

# OPR500

## Paperless Recorder USER'S GUIDE

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**ORDEL**

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## 1. WARNINGS

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- Before using the device, please read the warnings below and this guide carefully. The accidents or damages resulting from not following the warnings included in this guide are under user's responsibility.
- This device is intended to be used by qualified personnel in industrial environments, do not use in houselike environments.
- Do not use the device at places where corrosive, flammable and explosive gases exist. Contact points may create electrical discharge and this may cause explosion or fire.
- Do not allow metal fragments or lead wire scraps or liquid matters to fall inside this device. Otherwise fire or electrical shock may happen.
- Take the necessary precautions in order to prevent accidents and damages that may result in case the device gets faulty.
- There is no fuse or switch that brings the device in power down state, these should be added to the system by the user.
- Sensor and signalling cables should not be routed close to the power cables or inductive load cables.
- Before making the device connections, it should be checked whether the supply voltage is suitable for the place of use by looking at the product code.
- Do not energize the device and do not touch the terminals while the device is energized before making the connections in accordance with the connection diagram.
- The configuration of the device is not suitable for every system, it must be changed by the user according to the needs of the existing system.
- The service life of the device, which has been determined and announced by the Ministry, is 10 years.
- Never disassemble, repair and modify the device. These should be carried out by authorized service.





## 3. DESCRIPTION

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OPR500 is 144x144 mm panel dimensions. It has a touch screen with a resolution of 640x480 pixels. They are devices produced with high technology designed for recording units such as temperature, pressure, flow, current and voltage. It is a multifunctional recording device with RS485, Ethernet, USB input connections and high storage capacity.

### 3.1 DEVICE FEATURES

- 5.7" 640 x 480 Touch Color TFT Display
- 32GB Flash Memory
- Up to 12 Channels Universal Isolated Analog Input
- Up to 16 Channels 24V Logic Digital Input
- Up to 16 Channels Relay Output
- 10/100 Mbit Ethernet Input
- Internet connection
- Send to E-Mail
- Modbus RTU (Isolated)
- Transmitter Supply Output (24V)
- 220VAC Supply Voltage
- 2 Pcs USB2.0 Port
- USB Flash Disk with Data Backup
- USB Mouse / Keyboard Support
- Graphics, Bar and Table Formats
- Turkish and English Language Support
- Pt-100  
0-10V, 2-10V, 0-20mA, 4-20mA,  
B,E,J,K,L,N,R,S,T,U Input Types

## 4. TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS		
<b>Power Supply (PS)</b>	90...264Vac	24Vdc
<b>Power Consumption</b>	40W	
<b>Analog Input Types</b>	RTD, Pt-50, Pt-100. Pt-500, Pt-1000, Ni-100, Ni-120, Ni-200, Ni500, Ni-1000, NiFe-604, NiFe-507,5, 0-10V,2-10V, 0-20mA, 4-20mA, TC-B,E,J,K,L,N,R,S,T,U	
<b>Analog Digital Converter (ADC)</b>	24Bit	
<b>Analog Measurement and Calculation Functions</b>	Channel between addition and subtraction Totalizer Channel between averaging Averaging channel Derivative (Showing changes in the value measurement) Deviation calculation (Show the deviation from the average current value)	
<b>Internal Memory</b>	8 Gb or16 Gb	Ram : 512mb DDR3
<b>Screen</b>	5,7" Touch screen TFT	
<b>Processor</b>	1GHZ ARM® Cortex-A8 32 bit processor	
<b>Contact</b>	10 / 100 Mbit Ethernet RS-485 USB 2.0 Host ModBus TCP Modbus RTU (isolate) Internet Access E-Mail VNC Remote display connection	
<b>Relay Outputs</b>	250Vac, 5A NO Contact	
<b>Contact Life</b>	Unladen : 10.000.000 switching 250V, 3A Resistive Load : 100.000 switching	
<b>Environment Temperature</b>	Working : -10...+55C	Storage : -20...+65C
<b>Dimensions</b>	Width :144mm	Height : 144mm
<b>Panel Cutting Dimensions</b>	137+/-0,5mm x 137+/-0,5mm	
<b>Weight</b>		

