9°F;752.0°F)
- B (44°C;1800°C) or (111°F;3272°F)
- B (44.0°C;999.9°C) or (111.0°F; 999.9°F)
- E (-150°C;700°C) or (-238°F;1292°F)
- E (-150.0°C;700.0°C) or (-199.9°F;999.9°F)
- N (-200°C;1300°C) or (-328°F;2372°F)
- N (-199.9°C;999.9°C) or (-199.9°F;999.9°F)
- C (0°C;2300°C) or (32°F;3261°F)
- C (0.0°C;999.9°C) or (32.0°F;999.9°F)

RTD Input Selection

This parameter is active if RTD input is selected.

- PT-100 (-200°C ; 650°C) or (-328°F ; 1202°F)
- PT-100 (-199.9°C ; 650.0°C) or (-199.9°F ;999.9°F)

---Voltage / Current Input Selection

This parameter is active if ---Voltage/Current is selected.

- 0...50mV --- (-1999 ; 9999)
- 0...5V --- (-1999 ; 9999)
- 0...10V --- (-1999 ; 9999)
- 0...20mA --- (-1999 ; 9999)
- 4...20mA --- (-1999 ; 9999)

Display Point Position

Active if ---Voltage / Current input is selected.

- Not point.
- Between first and second digits "0.0"
- Between second and third digits "0.00"
- Between third and fourth digits "0.000"

Display Value Adjustment Type

Active if ---Voltage / Current input is selected.

- Fixed dual point display adjustment. Display adjustment low point value is fixed to -1999, display adjustment high point value is fixed to 9999.
- User can do dual point display adjustment with iPoL and TPoH.
- User can do defined 16 display adjustment points.

Low Point Display adjustment (-1999, 9999)Unit

Active if ---Voltage / Current input is selected.

High Point Display adjustment (-1999, 9999)Unit

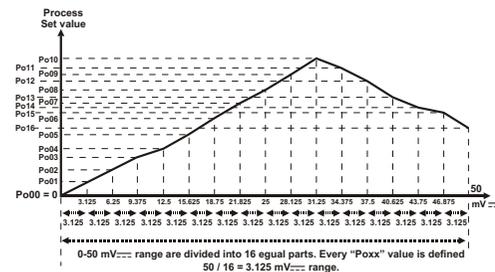
Active if ---Voltage / Current input is selected.

Display adjustment points (-1999, 9999)Unit

Active if ---Voltage / Current input is selected.

In multipoint display adjustment operation, defined scale is divided into 16 adjustment points.

For example : is (0-50mV) .



Coefficient value (1.000, 9.999)

Process value is multiplied with this value.

Active if ---Voltage / Current input is selected.

Unit selection

- Unit is °C
- Unit is °F
- Unit is Voltage.Active if ---Voltage/Current input is selected.
- No unit.Active if ---Voltage / Current input is selected.

Minimum value of operating scale. It can be changed according to input type and scale of the process.

Maximum value of operating scale. It can be changed according to input type and scale of the process.

Display offset for process value.It can be adjusted -10 % to +10 % of scale. The defined value is added to process value.

Defines filter time for input signal. It can be adjusted from 0.0 to 900.0.

It is active if process input is selected TC input. It decides if cold junction compensation is active or not.

- Cold junction compensation is active.
- Cold junction compensation is not active.

Pid ConF: PID Configuration Parameters

PROPORTIONAL BAND (0.0%, 999.9%)
If = 1000 °C, = 0 °C and = 50.0 then,
Proportional Band = (-) * / 100.0
Proportional Band = (1000-0)*50.0/100.0 = 500 °C

INTEGRAL TIME (0, 3600)Second
It can be changed by the user. When Tune operation stops, it can be changed by the device. If it is 0, integral control part does not run. When tune operation stops if this parameter is 0, this parameter can not be changed because of integral control part does not run.

DERIVATIVE TIME (0.0, 999.9)Second
It can be changed by the user. When Tune operation stops, it can be changed by the device. If it is 0, derivative control part does not run. When tune operation stops if this parameter is 0, this parameter can not be changed because of derivative control part does not run.

CONTROL PERIOD TIME (1, 150)Second
Process output period time.

MINIMUM CONTROL OUTPUT (0.0%,)
It is % of minimum output.
It can be a result of the PID calculation device calculates the % output value less than this parameter, heating or cooling output is active minimum for OLL parameter.

MAXIMUM CONTROL OUTPUT (, 100.0%)
It is % of maximum output.
Even as a result of the PID calculation device calculates the % output value greater than this parameter, heating or cooling output is active maximum for OUL parameter.

