ALP 44

- **Potentiometric (ALP44P)**

- **0-10 V (ALP44V)**

- **4-20 mA (ALP44A) Analogue Input**

MEASUREMENT INSTRUMENTS

USER

MANUAL

- 48X48 MM DIMENSION
- 4MS (250 TIMES PER SECOND) SAMPLING TIME
- 2 ROW, 4 DIGITS DISPLAY
- 2 PIECES RELAY OUTPUT (SINGLE AND DOUBLE CONTACT)
- SELECTABLE OUTPUT TIME
- ADJUSTABLE SCREEN REFRESH RATE
- ENTERING OF HYSTERESIS
- SELECTABLE POINT POSITION
- TARE FUNCTION (ABS/REL)
- %0,1 ACCURACY
- ENTERING OFFSET VALUE
- PASSWORD PROTECTION

INDEX

# 1. TECHNICAL FEATURES

ELECTRICAL CHARACTERISTICS

SUPPLY VOLTAGE	24 VAC/DC 50/60 Hz 85-265 VAC 50/60 Hz
POWER CONSUMPTION	5.5 VA / 4.4 W Max
SENSOR SUPPLY VOLTAGE	5 VDC 100 mA (for TTL Sensor) 24 VDC 50 mA (for Push-Pull Sensor)
CONNECTION	2,5 mm² screw-clemens
INPUTs (Analogue)	Potentiometric Input (ALP44P) 0 – 10 V Voltage Input (ALP44V) 0 / 4 – 20 mA Current Input (ALP44A)
OUTPUTs (Analogue)	0 – 10 V (Optional) 4 – 20 mA (Optional)
OUTPUTs (Contact)	2 unit 250 VAC / 3A (for Resistive Load) Relay
Serial Communication	RS-232 (Optional)

PHYSICAL CHARACTERISTICS

DIMENSIONS	48 x 48 x 96 mm
WEIGHT	200 gr.
MOUNTING	Upper and lower legs are fixed to the clipboard.
RELATIVE HUMIDITY	%80 up to 31 °C , %50 up to 40 °C
STORAGE TEMPERATURE	-10 UP TO 60 °C
OPERATING TEMPERATURE	0 UP TO 50 °C
PROTECTION CLASS	IP 60 Front Panel, IP 20 Back panel

DIMENSIONS
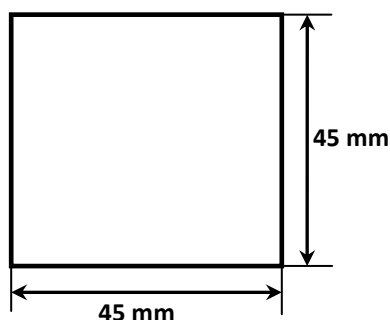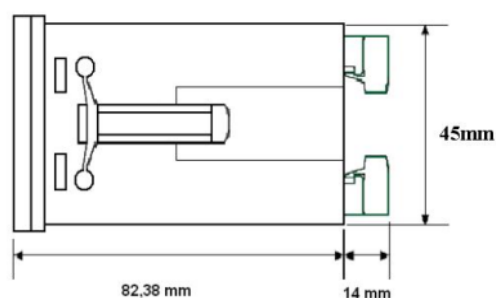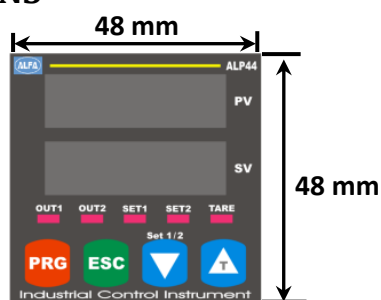
2. CONNECTIONS

