tecora
a division of CDL

USER MANUAL

Pre-Mixer Analyzer

ADP 100

2018.06.01	1	All	Modification into CDL
DATE	**Version**	**PAGE**	**Modifications**

TABLE OF CONTENTS

I. OPERATING PRINCIPLE

ADP 100 pre-mixer analyzer from TECORA is designed to monitor accurately the air/gas ratio pre-mixed which is sent to the burners.

It allows the AIR/GAS ratio adjustment to obtain the desired quality of the flame to get the optimum temperature and atmosphere in the oven and to monitor over a long period the stability of the blending.

The sample to be monitored is going through an oven at a fixed temperature of 800°C in a cell housing containing, at the inlet a combustion catalyzer and at the outlet a zirconium oxygen cell.

The measurement of oxygen or combustible excess after a complete combustion of the sample is processed in a digital electronic to give a dual range in % oxygen and % combustible on a 4 - 20 mA output.
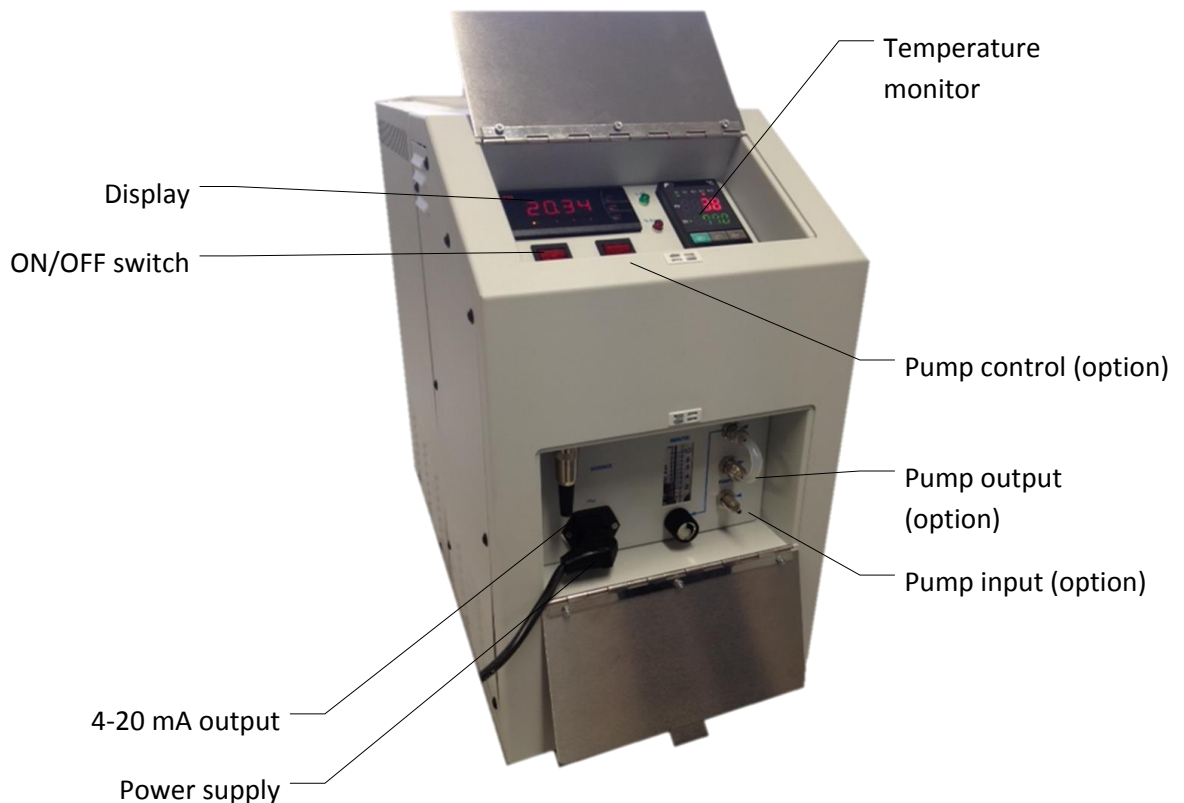
The system is then divided into two parts :

1 – The analyzer
2 – The signal processing

II. DESCRIPTION OF THE DIFFERENT SYSTEMS

1. ANALYZER

This is a pre-mixer analyzer with a zirconium oxide sensor.