MINIMUM CONTROL OUTPUT TIME (0.0 sec,)
Heating or cooling output can not be active less than this parameter. Even if this parameter is 0, this parameter is accepted 50 msec for security.

ANTI-RESET WINDUP (0, SCALE HIGH POINT)Unit
While PID operation is running if $[\text{PSE}] - [\text{Ar}] \leq \text{process value} \leq [\text{PSE}] + [\text{Ar}]$ condition is true, integral value is calculated. If the condition is not true, integral value is not calculated and last calculated integral value is used.
If Ar Parameter is selected , heating proportional band is used for heating PID process instead of Ar Parameter and cooling proportional band is used for cooling PID process instead of Ar Parameter.

SET VALUE OFFSET
((-SCALEHIGH POINT / 2) , (SCALE HIGH POINT / 2))Unit
 $[\text{PSE}] + [\text{SUO}]$ is used as set value in PID calculationIt is used for shifting the proportional band.

PID OUTPUT OFFSET
(FOR HEATING PID 0.0, 100.0%)
(FOR COOLING PID -100.0, 0.0%)
This parameter is added to "Output %" which is calculated at the end of the PID.

OUTPUT OFFSET RELATED TO PID SET
(FOR HEATING PID 0.0, 100.0%)
(FOR COOLING PID -100.0, 0.0%)
This parameter is added to the % process output that is calculated at the end of the PID according to process set value $[\text{PSS}] * [\text{PSE}] / ([\text{UPL}] - [\text{Lol}])$

PROCESS VALUE STABILIZATION (1, SCALE HIGH POINT)Unit
It is used for controlling if process value oscillates or not when parameter is or if $[\text{PSE}] - [\text{Strn}] \leq \text{Process Value} \leq [\text{PSE}] + [\text{Strn}]$ condition is not true, then device start tune operation automatically.

SCALE LOW POINT: Minimum process input value in Pt-100 and TC inputs. -1999 for fixed dual point display adjustment used inputs, Scale low point is the lowest one from or for selectable dual point display adjustment used inputs display adjustment scale low point is the lowest one from or for multipoint used inputs.

SCALE HIGH POINT: Maximum process input value in Pt-100 and TC inputs. 9999 for fixed dual point display adjustment used inputs, Scale high point is the biggest one from or for selectable dual point display adjustment used inputs display adjustment scale high point is the biggest one from or for multipoint used inputs.

PROPORTIONAL BAND SHIFTING ((-SCALE HIGH POINT / 2) , (SCALE HIGH POINT / 2))Unit
If cooling function is performed ; Cooling process set value is calculated by adding set value with parameter Control form can be ON/OFF or PID.

If set value for heating = then
Set value for cooling =

SENSOR BREAK OUTPUT VALUE (FOR HEATING PID 0.0, 100.0%) (FOR COOLING PID -100.0, 0.0%)
When sensor break, controlling of the process can continue by entering % output value parameter.
If this parameter 0.0, process control output does not perform an output when sensor breaks.

Soft Start Set value
It can be adjusted from 0 to 9999 with increment and decrement buttons. If parameter is selected , Soft start function becomes inactive.
When the device power on, if the Soft start set value different from and temperature value is lower than soft start value on processes, device starts soft start operation, until temperature reaches soft start set value. On soft start device output period will be SSCt parameter value and device control output will be SSCo parameter value.

Soft Start Control Output
It can be adjusted from %10 to %90 with increment and decrement buttons.

Soft Start Control Period
It can be adjusted from 1 to 100 sec with increment and decrement buttons.

PCnF ConF: Process Output Configuration Parameters

It determines output functions of Process Outputs
If Process Output is chosen Current Output, then parameter is shown and Parameter can be adjust only PID mode.

If Process Output is chosen Relay Output, then parameter is invisible.

- 0-20 mA Output
- 4-20 mA Output

It determines output functions of Process Outputs

- Heating
- Cooling

It determines control algorithms of Process Outputs

- ON/OFF control algorithm.
- PID control algorithm.

Hysteresis value of Process Outputs.
It can be adjusted from 0% to 50% of full scale.(It is active if ON/OFF control is selected.)

It determines operation form of hysteresis (It is active if ON/OFF control is selected.)

- SV + HYS/2 and SV - HYS/2
- SV and SV + HYS or SV and SV - HYS

In ON/OFF operation, this time must be passed for the output to be energised again. It can be adjusted from 0.0 to 100.0 seconds.(It is active if ON/OFF control is selected.)