**Supply Voltage
24 VAC / DC or
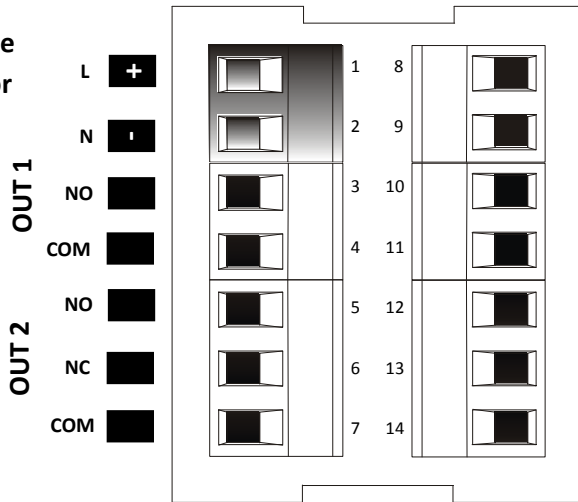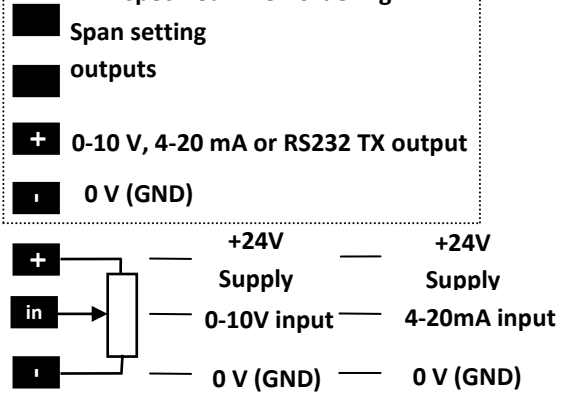85 / 265 VAC**

OUT 1
- L +
- N -
- NO
- COM

OUT 2
- NO
- NC
- COM

1	8
2	9
3	10
4	11
5	12
6	13
7	14

These output are optional. These terminals are open, if is not specified when ordering.

Span setting
outputs

+ 0-10 V, 4-20 mA or RS232 TX output

- 0 V (GND)

+24V Supply	+24V Supply
0-10V input	4-20mA input
0 V (GND)	0 V (GND)

+
in →
-

ALP44P **ALP44V** **ALP44A**

SAFETY WARNINGS

1. Follow the instructions and warnings in the user guide.

2. Please check the power supply type before connects energy to the device.

3. Please the device mounted on panel against dangers of fall, snap, shake during working.

4. Make Sensor connections without energy on the device; do not connect in any way during operation.

5. Make sure that is shielded cables between device and sensor.

6. Do not leave the device exposed to a heat source (solar, heater etc.)

7. ALC44 industrial control device is not suitable for use in the external environment, Use only room conditions.

8. Wipe with a damp cloth to clean the device, do not use water, thinner etc.

9. Comply with the limit values specified in the technical specifications for relay outputs.

10. The device cannot be changed by the user in the event of a fault, Please contact our technical service in case of failure.