a. Electric oven

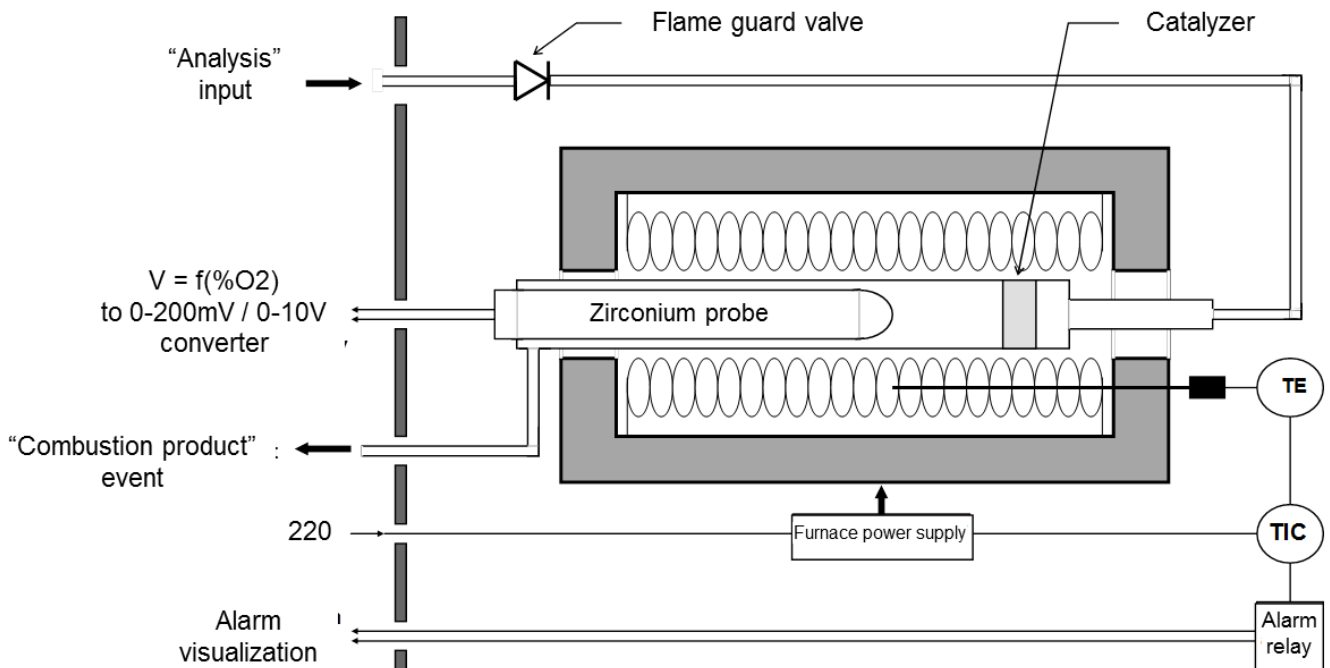The tubular oven contains the cell holder pipe and the temperature sensor. It must be able to maintain the set at the setpoint temperature. It is properly, electrically and thermally isolated. Its assembly, its disassembly as well as the ones of the temperature sensor are executed without any difficulties.

b. Pipe cell holder

This pipe, located inside the oven, contains a catalyzer (platinum grid) and hold the oxygen sensor. It receives, on catalyzer side, the pre mixed sample to be analyzed and evacuates combustion products after residual oxygen measurement. A flame guard valve is disposed before the entrance in the cell holder. The pipe passing through the oven allows an easy assembly and disassembly, without the oven disassembly. The pipe is examined once a year (grid condition control) and is systematically replaced every 3 years.

c. Oxygen sensor

The oxygen sensor is in Zirconia covered by porous Platinum with air reference. This is a ten centimeter long immersion sleeve cell, with around one centimeter diameter, and is mounted by screwing on the cell holder. A titanium seal permits the impermeability of the assembly. The cell terminals voltage, in the range of few tens millivolts, is sampled by clips and is transmitted at the "information processing" part.

d. Temperature regulator

The Zirconia oxygen cell needs an accurate and reliable regulation. To obtain the required accuracy, we use a PID numeric regulator associated to a K type thermocouple. The regulator, located on the front face, displays the temperature and the presented alarms (high and low levels alarms).

2. SIGNAL PROCESSING

The cell raw signal is a logarithmic voltage between 0 and 200 mV DC.
The signal is sent to a calculation module model PR 5715 where it is linearized into a 4 - 20 mA signal. This 4 - 20 mA signal drives the front face indicator and it is taken back on a front face connector plug DIN, male, 3 terminals.

4 - 20 mA plug
Welding side view

III. SPECIFICATIONS

<u>Product type:</u>	% oxygen and % combustible excess indicator.
<u>Measurement range:</u>	Set-able on the range [10% combustible excess ; 21% oxygen excess]
<u>Measurement principle:</u>	Measurement of residual oxygen with a zirconium oxide cell as a result of catalytic combustion of a fixed mixture.
<u>Accuracy:</u>	<u>Oxygen excess</u> : +/-0.1% on the range [0% : 5% O2]; +/- 2% of reading value on the range]5% ; 21% O2].
	<u>Combustible excess</u>: +/-0.25% on the range [0 ; 5% combustible excess]; +/- 5% of reading value on the range]5% ; 10% combustible excess].
<u>Repeatability:</u>	+/- 0.2 % of reading value.
<u>Output signal:</u>	Linear 4 - 20 mA specified at the measurement range. For ex. : for the range [10% CnHm ; 21% O2],
	4 mA corresponds to 10% combustible excess.
	20 mA corresponds to 21 % 02.
	9.16 mA corresponds to stoichiometry.
<u>Ambient temperature:</u>	10 to 40°C
<u>Power supply:</u>	220 V - 50 Hz - 600 VA (110 V - 50 Hz as option)
<u>Pneumatic power supply:</u>	Flexible pipe 4/6 mm
<u>Sample input pressure:</u>	Below than 1 bar
<u>Calibration gas bottle:</u>	Zero gas : 2% or mix from 0,1% to 10% O2 in N2. Setting gas : 20,9% (air) or mix from 1 to 100% O2 in N2.
<u>Monitor bottle:</u> (combustible excess)	CH4/O2/N2 mix: 14%CH4/18%Oxygen/68%Nitrogen (for a excess of combustible at 5%)