## 5. DEVICE DIMENSIONS AND PANEL CUTTING DIMENSIONS

### 5.1 Device Dimensions :

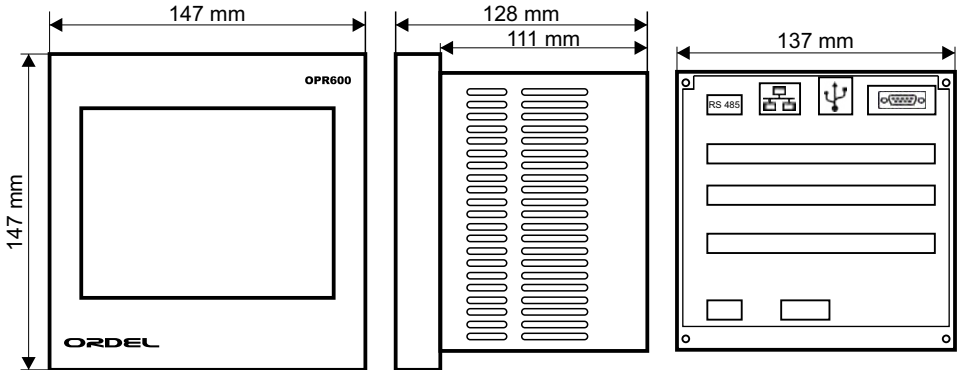


Figure 1 : OPR500 sizes

### 5.2 Panel Cutting Dimensions :

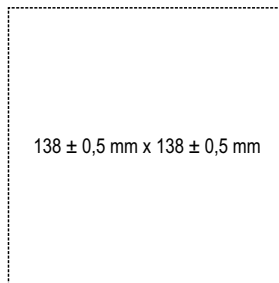


Figure 2 : OPR500 panel cutting dimensions

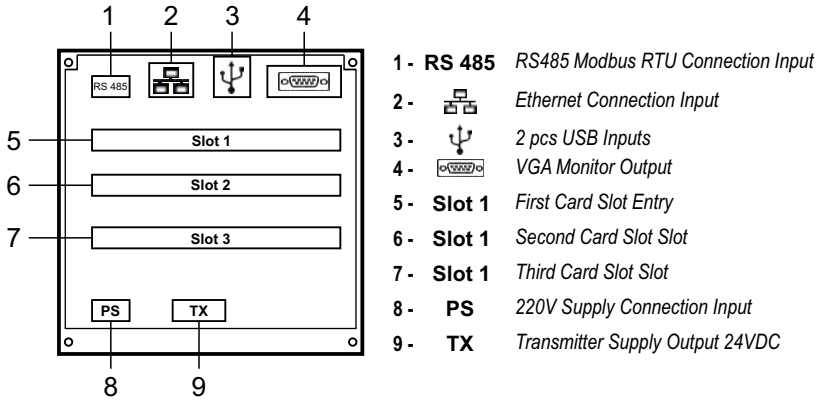
*Note: Open the slot according to the dimensions given in Figure 2. Carefully place the device on the clipboard. 2 clamps in the device box are placed in the holes on the top and bottom of the device and fixed on the panel by tightening the screws.*



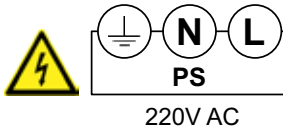
- The OPR500 device has an LCD screen that works with a human hand or a touch pen. Therefore, situations that could damage the screen should be avoided.
- OPR500 device should be used by mounting on a sheet metal panel that metal tools and human hands cannot reach easily.
- Place the device in the slot in front of the open panel.
- Place the clamps in the box into the slots of the device, place the device on the board and tighten the screws, if any.
- It should be mounted so that the distance between OPR500 and other panel elements is at least 25mm. So problems such as heating are prevented.

## 6. DEVICE CONNECTIONS

### 6.1 Device Back Panel :



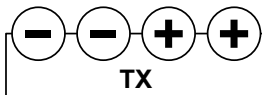
### 6.2 Device Supply :



#### WARNINGS

- ! When mounting the device to the panel, the ground connection must first be made.
- ! Rear panel connections should not be made while the device is powered.
- ! 15mm PCB to Wire type connectors are used in Analog / Digital input and output and power input output.