Aln1 ConF: ALARM Output-1 Configuration Parameters

LOU1 Logic Output-1

It determines logic output function for Alarm Output-1.

- 0 Alarm output
- 1 Manual /Automatic data output
- 2 Sensor break alarm output
- 3 Output is active when the process value is out of the band which is defined with minimum value of operating scale [LOL] And maximum value of operating scale [UPL]

ALT1 Alarm-1 Type

It determines alarm type for Alarm-1 Output. It is active if logic output function of Alarm Output-1 is alarm output.

- 0 Process high alarm.
- 1 Process low alarm.
- 2 Deviation high alarm.
- 3 Deviation low alarm.
- 4 Deviation band alarm.
- 5 Deviation range alarm.

ALH1 Alarm- 1 hysteresis value.

It can be adjusted from 0 % to 50 % of process input scale. ([LOL] - [UPL]) It is active if logic output function of Alarm Output-1 is alarm output.

RON1 Alarm on delay time foAlarm Output-1.

It can be adjusted from 0 to 9999 seconds. It is active if logic output function of Alarm Output-1 is alarm output.

ROF1 Alarm off delay time for Alarm Output-1.

It can be adjusted from 0 to 9998 seconds. When the value is bigger than 9998, [E] is seen on the screen. It means alarm latching output is selected. Logic output function of Output-1 if is selected as 'Alarm ,AoF1 parameter will be activated.

ALS1 Alarm stabilisation time foAlarm Output-1.

It can be adjusted from 0 to 99 second. Logic output function of Output-1 is selected as 'Alarm ,ALS1 parameter will be activated. After the unit is power-on and Alarm Stabilisation Time is expired, Alarm Output-1 becomes active when the alarm conditions realised in Alt1 parameter.

Aln2 ConF: Alarm-2 Output Configuration Parameters

"Aln2 ConF" Menu is accessible if [ALN2] parameter in "PCnF ConF" is [0]

LOU2 Determines logic output function for Alarm-2 Output.

- 0 Alarm output
- 1 Manual /Automatic selection output
- 2 Sensor break alarm output
- 3 Output is active when the process value is out of the band which is defined with minimum value of operating scale [LOL] and maximum value of operating scale [UPL]

ALT2 Determines Alarm type for Alarm-2 Output.

It is active if logic output function of Alarm Output-2 is alarm output.

- 0 Process high alarm.
- 1 Process low alarm.
- 2 Deviation high alarm.
- 3 Deviation low alarm.
- 4 Deviation band alarm.
- 5 Deviation range alarm.

ALH2 Alarm- 2 hysteresis value.

Active if logic output function of Alarm-2 Output is alarm output.

RON2 Alarm on delay time for Alarm Output-2.

It can be adjusted from 0 to 9999 seconds. It is active if logic output function of Alarm Output-2 is alarm output.

ROF2 Alarm off delay time foAlarm Output-2.

It can be adjusted from 0 to 9998 seconds. When the value is bigger than 9998, [E] is seen on the screen. It means alarm latching output is selected. It is active if logic output function of Alarm Output-2 is alarm output.

ALS2 Alarm stabilisation time for Alarm Output-2.

It can be adjusted from 0 to 99 second. Logic output function of Output2 if is selected as 'Alarm ,ALS2 parameter will be activated. After the unit is power-on and Alarm Stabilisation Time is expired, Alarm Output-2 becomes active when the alarm conditions realised in Alt2 parameter.

Gen ConF: General Parameters

SU-L Process Set Value Low Limit ([LOL], [SU-U])Unit

SU-U Process Set Value Up Limit ([SU-L], [UPL])Unit

PR-E Alarm Set Values Protection

- no Alarm Set values can be changed.
- YES Alarm Set values can not be changed. Alarm set values Parameters ([ALR] and [ALT2]) are not accessible.

PR-E2 AUTO / MANUAL Selection Button Protection

- no Auto or Manual selection is possible with A/M button in Main Operation screen.
- YES Auto or Manual selection is not possible with A/M button in Main Operation screen.

PR-E3 AT (AUTO TUNE) Button Protection

- no Limit Cycle Tuning operation can be active or inactive with AT(Auto Tune) Button in Main Operation screen.
- YES Limit Cycle Tuning operation can not be active or inactive with AT(Auto Tune) Button in Main Operation screen.

PASS ConF: Technician Password

[E]PS Technician Password (0, 9999)

It is used for accessing to the technician parameters. It can be adjusted from 0 to 9999.

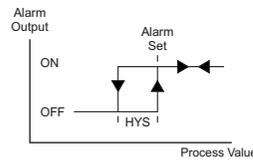
If it is [0]; there is no password protection while entering to the technician parameters.