IV. INSTALLATION AND CONNECTION

1. INSTALLATION

In general, the devise must be installed in a non-aggressive area, that means in a non-vibrate area, non-damp, no subject to brutal temperature variations and away from bad weather and dust.

The operating temperature may be between 10 and 40°C.

2. ELECTRIC CONNECTION

It is done on the front face of the device by opening the bottom trapdoor of the device.

The device is delivered with a power supply cable, the power supply is done by a 220 V voltage plug + ground 10 A.

To avoid all magnetic disturbances, the 4 – 20 mA output will have an electric shield.

3. FLUID CONNECTION

It is done close to the power supply by connections for flexible pipe 4/6 mm. If the gas pressure is upper than 200 mbar, use the upper input. If the gas pressure is lower than 200 mbar, use the pump input and do a pneumatic union between the pump output and the sample input.

Event output (fumes oven output): this event is realized in flexible pipe (cell holder heat resistant), it must be kept vertically and its output is directed downward to keep condensates evacuate to the exterior without back pressure. These condensates may be collected (a few drops each hour).

The pipe is placed between the two device compartments in the bottom part.

V. COMMISSIONNING

1. VERIFICATION BEFORE START-UP

Before the pre-mixer analyzer ADP start-up, it is necessary to control all electric and fluidic connections.

COMMISSIONNING / CALIBRATION
- Put the device on with the M/A switch.
- Verify that the oven temperature displayed on the regulator is included between 700°C and 800°C. If it is not, set the temperature at 750°C for a preset by pressing the keys ▲ and ▼ do not forget to validate the new value with the ENTER key.
- Wait the stabilization of the oven temperature.
- Connect the device with a calibration gas (typically a blending of 2% 02 in N2) at a pressure lower to one bar.
- Set the flow rate at about 0,8 l/min.
- Wait the stabilization of the measurement.
- Set the oven temperature with the regulator to display the oxygen value of the calibration bottle.

NOTE: This is the reverse step to modify the temperature, in fact, increased the temperature imply to decrease the O2 concentration.

Between each modification on the temperature regulator, please wait 10 minutes for the measurement stabilization.

The device is now ready to operate.

2. ROUTINE COMMISSIONING

The routine commissioning simply consists to put the device on power and to wait that the oven temperature (P.V. on the regulator) is equal to the S.V. value (on the regulator).

Then connect the gas supply to be analyzed.

The device is delivered calibrated in factory and the calibration is not necessary. It is recommended, according to the device utilization to verify every 3 months or at maximum every 6 months the calibration with a calibration gas to maintain the device characteristics.

VI. MAINTENANCE

ADP 100 pre-mixed analyzer needs any particular maintenance.

1.CELL CHECKING

The checking with an O2/N2 blending allows to determinate the erosion state of the cell independently of the catalyzer state :

- Open the 02/N2 bottle.
- Set the pressure regulator at 0.5 bar.
- Set the flow rate with the rotameter at 0.8 L/Min.
- Write down the value.
- Check that this value corresponds with +/- 0.1% of the value on the calibration bottle.
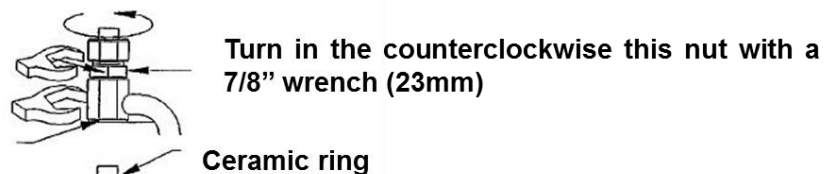
2. OXYGEN CELL REPLACEMENT

When the calibration becomes impossible, it is necessary to proceed to the oxygen cell replacement; to do that, follow the steps :

- Shut down the device by the ON/OFF switch on the front side.
- Wait one or two hours the oven cooling.
- Remove the rear side.
- Proceed to disassembly (cf Figure 1)
- When the cell is replaced, put the device under power.
- Set the temperature setpoint at 750°C.
- Execute a calibration.