CONNECTION OF POTENTIOMETER with ALP44P

Linear Potentiometer

Screened Sensor Cable

1
2
3

Ground Line

12
13
14

ALP44P

CONNECTION OF 0-10V SENSOR with ALP44V

0-10 V Sensor
Example: Pressure Transmitter

Screened Sensor Cable

Sensor + Supply
0-10V Output
Sensor - Supply
Ground Line

12
13
14

ALP44V

CONNECTION OF 4-20mA SENSOR with ALP44A

4-20 mA Sensor
Example: Pressure Transmitter

Screened Sensor Cable

Sensor + Supply
4-20mA Output
Sensor - (0V) Supply
Ground Line

12
13
14
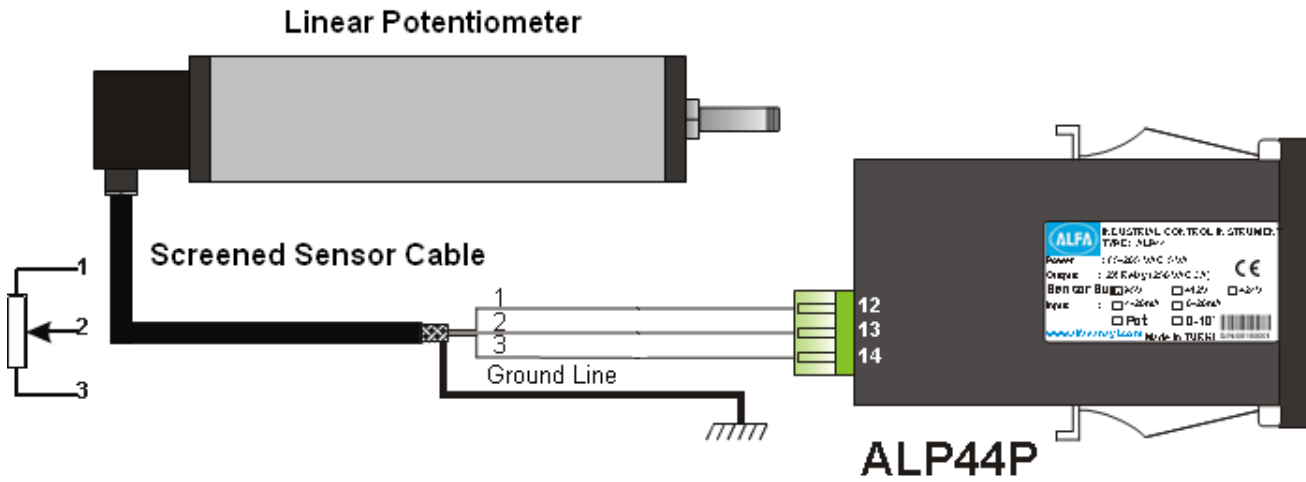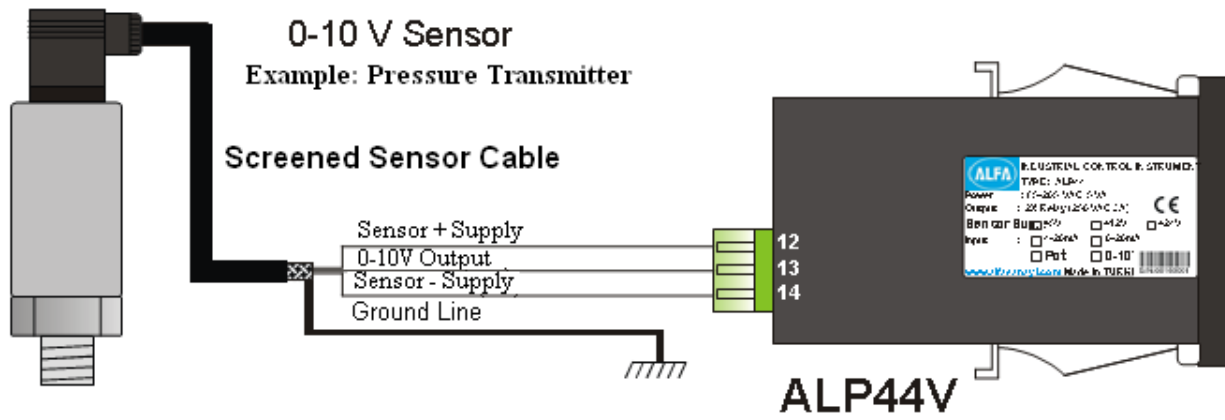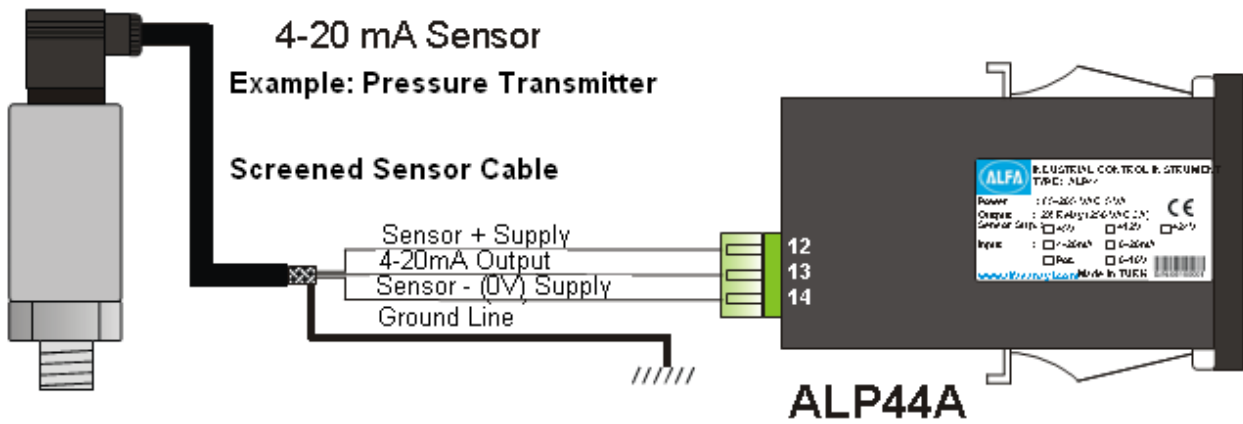
ALP44A