### 6.3 Transmitter Supply Output :



24V DC Transmitter Output



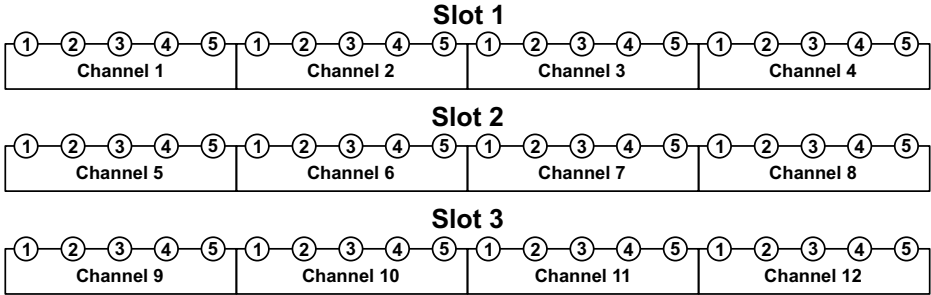
#### WARNINGS

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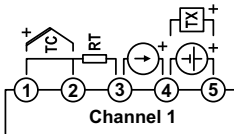


## 6. DEVICE CONNECTIONS

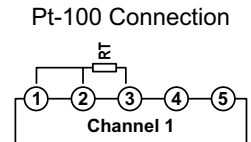
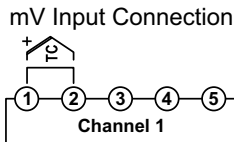
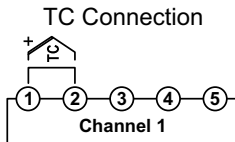
### 6.4 Sorting Channels for Analog Input Card :



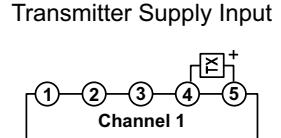
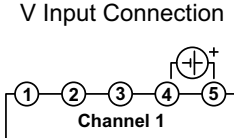
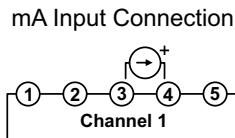
#### 6.4.1 Analog Input Card Connection Types



Note: The connection method of all channels is the same.



In two-wire Pt-100's, the 1st and 2nd terminals must be short-circuited.



#### WARNINGS

! Before making the sensor connection, make a connection to the device after confirming the type of sensor to be connected and the terminals.

! Make sure that no high voltage is applied to the sensor inputs.

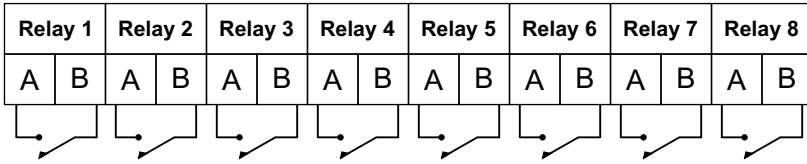
## 6. DEVICE CONNECTIONS

### 6.5 Relay Connections :

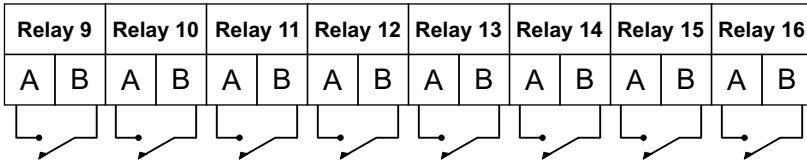
10 A NO relays are used in the relay outputs of the device.

The number of relays and their slots may vary depending on the hardware features. Therefore, the relay sequence may change.