1. **Release the clips**
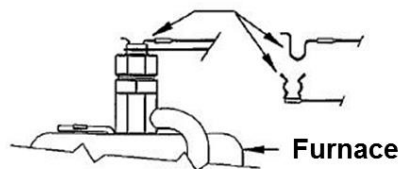
2. **Unscrew the cell**

3. **Put out the cell of its tube cell**

4. **To install the new cell, use the reverse process**

Furnace

Turn in the counterclockwise this nut with a 7/8" wrench (23mm)
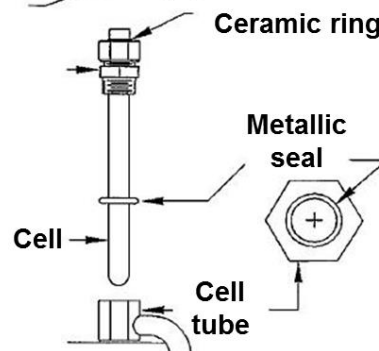
Ceramic ring

Metallic seal

Cell

Cell tube

Figure 1

3. CATALYST PIPE REPLACEMENT

- Shut down the device by the ON/OFF switch on the front side.
- Wait one or two hours the oven cooling.
- Remove the rear side.
- Proceed to disassembly (cf. Figure 2).
- Disconnect the straight pipe connector.
- Unscrew the straight connector of the cell pipe.

It may be that, due to the heat, the connector has become very difficult to unscrew. For convenience, we recommend you to disconnect the thermocouple and oven and unscrew it from the wall to dismantle the oven set to work on table.

- Remove the oven pipe close to the cell.
- Replace the pipe.
- Put back the nut and screw it completely to insure the impermeability.
- Reconnect the pipe on the straight connector.
- Replace the O2 cell.
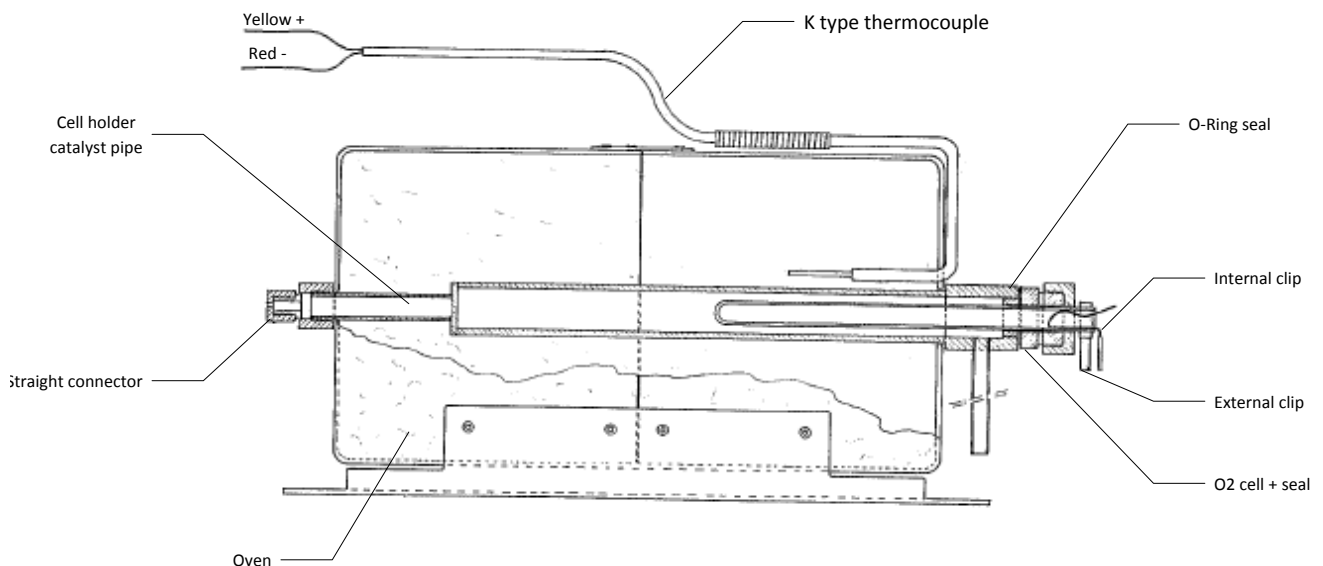- Put the device on voltage.
- Execute a calibration.

Figure 2

4. OVEN DISASSEMBLY

The resistance of the oven is around 13Ω. If the oven has to be changed, follow the procedure:

- Switch off the device.
- Remove the roar panel.
- Make sure that the oven is cold or wait one or two hours.
- Remove the contact clips of the cell.
- Disconnect the thermocouple.
- Disconnect electrically the oven.
- Disconnect the gas input of the straight connector of the cell holder catalyst pipe.
- Unscrew the 4 nuts that hold the oven on the frame.
- Unscrew the inlet fitting of the cell holder.
- Remove the catalyst pipe of the oven on the cell side.
- Change the oven.
- Use the inverse procedure for the re-installation.
- Execute a calibration.