If this parameter is different from " 0" and user wants to access to the technician parameters;
 1-If technician does not enter [E]PS password correctly: It turns to operation screen without entering to technician parameters.

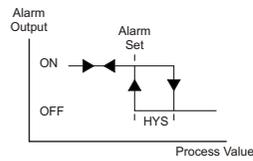
2- When [E]PS in top display and [0] in bottom display, if technician presses SET button without entering password (For observing parameter)
 Technician can see all menus and parameters except Technician Password menu ("Pass Conf"), but parameters can not be changed.

Alarm Types

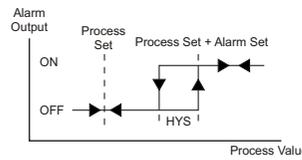
Process high alarm



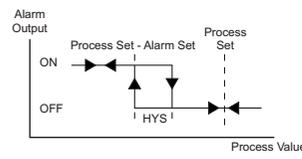
Process low alarm



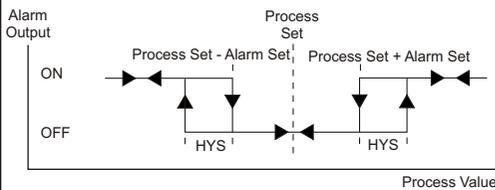
Deviation high alarm



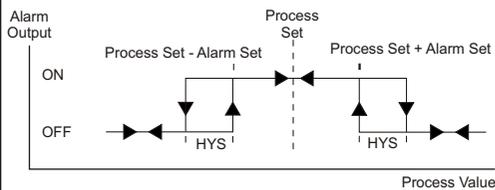
Deviation low alarm



Deviation Band Alarm



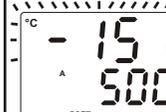
Deviation Range Alarm



Failure Messages in Process Controllers



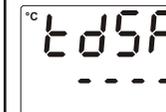
1- Sensor failure in analogue inputs. Sensor connection is wrong or there is no sensor connection.



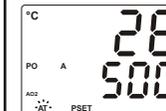
2- If value on top display blinks : If analogue input value is less than minimum value of operating scale [LOL] Value on the top display starts to blink.



3- If value on top display blinks : If analogue input value is bigger than maximum value of operating scale [UPL] top display starts to blink.



4- If technician password is different from "0" and technician accesses to the parameters by Set button without entering the technician password and wants to change a parameter, device does not allow to do any changes in parameters. If increment or decrement button is pressed, a warning message will appear on the bottom display as shown on the left.



5- If tuning operation can not be completed in 8 hours, AT led starts to blink. Blinking can be canceled by pressing Enter button.



6- If user does not do anything for 120 seconds while device is on technician menus, device turns to operation screen.

Installation



Before beginning installation of this product, please read the instruction manual and warnings below carefully.

In package ,
-One piece unit
-Two pieces mounting clamp
-One piece instruction manual

A visual inspection of this product for possible damage occurred during shipment is recommended before installation. It is your responsibility to ensure that qualified mechanical and electrical technicians install this product.

If there is danger of serious accident resulting from a failure or defect in this unit, power off the system and the electrical connection of the device from the system.

The unit is normally supplied without a power switch or a fuse. Use power switch and fuse as required.

Be sure to use the rated power supply voltage to protect the unit against damage and to prevent failure.

Keep the power off until all of the wiring is completed so that electric shock and trouble with the unit can be prevented.

Never attempt to disassemble, modify or repair this unit. Tampering with the unit may result in malfunction, electric shock or fire.

Do not use the unit in combustible or explosive gaseous atmospheres. During the equipment is putted in hole on the metal panel while mechanical installation some metal burrs can cause injury on hands, you must be careful.

Montage of the product on a system must be done with it's mounting clamp. Do not do the montage of the device with inappropriate mounting clamp. Be sure that device will not fall while doing the montage.

It is your responsibility if this equipment is used in a manner not specified in this instruction manual.

Warranty

Warrants that the equipment delivered is free from defects in material and workmanship. This warranty is provided for a period of two years. The warranty period starts from the delivery date.

This warranty is in force if duty and responsibilities which are determined in warranty document and instruction manual performs by the customer completely.

Maintenance

Repairs should only be performed by trained and specialized personnel. Cut power to the device before accessing internal parts. Do not clean the case with hydrocarbon-based solvents (Petrol, Trichlorethylene etc.). Use of these solvents can reduce the mechanical reliability of the device. Use a cloth dampened in ethyl alcohol or water to clean the external plastic case.