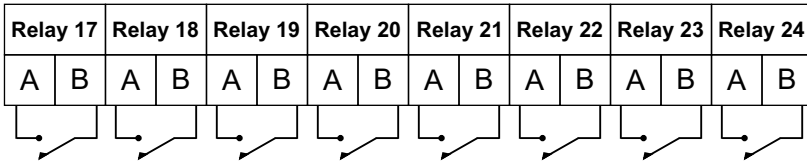
#### Slot 1



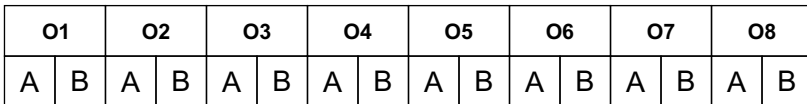
#### Slot 2



#### Slot 3



### 6.6 Analog Output Connections :



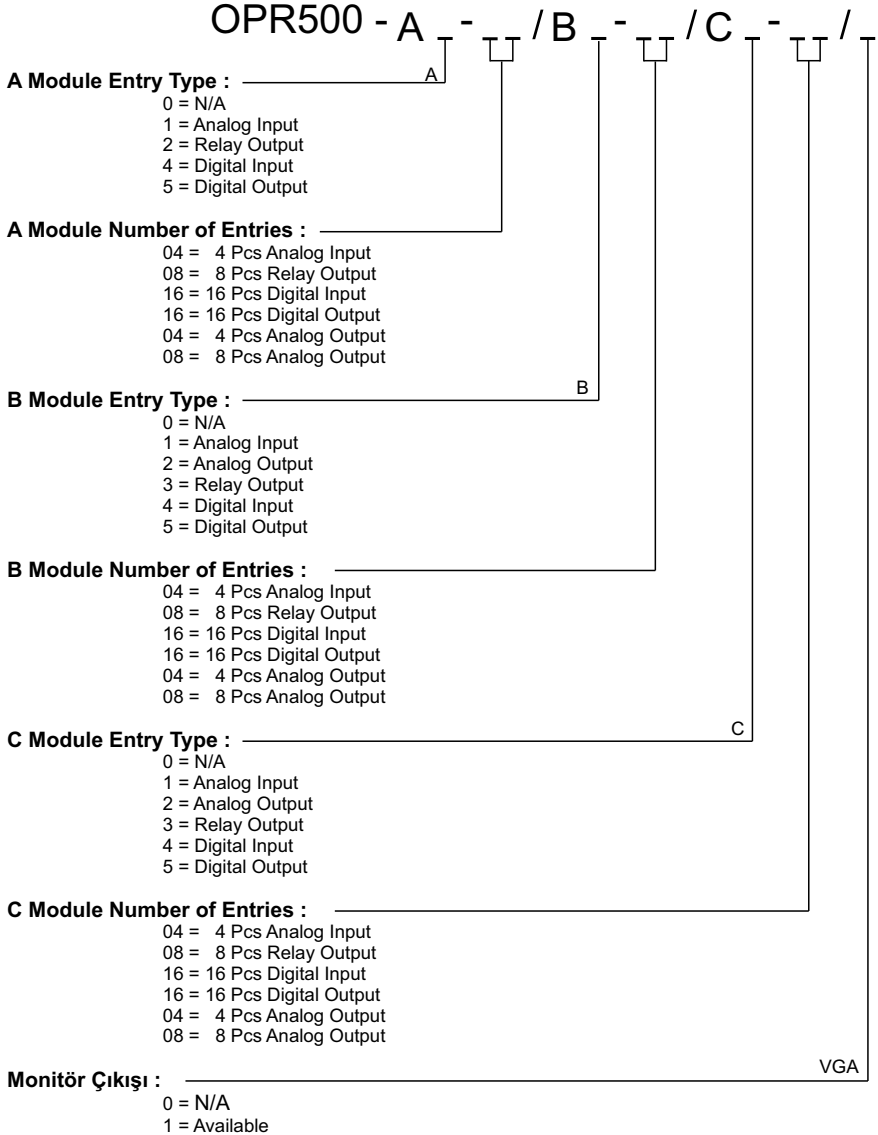
## 6. DEVICE CONNECTIONS

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### 6.7 Logic Input Connections :

## 7. DEVICE CODING

### 7. Device Coding :



## 8. MENUS AND DESCRIPTIONS

### 8.1 Main Menu :

When you slide the screen from bottom to top, the Main Menu opens as in Figure 4.