VII.   TEMPERATURE REGULATOR PROGRAMMATION

1. CONFIGURATION

a. Linear switch (DIP switch)

1	2	3	4
0	0	1	0

b. Rotary switch   Position 4

2. SOFT PROGAMMATION

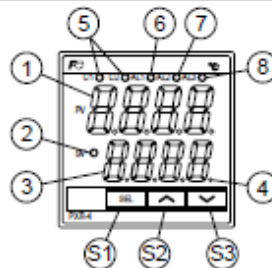|	
Level A	P = 30
	I = 100
	d = 3
	H = 900
	L = 700
Level B	t = 15
	A = 0.1
	b = 00
	S = 0 (%)
	= 0 ($^\circ$C)
	S = 100 (%)
	= 1200 ($^\circ$C)
Level C	LOC
	ON2
Level D	TAC
	1.6
	0
	0

VIII.   MICRO REGULATOR PROGRAMMATION (PXR 5/9 MODEL)

1.   OPERATING

Name of Functional Parts and Functions

Model : PXR4
      : RXR7

Setting keys

	Name	Function
S1	Select key	The key shifting to the 1st, the 2nd or the 3rd block parameter, switching the display between parameter and the data at the 1st, the 2nd and the 3rd block.
S2	Up key	· The numerical value is increased by pressing the key once. The numerical value keeps on increasing by pressing the key continuously. · For searching parameters within the 1st, the 2nd and the 3rd block.
S3	Down key	· The numerical value is decreased by pressing the key once. The numerical value keeps on decreasing by pressing the key continuously. · For searching parameters within the 1st, the 2nd and the 3rd block.

Display/Indication

	Name	Function
①	Process value (PV)/parameter name display	1) Displays a process value (PV). 2) Displays the parameter symbols at parameter setting mode. 3) Displays various error indications (refer to "8. Error indications").
②	Set value (SV) indication lamp	The lamp is lit while a set value (SV) is displayed.
③	Set value (SV)/parameter setting display	1) Displays a set value (SV). 2) Display the parameter settings at parameter setting mode. 3) Flickers at Standby mode. 4) Displays the set value (SV) and "SV-1" alternately when the SV switching function is used. 5) Displays the set value (SV) and "rSV" alternately while in remote operation.
④	Auto-tuning/self-tuning indicator	The lamp flickers while the PID auto-tuning or the self-tuning is being performed.
⑤	Control output indication lamp	C1 : The lamp is lit while the control output 1 is ON. C2 : The lamp is lit while the control output 2 is ON. (Note 1)
⑥	Alarm output 1 (AL1) indication lamp (Note 1)	The lamp is lit when the alarm output 1 is activated. It flickers during ON-delay operation. (Note 2)
⑦	Alarm output 2 (AL2) indication lamp (Note 1)	The lamp is lit when the alarm output 2 is activated. It flickers during ON-delay operation. (Note 2)
⑧	Alarm output 3 (AL3) indication lamp (Note 1)	The lamp is lit while the alarm output 3 or the heater break alarm output is ON. The lamp flickers while in ON delay operation. (Note 2)

Note 1) Control output 2 and alarm function are optional.
Note 2) The lamp does not flicker while the timer is activated.

2. FRONT FACE UTILIZATION

Stop mode

To set the regulator in stop mode, configure the « Stby » parameter at ON in the first bloc.

Stop mode:
(Outputs) Regulated outputs (1 & 2) and alarm outputs are not activated. However, following the "P-n1" parameter, the action direction, regulated outputs are placed at their fallback value.
None alarm output is activated in stop mode, even in the case of an alarm condition.
Caution : Regulator alarm outputs can't indicate a default during the device is in stop mode.

(Regulation) The regulation is not active.
(Display) SV deposit display blinks.

Caution : SV deposit display doesn't blink during block 1, 2, 3 parameters display.
(Settings) SV deposit and parameters can be modified.

Selection by the "STby" parameter (bloc 1)

Running mode

1 Change the deposit (SV)
When the light is on, the deposit (SV) is displayed on the bottom line.

Deposit (SV) can be modified.

Caution : After any modification, the data is automatically saved after 3 seconds.

2 Access to 1, 2, 3 blocs parameters

To access to others blocs, press on the key [SEL]

Caution : Following the hold time on the key [SEL] We can select blocs 1, 2 or 3.

Hold time	Bloc selection
Press during 1 sec.	First bloc
Press during 2 sec.	Second bloc
Press during 3 sec.	Third bloc

Selection by the key "Sel"
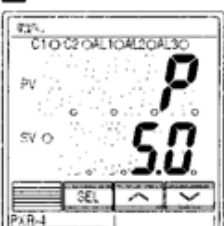
Parameters settings mode

Press on [SEL] during 2 sec.

3 Operator mode return

Operator mode

Settings method
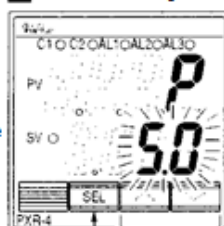
1 Select the parameter to modify by pressing "up" or "down" key.

