



DC AMMETER

DCA-10 / 10A / 10C / 10S / 10CS / 11 / 11A / 11C / 11S / 11CS

User Manual and Menu Map



A4741 / Rev.1

www.entes.com.tr

ATTENTION

- Disconnect all power before connecting the device.
- Don't remove the front panel while the device is connected to the network.
- Don't clean the device with solvent or similar substances. Only clean with a dry cloth.
- Verify correct terminal connections when wiring.
- Electrical devices should be serviced only by your component seller.
- Device is for rack panel mounting only.
- Fuse which will be used must be F type and its current limit value must be 1A.
- No responsibility is assured by the manufacturer or any of its subsidiaries for any problems arising out of the disregard of these conditions.

SECURITY

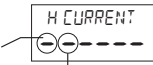


Read the user manual completely before using the device.



The box is under dangerous high voltage. The device must be installed and serviced only by a qualified service personnel.

Displayed only when limit is crossed in opposite direction.



Is not displayed when limit is crossed in opposite direction.

If a current higher than the defined current value flows through the shunt resistor, a warning is displayed like the one on the left.

Warnings

- Connect a button or a circuit breaker between the grid and the supply inputs of the device.
- This button or circuit breaker must be in close proximity of the device.
- This button or circuit breaker must be marked to indicate that it is used to separate the device from the grid.

Standards That Are Applied To The Device

EN 61010-1, EN 60255-5, EN 60255-22-5, EN 60255-22-4, EN 60255-22-2, EN 60255-11, EN 60255-22-3

Guarantee

The device has a 2 year guarantee. In case of a malfunction, repairs of the device must be done only by the authorised technical service or the guarantee will be void.

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1.INTRODUCTION

1.1.APPLICATIONS:

You can achieve the following measurements and applications with the device.

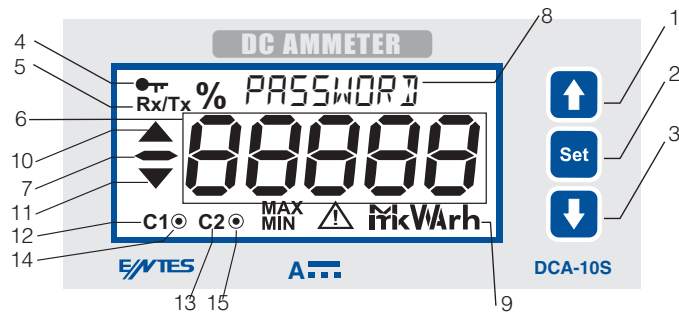
- Current values of various DC systems can be measured with adjustable shunt current and voltage values.
- All measured parameters can be transferred via RS485 line with MODBUS protocol and menu settings can be set remotely. (DCA-10S/10CS/11S/11CS)
- With 2 programmable Alarm Relays, a range in which the monitored system current should reside can be determined and a warning signal can be created for the user with Alarm1 (C1) and Alarm2 (C2) contact outputs if this monitored current goes out of the determined range. (DCA-10C/10CS/11C/11CS)
- With a programmable Analog Output, the device can be programmed to give a voltage or current output according to the measured current value. (DCA-10A/11A)
- Measured maximum-minimum values can be monitored by using UP/DOWN buttons.
- Settings can be accessed easily and read comfortably with the back-lit LCD feature.
- Measurement results can be calculated in a desired time with an adjustable measurement period of 1-600 s.
- The device provides flexible usage with wide supply voltage range. 85-265 V AC/DC (DCA-10/10A/10C/10S/10CS), 10-56V DC (DCA-11/11A/11C/11S/11CS)
- The device settings can be protected from changes by unauthorized personnel by specifying a 4 digit user password.

1.2 GENERAL FEATURES

The device is designed to measure the current on a DC system through an externally connected shunt resistor.

1.3 FRONT PANEL

The device has a back-lit 2.5" LCD which contains two lines as numeric and alpha-numeric, warning symbols and notification signs. There are three buttons for programming the device. Explanations about the display and buttons are listed on the right side.