CONNECTION OF 2PIN 4-20mA SENSOR with ALP44A

2Pin 4-20mA Sensor
Example: Pressure Transmitter

Screened Sensor Cable

Sensor + Supply
4-20mA Output
Ground Line

12
13
14

ALP44A

3. DESCRIPTION OF FRONT PANEL

ALP44 device operates in 2 different modes:

Programming mode : Specifies the function used during programming.

Operating modu : Specifies the function used during operating.

Display and Position LEDs

1. 4 Digit LED Display   at Operating mode: PV : Indication of process value
                            At programming mode: Indication of program parameter
2. 4 Digit LED Display   at Operating mode: SV : Indication of Set value.
                            At programming mode: Indication of program parameter
3. Out-1 output LED position: On while the power at Out-1.
4. Out-2 output LED position: On while the power at Out-2.
5. Set-1 Led position: On while Set-1 value is displayed in the bottom display
6. Set-2 Led position: On while Set-2 value is displayed in the bottom display.
7. LED of TARE   : LED status of Tare (Absolute/Relative) Function.

Button Functions

8. **PROG Button** Operating Mode: Used to return to the menu with Tare button.
                    Programming Mode: Used to save and enter menu parameter value.
9. **ESC Button** Operating Mode: Used to show the maximum value measured with Tare Button.
                    Programming Mode: Used to exit without saving the entered value of the parameter.
10. **SET 1/2**   Operating Mode: Used to in the bottom display to show the value of Set-1 and Set-2.
   Down Button Programming Mode: Used to switch between the menus and decrease the value of the selected parameter.
11. **TARE Button** Operating Mode: Used to reset the entered point value.
   Up Button   Programming Mode: Used to switch between the menus and decrease the value of the selected parameter.

4. SETTINGS

ENTERING THE MENU ANG CHANCING THE PARAMETERS:

In order to switched to programming mode while device operating mode, pressed at the same time (PRG) button and (⬆) button. Firstly "Prog"menu will appear on the screen.

PRG + ⬆   Prog 5.0 → SEt1 5.0

Switch between program menus with Down (⬇) and up (⬆) buttons. PRG button is entered into for the menu to be changed. Changes are saved with prg (PRG) button. Return to operating mode with Rst (ESC) button. If password protection is activated at device, password must be entered. If password is correct, true message is displayed on the bottom line. Also password is incorrect, "errP" is displayed.

SEt1 25.0 → PRG → PAS1 000

If Password is correct :   SEt1 5.0

If Password is incorrect :   ErrP 0
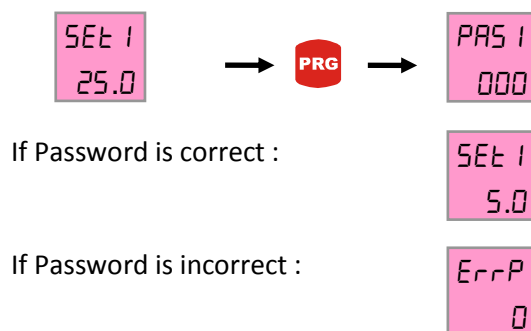
## 4.1. Entering The Set Point to Device (Set)

Menu is displayed firstly on the screen as prg button is pressed while operating mode. Menu of Set 2 is displayed while down button is pressed. The top row shows the name of the menu and bottom row also (yellow marked) selected value in menu content. Set 1, set 2 allows controlling to out1 and out2 relays.

Move to the desired set point for setting. The rightmost digit starts flashing when Prg button is pressed. Desired point is selected up and down button. Used to Prg button for digits scrolling. Shifted to the left for one step when each press of the button, if pressed the prg button when coming the rightmost digits, positive or negative value will be asked. Value is selected by up and down button then saved with prg button. If you do not want to save, you can exit with esc button.