Figure 4

#### 8.1.1 'Select Group' Menu:

Clicking the Select Group button opens the menu as in Figure 5 and the desired group is selected. The channels of the selected group are displayed on the screen. You can see which group is currently selected at the top of the screen as in figure 6.



Figure 5



Figure 6

#### 8.1.2 'Change Appearance' Menu:

Determines how the selected group appears on the screen (Figure 7). There are seven types of appearance;

- Panel Appearance
- Bar Appearance
- All Channels
- System Log
- Application Logs
- Records
- Alarms



Figure 7

#### 8.1.2.1 Appearance Types :

**Panel Appearance :**

A maximum of 8 channels can be seen in the panel appearance (Figure 8).



Figure 8

## 8. MENUS AND DESCRIPTIONS

### **Bar Appearance :**

A maximum of 8 channels can be seen in the bar appearance (Figure 9).

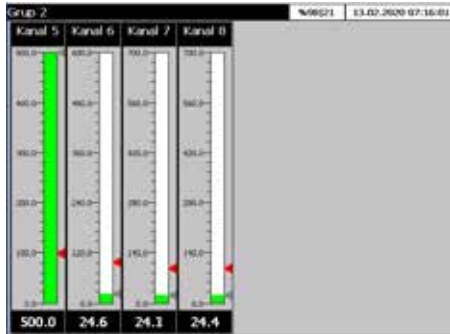


Figure 9

### **All Channels Appearance :**

A maximum of 32 channels can appear in the All Channels Appearance (Figure 10).



Figure 10

### **System Log Appearance :**

Device startup, changes in channel settings, changes in group settings, etc. keeps records. The screen shot is as in Figure 11.

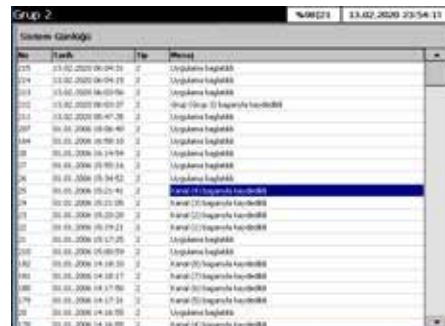


Figure 11

## 8. MENUS AND DESCRIPTIONS

### Application Logs :

Keeps records of errors that occur in the application (Figure 12).



Figure 12

### Records :

Shows previous records as a table (Figure 13).

Yerli	KanalNo	Değer
201KODS1	1	27,2
201KODS1	2	27,2
201KODS1	3	28,5
201KODS1	4	28,9
201KODS1	5	28,9
201KODS1	6	28,9
201KODS1	7	27,4
201KODS1	8	28,9
201KODS1	9	28,9
201KODS1	10	27,1
201KODS1	11	27,1
201KODS1	12	27,6
201KODS1	13	28,9
201KODS1	14	27,3
201KODS1	15	28,5
201KODS1	16	28,5
201KODS1	17	28,5
201KODS1	18	27,7
201KODS1	19	27,7

Figure 13

### Alarms :

Shows previous records as a table (Figure 14).

Yerli	KanalNo	Değer	Durum
1112006	1	96,4	OK
1112006	2	96,2	OK
1112006	3	96	OK
1112006	4	96,4	OK
1112006	5	96,2	OK
1112006	6	96	OK
1112006	7	96,2	OK
1112006	8	96,4	OK
1112006	9	96,2	OK
1112006	10	96	OK
1112006	11	96,2	OK
1112006	12	96,4	OK
1112006	13	96,2	OK
1112006	14	96	OK
1112006	15	96,2	OK
1112006	16	96,4	OK
1112006	17	96,2	OK
1112006	18	96	OK
1112006	19	96,2	OK
1112006	20	96,4	OK
1112006	21	96,2	OK
1112006	22	96	OK
1112006	23	96,2	OK
1112006	24	96,4	OK
1112006	25	96,2	OK
1112006	26	96	OK
1112006	27	96,2	OK
1112006	28	96,4	OK
1112006	29	96,2	OK
1112006	30	96	OK

Figure 14

## 8. MENUS AND DESCRIPTIONS

### 8.1.3 User Login Menu:

If a user has been defined for certain settings on the device, click the User Login button in Figure 15 and log in with a user name and password. It can reach user defined menus and settings.