2-1 Press on the "Sel" key to validate the parameter to change (after validation, the parameter value blinks).

2-2 Press on the "up" or "down" key to modify the parameter value.

2-3 After the modification of the value, press on the "sel" key to save it.

3 To return at operator or stop mode, press on the "sel" key during 2 seconds.

1 Parameter selection

Parameter research

Press on [↑]   Press on [↓]
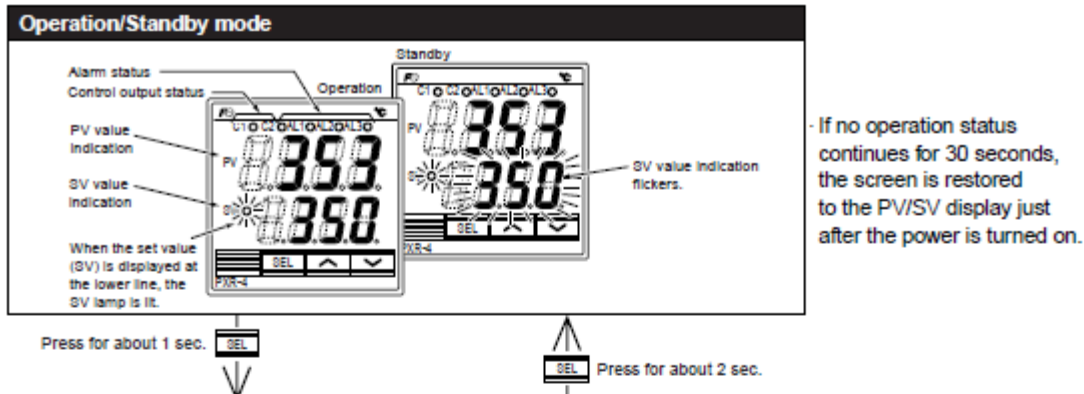

2 Parameter settings

Value modification
[↑] Increase the value
[↓] Decrease the value

[↑] Save the new value, return at parameter selection mode **1**

[↑] By renewing the procedure, parameters can be displayed following the list indicated in the chapter 5 "regulator parameters configuration"

3. CONFIGURATION DES PARAMETRES DU REGULATEUR

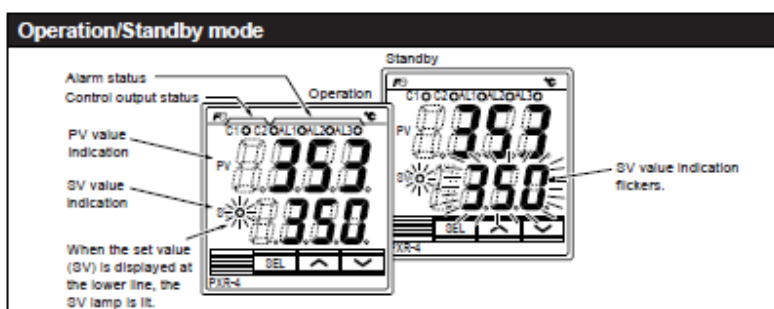## Operation/Standby mode

- If no operation status continues for 30 seconds, the screen is restored to the PV/SV display just after the power is turned on.

Press for about 1 sec. SEL

SEL Press for about 2 sec.

1st block parameter

Parameter display symbol	Parameter	Description of contents	Default setting	Remarks
SΓbY	STbY	Standby settings	Switches RUN or Standby of the control. ON: Control standby (output: OFF, alarm: OFF) OFF: Control RUN	OFF	
CΠod	CMod	Control mode	Switches Local and Remote operations. LoCL : Local operation rEΠ : Remote operation	LoCL	
ProG	ProG	Ramp/soak control	OFF: stop, rUn: Start, HLd: status hold	OFF	
LACH	LACH	Alarm latch cancel	Releases alarm latch. 1: Alarm latch release	0	
AΓ	AT	Auto-tuning	0: Stop, 1: Standard AT start, 2: Low PV type AT start	0	
ΓΠ- 1	TM-1	Timer 1 display	Time displays indicating the remining time at the timer mode.	–	
ΓΠ-2	TM-2	Timer 2 display		–	
ΓΠ-3	TM-3	Timer 3 display		–	
AL 1	AL1	Alarm 1 set value	(appears only with alarm action type 1 to 10). Setting range: Note 1	10	
A 1-L	A1-L	Alarm 1 low limit set value	(appears only with alarm action type 16 to 31). Setting range: Note 1	10	
A 1-H	A1-H	Alarm 1 high limit set value	(appears only with alarm action type 16 to 31). Setting range: Note 1	10	
AL2	AL2	Alarm 2 set value	(appears only with alarm action type 1 to 10). Setting range: Note 1	10	
A2-L	A2-L	Alarm 2 low limit set value	(appears only with alarm action type 16 to 31). Setting range: Note 1	10	Table 4 (Page 35) Note 1
A2-H	A2-H	Alarm 2 high limit set value	(appears only with alarm action type 16 to 31). Setting range: Note 1	10	
AL3	AL3	Alarm 3 set value	(appears only with alarm action type 1 to 10). Setting range: Note 1	10	
A3-L	A3-L	Alarm 3 low limit set value	(appears only with alarm action type 16 to 31). Setting range: Note 1	10	
A3-H	A3-H	Alarm 3 high limit set value	(appears only with alarm action type 16 to 31). Setting range: Note 1	10	
LoC	LoC	Key lock	Setting of key lock status. (see table below)	0	