PRG + ⬆   Prog 5.0 → SEt1 5.0

SEt1 5.0

SEt2 10.0

The rightmost digit starts flashing when Prg button is pressed. Desired point is selected up and down button. Used to Prg button for Digits scrolling. Save with prg button.
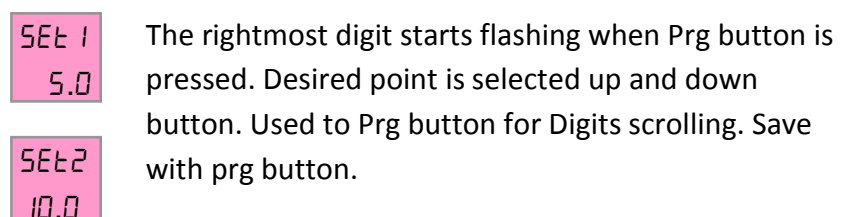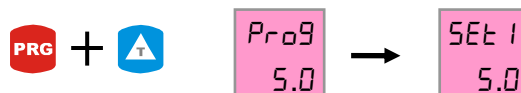
4.2. SCREEN REFRESH RATE (Rate)

Screen Refresh Rate is set by this menu. If "speedy" is selected, values on the screen are changed quickly. If you don't want to shake on the screen, "slow" should be selected. In order to change to screen refresh rate, entered programming menu and found rate menu with up-down button. When pressed prg button, choice of bottom row flashes and set the choice with up-down button. Then save with prg button.

```
PRG  +  ▲        Prog        →        SEt 1
                  5.0                   5.0

                 rAtE
                 FASt
```
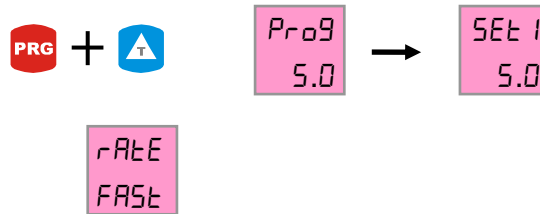
## 4.3. SELECTION of POINT POSITION (Decp)

Resolution of the value shown on the display is set here. This change is done by changing position of the point on the screen. In order to changed position of the point, press to prg button at operating mode and find rate menu with up-down button. The point is flashing when pressed to prg button; you can set position of the point with up-down button. Then you can save them with prg button. Return to operating mode with rst button.

```
PRG  +  ▲        Prog        →        SEt 1              dECP
                      5.0                   5.0              000.0
```
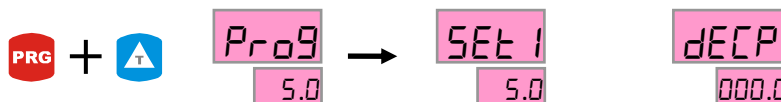
4.4. Entering of Scale Value (S-LO / S-HI)

Scale menu provides to determine the value shown in the display at minimum and maximum positions of sensor. For Example; this provides that a potentiometer is shown 0 or others value at minimum position, stroke length or others value at maximum position. Likewise, this situation also applies to the pressure transmitter. There are two parameter inputs at scale menu: S-Lo and S-Hı. S-Lo provides to entering of minimum value, S-Hı also provides to entering of maximum value.

In order to enter scale value, firstly entered to programming menu and find S-Lo and S-Hı menus with up-down button. When pressed prg button, choice of bottom row flashes and set desired value with up-down button. When pressed to Prg button, moves to the left in a digit. Then you can save them. As each menu is set in this way.

```
PRG  +  ▲        Prog        →        SEt 1
                      5.0                   5.0
```
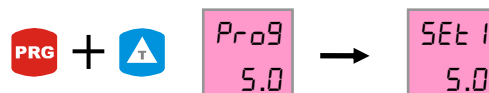
```
S-LO
0.0
```
PRG button is pressed, the bottom line value of the right hand digit flashes and set to desired value with up-down button. Digit is moved to the left in a digit and saved with prg button.

```
S-HI
100.
```
Example for entering of Scale Value; In order to Range of 700Bar pressure transmitter is seen as between 0-700Bar on the screen, Scl-Lo is entered 0, Scl-HI is entered 700.

4.5. Automatic Calibration (Fcal)

Automatic Calibration menu calibrate to 0-10 V, 4-20 mA, 0-20 mA inputs automatically. Therefore measurements can be made without the need to manually calibrate. When Fcal menu is active, C-Lo and C-HI are invisible. But the most accurate method, the connected sensor is calibrated manually. Because tolerance of each sensors are different and they do not give same output at same positions/values. For Example, A pressure transmitter cannot give 0V output at 0Bar or give 9.99V-10.02V output instead of 10V at maximum bar. This may cause an error in the measurement in the slightest.