Figure 15

### 8.1.4 Data Transfer Menu:

It is used when it is desired to receive data recorded from the device via USB ( Figure 16 ). Clicking on File Transfer, a screen like in figure 17 appears.



Figure 16



Figure 17

## 8.2 Device Settings Menu :

The button in Figure 18 allows you to switch to another menu (Figure 19) related to device settings.



Figure 18



Figure 19

### 8.2.1 Device Settings :

It is the menu where the hardware settings of the device are made ( Figure 20 ). In this menu setting options as in Figure 20. Changes made in this menu affect the operation of the device. Therefore, no changes should be made.



Figure 20

#### 8.2.1.1 Manufacturer Defined Settings :

It is the menu used by the device manufacturer company. The hardware settings of the device are made menu (figure 21). In this menu setting options as in Figure 21. Changes made in this menu affect the operation of the device. Therefore, no changes should be made. Therefore, it is beneficial for users not to enter this menu.

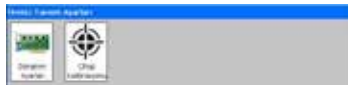


Figure 21



## 8. MENUS AND DESCRIPTIONS

### Hardware Settings :

There are three slots in the device. These slots determine which input and output modules are in the device. The definitions of these modules are made in this menu. Also, information such as name, serial number and version number given to the device is in this menu (Figure22).



Figure 22

### Device Calibration :

It is the menu where the settings and controls of the modules in the device are made. It is beneficial for users not to enter this menu. Because a wrong operation here may cause the device to not work properly. (Figure 23).



Figure 23

### 8.2.2 Group Settings :

When the types such as Panel, Graphic, Bar View are selected, they are displayed on the device in Groups. Information of 8 channels can be viewed in each group. If the group is not defined before adding channels, a new group must be created first. Which group is watched on the monitoring screen can be seen on the upper left of the device. The group settings screen is as in Figure 24.

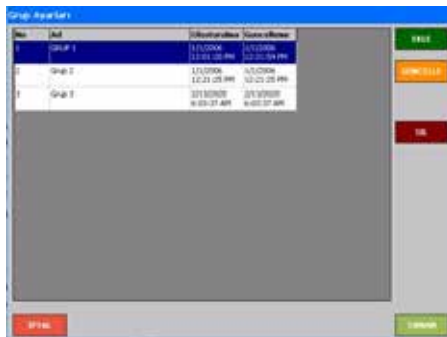


Figure 24

### ADD :

Used to add a new group. When the ADD button is pressed, a screen like in Figure 26 appears. The name is given from the 'Group Name' section. Explanatory information about the group can be written in the definition section.

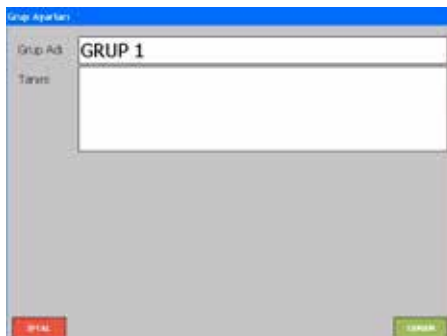


Figure 25

## 8. MENUS AND DESCRIPTIONS

### UPDATE :

It is used if changes related to a previously defined group will be made.

### DELETE :

Used to delete any Group. First the group you want to delete is selected and then the DELETE button is pressed. If there are channels defined in the group, you cannot delete a group. Therefore, channels belonging to the group should be deleted first or channels should be defined as another group.

### OK :

Used to close the Group Settings menu.

### 8.2.3 Channel Settings :

In this menu, the channels defined on the device are displayed, adding or deleting channels is performed. Şekil.26



Figure 26

### Adding an Analog Input Channel :

Used to add a new channel. When the Add button is pressed, a screen like in Figure 27 appears.