Usage of Front Panel and Buttons

1. Up button
2. Set button, for entry to menu and value entry
3. Down button
4. Indicates that the password protection is active.
5. Indicates the existence of communication. It blinks during communication. (DCA-10S/10CS/11S/11CS)
6. The line where measured parameters are displayed.
7. Indicates the direction of the measured voltage.
8. Indicates the notification messages or the menu where the user is.
9. Units belonging to measurements and analog output parameters.
10. Indicates that the contact or contacts are in a high fault state. When entering a value in High Alarm type, it lights up continuously. When entering a low value for Range Alarm type, it lights up continuously and when entering a high value for Range Alarm type, it blinks.(DCA-10C/10CS/11C/11CS)
11. Indicates that the contact or contacts are in a low fault state. When entering a value in Low Alarm type, it lights up continuously. When entering a high value for Range Alarm type, it lights up continuously and when entering a low value for Range Alarm type, it blinks.(DCA-10C/10CS/11C/11CS)
12. 1st Contact Output (DCA-10C/10CS/11C/11CS)
13. 2nd Contact Output (DCA-10C/10CS/11C/11CS)
14. 15. Indicates that the contacts are closed.(DCA-10C/10CS/11C/11CS)

Special Functions for Buttons

- UP button:** In monitoring mode, it is used to display the maximum current value.
In program mode, it is used to change the device parameters.
- SET button:** When it is pressed for 3 seconds, the user enters MAIN MENU. It is then used to enter SUB MENUs from the MAIN MENU and to save the changes in parameters. If Latch function is active, it opens the alarm output contacts when the system current leaves the programmed range. When the current enters the programmed range, alarm output contacts don't close (lock-hold). Output contacts are closed by using the SET button.
- DOWN button:** In monitoring mode, it is used to display the minimum voltage value.
In program mode, it is used to change the device parameters.

1.4 HARDWARE FEATURES

- Current measurement connector (2-pin, I+, I-)
- 0/2-10V, 0-4/20 mA Analog Output connector (3-pin, V, GND, I)(DCA-10A/11A)
- RS-485 connector (4-Pin)(DCA-10S/10CS/11S/11CS)
- 2 Relay connectors (4-pin)(DCA-10C/10CS/11C/11CS)
- Supply input (2-pin) (85-265V AC/DC (DCA-10/10A/10C/10S/10CS), 10-56V DC (DCA-11/11A/11C/11S/11CS))

2- USAGE OF DEVICE:

2.1 MENU USAGE AND SETTINGS:

After the device is installed according to the connection diagram in the user manual, energise the device.(Refer to: Connection diagram)

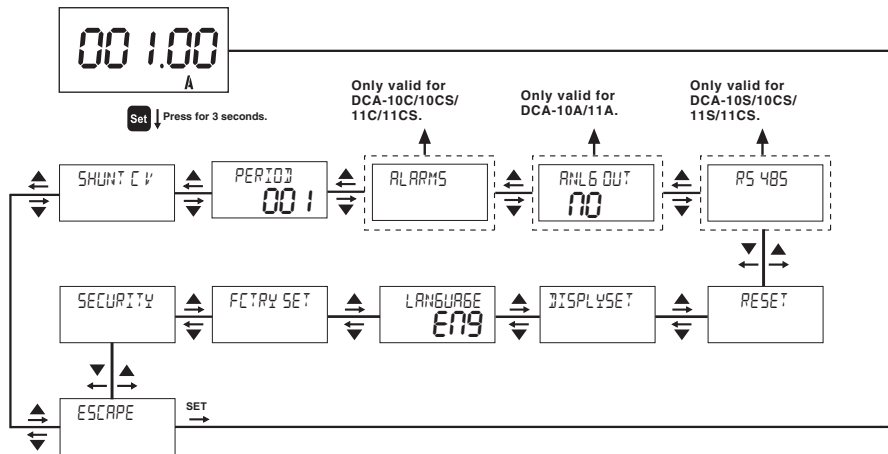
In order for the measurements and applications to be accurate, necessary adjustments must be made by using menus.

2.2 MAIN MENUS:

There are 10 main menus on the device for measurement and usage settings. The user can access MAIN MENUs by pressing the SET button for 3 seconds on measurement screen. By pressing the SET button on any MAIN MENU, SUB MENUs of the related MAIN MENU is entered.

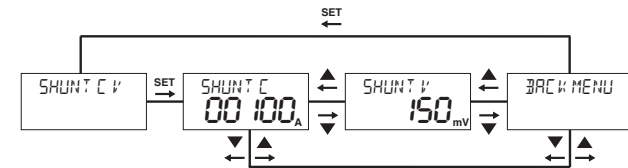
Note: In order for a change that you committed in the menu to be in effect, you must give approval for those changes when exiting the menu. Otherwise, changes will not be in effect.