In order to activate the automatic calibration, enter to programming menu firstly. Found Fcal menu with up-down button and PRG button is pressed, bottom row menu content flashes. Selected to on (active) or off (inactive) with up-down button and saved selection with prg button. Then return to operating mode with ESC button.
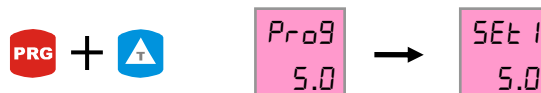
PRG + ▲**T** | Prog 5.0 | → | SEt1 5.0 |

| FCAL OFF | When prg button is pressed at Fcal menu, menu contents at the bottom row flashes and adjusted desired choice with up-down button. Save with prg button.

4.6. Manuel Calibration (C-LO / C-HI)

Manuel Calibration menu allows entering the starting and ending positions/values of sensor. This menu consists of C-LO and C-HI menus. C-LO menu provides to entered minimum position/value, C-HI menu also entered maximum position/value. C-LO menu sets the potentiometer is in the closed position and also C-HI menu sets in the opened position. For pressure transmitter, introduced part of 0 Bar by C-LO menu and also introduced to maximum bar or span value by C-HI menu.

In order to activate the Manuel Calibration, enter to programming menu firstly. Find C-LO menu with up-down button. The sensor gets the minimum position/value and then pressed to PRG button at C-LO menu. Bottom row menu content flashes. Position is set fully and saved it with prg button. This position/value is defined as minimum in the device. The same procedure is done for C-HI menu. Then return to operating mode with ESC button.
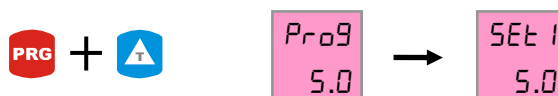
PRG + ▲**T** | Prog 5.0 | → | SEt1 5.0 |

| C-LO Strt | → **PRG** → | C-LO SEt | PRG button is pressed at C-LO or C-HI screens, bottom row menu content flashes. Set to desired position/value and saved with prg button.

| C-HI Strt | **Note**: If Fcal is active, C-LO and C-HI menus are invisible. For this reason Fcal menu should be at off position.
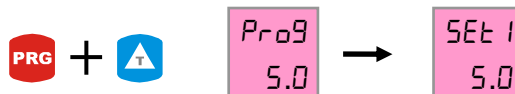
4.7. Span Menu (Span)

Span menu makes short-circuit to ends of two-terminal clemens at rear of the device. Span calibration terminals of the pressure sensor connect to here and then Span position (80%) should be introduced at C-HI menu. Ends of clemens are short-circuit while Span menu is on position, also it will be open-circuit at off position. In order to change to Span menu, entered to program menu. Found Span menu with up-down button. PRG button is pressed, bottom row menu content flashes. Selected to desired value with up-down button and saved selection with prg button.

| Prog	SEt 1
5.0	5.0
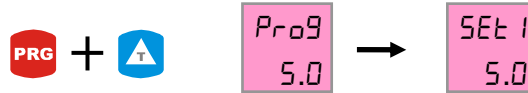
SPAn OFF — PRG button is pressed at Span menu, bottom row menu content flashes. Selected to desired value with up-down button and saved selection with prg button.

4.8. Reset Selection (Tare)

This menu allows resetting value on the display while Reset Selection (tare) is operating mode. Value on the display will be reset when up-down button is pressed at operating mode. Up button is pressed again, the value returns to real range that is based on position. In order to active the Reset Selection, entered to program menu. Found Tare menu with up-down button. PRG button is pressed at Span menu, bottom row menu content flashes. Change the choice with up-down buttons. Tare function will be active at on position and also inactive at off position. Save selection with prg button.

| Prog	SEt 1
5.0	5.0

tArE OFF — PRG button is pressed at Span menu, bottom row menu content flashes. Selected to desired value with up-down button and saved selection with prg button.