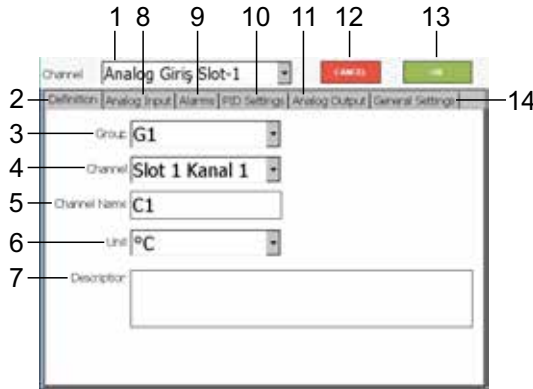


Figure 27

### Descriptions of Menus :

- 1 - Determines channel type. This section changes device hardware.
- 2 - Menu with general information about the channel.
- 3 - Selects in which group the channel will appear.
- 4 - Indicates to which input the channel is assigned.
- 5 - The name to be given to the channel is entered in this section.
- 6 - If available, the measurement unit of the channel is selected.
- 7 - Descriptions about the channel are written

## 8. MENUS AND DESCRIPTIONS

8 - It is the menu where settings related to analog input are made (Figure 28).



Figure 28

9 - In this menu, alarm settings connected to the channel are made. Figure 29 ve Figure 30.



Figure 29

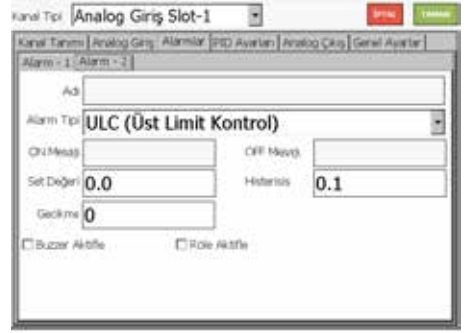


Figure 30

10 - It is the menu where PID values of the channel are entered ( Figure 31).



Figure 31

11 - It is the menu where the analog output parameters of the channel are set.

## 8. MENUS AND DESCRIPTIONS

12 - It is the menu where general settings related to the channel (recording frequency, channel color etc.) are made.

**Channel Settings:** In this menu, settings such as whether the channel is recorded or not, recording frequency and sampling time are made (Figure 32).

**Panel Appearance:** It is the menu where visual color settings are made in the panel appearance (Figure 33).

**Bar Appearance:** It is the menu where visual color settings are made in bargraph appearance (Figure 34).

Figure 32

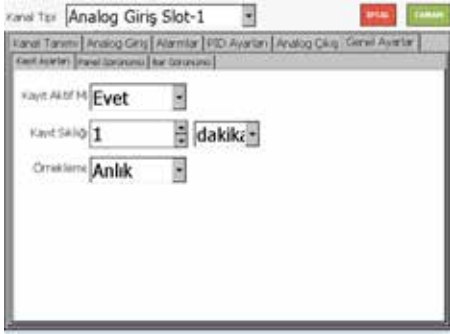


Figure 33



Figure 34



### Adding an Alarm Channel :

Used to add a new Alarm Channel. If you press Add button and select Relay Output from Channel section, a screen like Figure 35 appears.



Figure 35

**Group:** Selects in which group the channel will appear.

**Channel Name:** Enter the name to be given to the alarm channel.

**Explanation:** Notes about the alarm channel are written.

**ON Message:** The name that will appear when the alarm occurs is written.

**OF Message:** The name that will appear when the alarm disappears is written.

## 8. MENUS AND DESCRIPTIONS



Figure 36

**Alarm Type:** It determines in which case the alarm will operate.  
**Function:** It determines whether the alarm will give below or above Set Value. ULC: Bottom contact. LLC: Top contact  
**Inputs:** It determines the working function of the alarm channel. Five channels can be selected.  
**Output Selection:** It is selected which outputs will be activated when an alarm occurs. Five outputs can be selected.



Determines whether the alarm channel is recorded or not.

Figure 37



In this menu, the color of the alarm channel is adjusted.

Figure 38

### 8.2.4 General Settings :

When the button in Figure 39 is pressed, the setting menu in Figure 40 is opened. Date / Time settings are made from this menu.



Figure 39



Figure 40





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