	All parameters, MV		SV	
LoC	Front key	Comm-unication	Front key	Comm-unication
0	○	○	○	○
1	×	○	×	○
2	×	○	○	○
3	○	×	○	×
4	×	×	×	×
5	×	×	○	×

○: Setting enable, ×: Setting disable

Note 1) Setting range : 0 to 100%FS (in case of absolute value alarm)
–100 to 100%FS (in case of deviation alarm)

Operation/Standby mode

- If no operation status continues for 30 seconds, the screen is restored to the PV/SV display just after the power is turned on.

Press for about 3 sec. `SEL`

`SEL` Press for about 2 sec.

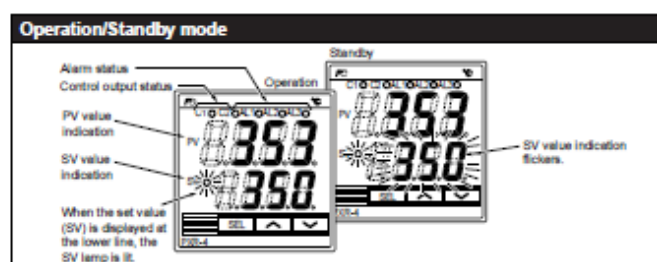| Parameter display symbol	Parameter		Description of contents	Default setting	Remarks
P	P	Proportional band	Setting range: 0.0 to 999.9% ON/OFF control when "P" = 0	5.0	
I	I	Integral time (reset)	Setting range: 0 to 3200 sec. No integral action when "I" = 0	240	
d	D	Derivative action time	Setting range: 0.0 to 999.9 sec. No derivative action when "d" = 0	60.0	
HYS	HYS	Hysteresis for ON/OFF control	Setting range: 0 to 50% FS	1	
CooL	CooL	Proportional band coefficient on cooling side	Sets the proportional band coefficient on the cooling side. (Setting range : 0.0 to 100.0) ON/OFF control when "Cool" = 0	1.0	
db	db	Deadband/overlap	Shifts the output value on the cooling side. (Setting range: -50.0 to 50.0%)	0.0	
CTrL	CTrL	Control algorithm	Type of control algorithm. (Setting range: PID, FUZZY, SELF)	PID	
TC	TC	Cycle time (control output 1)	Sets cycle time of control output 1. (Setting range: 1 to 150 sec)	30/2	Note 2
TC2	TC2	Cycle time (control output 2)	Sets cycle time of control output 2. (Setting range: 1 to 150 sec)	30/2	Note 2
P-n2	P-n2	Input type code	Type of input	As ordered	Table 1 (Page 33)
P-SL	P-SL	Lower limit of input range	Lower limit of input range (Setting range: -1999 to 9999)	As ordered	
P-SU	P-SU	Upper limit of input range	Upper limit of input range (Setting range: -1999 to 9999)	As ordered	Table 3 (Page 34)
P-dP	P-dP	Setting of decimal point position	Select a decimal point position of display. (Setting range: 0 to 2) 0 : No decimal point "1" "2"	As ordered	
PVOF	PVOF	PV offset	Shift the display of process value (PV). (Setting range: -10 to 10%FS)	0	
P-dF	P-dF	Time constant of input filter	Time constant (Setting range: 0.0 to 900.0 sec.)	5.0	
ALN1	ALM1	Type of alarm 1		0/5	
ALN2	ALM2	Type of alarm 2	Setting types of alarm action (Setting range: 0 to 34)	0/9	Table 4 (Page 35)
ALN3	ALM3	Type of alarm 3		0	
STAT	STAT	Ramp/soak status	Displays the current Ramp/Soak status. No setting can be made.	–	
PTn	PTn	Ramp/soak execute type	Selects the ramp/soak execute type. 1: Executes 1st to 4th segment. 2: Executes 5th to 8th segment. 3: Executes 1st to 8th segment.	1	
SV-1 to SV-8	SV-1 to SV-8	Ramp target SV-1 to SV-8	Sets the target SV for each ramp segment. (Setting range: 0 to 100%FS)	0%FS	
TM1r to TM8r	TM1r to TM8r	1st ramp segment time to 8th ramp segment time	Sets the time for each ramp segment. (Setting range: 0 to 99 hours and 59 minutes)	0.00	
TM1S to TM8S	TM1S to TM8S	1st soak segment time to 8th soak segment time	Sets the time for each soak segment. (Setting range: 0 to 99 hours and 59 minutes)	0.00	
Nod	Mod	Setting of ramp/soak mode	Sets ramp/soak operation mode	0	Table 5 (Page 36)

Note 2) When using the heater break alarm, set the parameter "TC" to 20 or more.
Set the CT (current transformer) so that it measures the current of the heater connected to the control output 1.
Disconnection of the control output 2 cannot be detected.
Never set "TC" / "TC2" = 0.
- Some parameters may not be displayed on the screen, depending upon the types.