4.9. Entering of Relay Delay Time (t1, t2)

T1 and T2 menus allow attracting of relays for entered period. This period is in seconds. In order to entered delay time, entered to programming menu. Find t1 and t2 menus with up-down buttons. PRG button is pressed, bottom row menu content flashes. Change to choice with up-down buttons. When pressed to Prg button, moves to the left in a digit. Save selection with prg button.

Prog	SEt 1
5.0	5.0
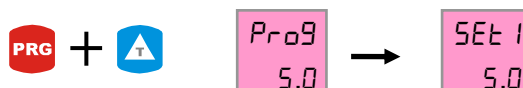
t1 0.0 / t2 0.0 — PRG button is pressed, bottom row menu content flashes. Change to choice with up-down button. When pressed to Prg button, moves to the left in a digit. Save selection with prg button.

4.10. ENTERING OF HYSTERESIS (Hysu, Hysd)

Hysteresis value can be entered using this menu to device. Hysteresis value's purpose prevents from vibration of relay contacts when device reaches the set point. In order to entered Hysteresis value, should be entered programming mode with prg button and found hysu and hysd menus with up-down button. The right-digit is flashing when pressed to prg button; you can set wanted value with up-down button. Each press of the button moves to the left in a digit. Then you can save them.

PRG + ▲

Pro9	→	SEt 1
5.0		5.0

t2
0.0

PRG button is pressed, bottom row menu content flashes. Change to choice with up-down buttons. When pressed to Prg button, moves to the left in a digit. Save selection with prg button.

4.11. Password Protection (Secu)

Password security enables that unauthorized persons is prevented to change the parameters of the menu. When Nset option is selected, entered to a password (SPS1). Password is not required while setting the set values. Password is required for others setting. While Secu menu is all position, entered also password SPS2. Then entered to device menu and parameter values can be displayed. Pass2 (SPS2) is required when set values are prompted to make any. Pass1 (SPS1) is required at others situations. If password is incorrect, you cannot make any change. Password is not requiered while secu menu is off. SPS1 menu is added to menu titles while Secu menu is nset position. SPS2 menu is also added when selected option of All. In order to open Secu menu, entered to programming menu. Found Code_in menu with up-down button and the right-digit is flashing when pressed to prg button, you can set wanted value with up-down buttons. Then you can save them.

PRG + ▲

Pro9	→	SEt 1
5.0		5.0
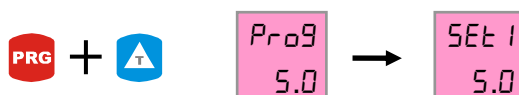
SECU
OFF

PRG button is pressed, bottom row menu content flashes. Change to choice with up-down buttons. When pressed to Prg button, moves to the left in a digit. Save selection with prg button.

SPS 1

Open while Secu menu is nset position. Used to changing parameters of menu.

The right-digit is flashing when pressed to prg button; you can set wanted value with up-down button. Then you can save them.

SPS2

Open while Secu menu is nset position. Used to changing sets of menu.

فروشگاه کانون ابزار
تلفن : 00 39 39 66 021
موبایل : 3023 147 0912
www.ali5.ir

5. DATA PROTOCOL

Parameters of ALP44 RS-232 are as below. There are no settings on the device. Communication is one-way towards the terminal device to the receiver.

Data format : RS232   EOL (16bit veri + EOL (End Of Line Character))

Baud rate : 57600 bps

Data bits : 8

Stop bits : 1

Parity : none

6. ERROR MESSAGES

OuEr. "999999" message is displayed on the screen, when value is too high. Scale or format value can be minimized.

UndEr. "-999999" message is displayed on the screen, when value is too small. Scale or format value can be minimized.

AdcErr Analog input section of the device is defective. The measurement can not be made. Product should be given to authorized service

5. CERTIFICATE OF WARRANTY

Product   : **ALP 44 P/V/A**

85/265 VAC	☐	24 VAC/DC	☐
0-10V Input	☐	4-20mA Input	☐
Pot.	☐	RS-232	☐
0-10V Output	☐	4-20 mA Output	☐

Serial No: ………………………………

This product is guaranteed for two years against manufacturing defects.
Conditions out of the warranty:

- Mechanical damage
- Shipping damage
- Users error

Other situations are covered by the manufacturer's warranty.

Signature and Stamp

فروشگاه کانون ابزار
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