Operation/Standby mode

Alarm status
Control output status
Operation

PV value indication
SV value indication

When the set value (SV) is displayed at the lower line, the SV lamp is lit.

Standby

SV value indication flickers.

- If no operation status continues for 30 seconds, the screen is restored to the PV/SV display just after the power is turned on.

Press for about 5 sec. [SEL]

[SEL] Press for about 2 sec.

3rd block parameter

Parameter display symbol	Parameter	Description of contents	Default setting	Remarks
P-n1	P-n1	Control action	Selects the control action.	0/4	Table 2 (Page 33)
SU-L	SV-L	Lower limit of SV	Lower limit of SV (Setting range: 0 to 100%FS)	0%FS	
SU-H	SV-H	Upper limit of SV	Upper limit of SV (Setting range: 0 to 100%FS)	100%FS	
dLY1	dLY1	ON delay time of alarm 1		0	
dLY2	dLY2	ON delay time of alarm 2	ON delay time setting for alarm output (Setting range: 0 to 9999 sec)	0	
dLY3	dLY3	ON delay time of alarm 3		0	
CT	CT	Heater current value	Indicates the heater current value.	–	
Hb	Hb	HB alarm set value	Sets current value to detect the heater break alarm (Setting range: 1.0 to 50.0A, 0: OFF)	0.0	Note 2
A1hY	A1hY	Hysteresis for alarm 1		1	
A2hY	A2hY	Hysteresis for alarm 2	Sets ON-OFF hysteresis for alarm output. (Setting range: 0 to 50%FS)	1	
A3hY	A3hY	Hysteresis for alarm 3		1	
A1oP	A1oP	Additional function of alarm 1	Additional function of alarm output (Setting range: 000 to 111)	000	
A2oP	A2oP	Additional function of alarm 2	Alarm latch (1:use, 0:not use) / Alarm of error status (1:use 0:not use) / De-energized (1:use 0:not use), Note 3.	000	
A3oP	A3oP	Additional function of alarm 3		000	
di-1	di-1	DI1 function	Selects digital input 1 (DI1) function (Setting range: 0 to 12)	0(OFF)	6-7 (Page 27)
di-2	di-2	DI2 function	Selects digital input 2 (DI2) function (Setting range: 0 to 12)	0(OFF)	6-7 (Page 27)
STno	STno	Station No.	Communication station No. (Setting range: 0 to 255)	1	
CoM	CoM	Parity setting	Parity setting. Baud rate is fixed at 9600 bps. (Setting range: 0 to 2)	0	6-6 (Page 26)
PCoL	PCoL	Communication protocol	Switches communication protocols. 1: Modbus protocol 2: Z-ASCII protocol	As ordered	
Ao-T	Ao-T	Re-transmission output type	Switches signals to be output for Re-transmission 0 : PV, 1 : SV, 2 : MV, 3 : DV	0	
Ao-L	Ao-L	Re-transmission output scale lower limit	Lower limit of the scaling for Re-transmission output (Setting range: –100 to 100%)	0	
Ao-H	Ao-H	Re-transmission output scale upper limit	Upper limit of the scaling for Re-transmission output (Setting range: –100 to 100%)	100	
rEMO	rEMO	Remote SV input zero point adjustment	Zero point compensation value for remote SV input (Setting range: –50 to 50%FS)	0	
rEMS	rEMS	Remote SV input span point adjustment	Span point compensation value for remote SV input (Setting range: –50 to 50%FS)	0	
r-dF	r-dF	Remote SV input filter constant	Filter time constant for remote SV input (Setting range: 0.0 to 900.0 second)	0.0	
rSV	rSV	Remote SV input value	Remote SV input value (industrial value) (Display only: –1999 to 9999)	–	
dSP1 to dP13	dSP1 to dSP13	Parameter mask	Specifying parameter mask		

Note 2) When using the heater break alarm, set the parameter "TC" to 20 or more.
Set the CT (current transformer) so that it measures the current of the heater connected to the control output 1.
Disconnection of the control output 2 cannot be detected.
Never set "TC" / "TC2" = 0.
- Some parameters may not be displayed on the screen, depending upon the types.
Note 3) De-energized: Contact opens when the alarm "ON".

COMBUSTION / ÉMISSION DEPARTMENT

INDUSTRIAL CONTROL DEPARTMENT

HYGIENE HEALTH AND ENVIRONMENT DEPARTMENT

SERVICE AND LOGISTIC DEPARTMENT