MAIN MENU FLOW



2.2.1 SHUNT MENU

Current and voltage values of the external shunt resistor which will be connected to the device to measure the current is set in this menu. There are 2 submenus under SHUNT menu. “SHUNT C”, “SHUNT V”.



“SHUNT C” Shunt Current Setting Menu

The current value of the shunt resistor which will be connected to the device is entered in this menu. Shunt current can be entered between 1A and 10000A (10 kA). When this parameter is changed, maximum and minimum current values stored up until that time are deleted.

Note: The shunt that you will connect to the system must have a current characteristic 1.5 times than the current need of your system. Example: If your current need is 100A, the minimum current value of the shunt that you will connect must be 150A.

If you connect a 100A shunt to a 100A system, it may cause the shunt to burn up over time. Additionally; in order for the shunt to be compatible with the measuring class of the device, it must be minimum 0.5% class. Otherwise, you can't obtain a 0.5% accuracy with the measurements made with the device.



“SHUNT V” Shunt Voltage Setting Menu

The voltage value of the shunt resistor which will be connected to the device is entered in this menu. Shunt voltage can be entered between 50mV and 150mV. When this parameter is changed, maximum and minimum current values stored up until that time are deleted.



2.2.2 “PERIOD” Period Setting Menu

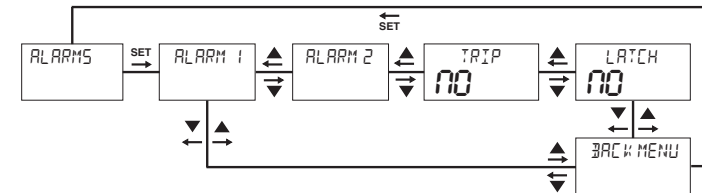
After the device samples for a specified time, it displays the measurement result by calculating the mean value of those samples. You can set the sampling time in this menu. Period value can be entered between 1-600 seconds.



2.2.3 “ALARMS” Alarms Menu

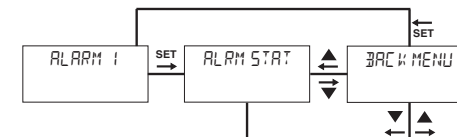
DCA -10C/10CS/11C/11CS devices have two normally open (NO) contact outputs. Operating modes of the alarms are set in this menu. Each alarm can be set to one of six operating modes. These modes are high alarm, low alarm, high-low (range) alarm and their 3 inverted counterpart modes. This menu has 4 sub-menus.

“ALARM1”, “ALARM2”, “TRIP”, “LATCH”.



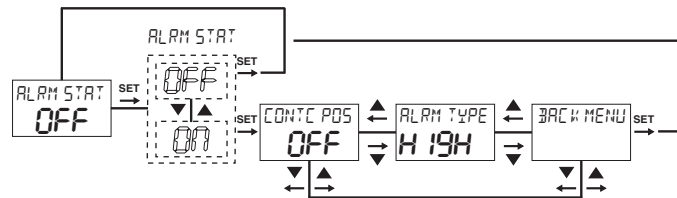
“ALARM1” Alarm 1 Setting Menu

Operating mode of the relay on the device and the parameter according to that operating mode is set in this menu. All settings belonging to 1. Alarm relay is done in this menu. Settings belonging to 2nd Alarm relay can be done in “ALARM2” menu. This menu has 1 sub-menu.



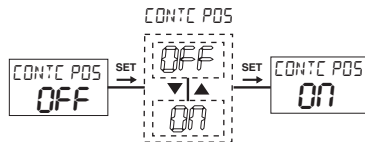
"ALRM STAT" Alarm Status Setting Menu

Alarm function of the relay is activated in this menu. If "OFF" option is selected in this menu, alarm parameters of the corresponding relay can't be accessed. If the alarm function will be used, "ALRM STAT" option must be set as "ON" in this menu. When alarm status is set as "ON", the 2 sub-menus of this menu become accessible. These menus are "CONTC POS" and "ALRM TYPE" menus.



"CONTC POS" Contact Position Setting Menu

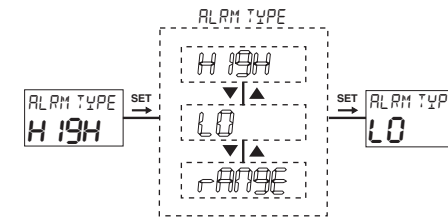
The starting position of the alarm relay output is set in this menu. If this option is selected as "OFF", contact output starts as open when there isn't a fault condition. If this option is selected as "ON", contact output will be closed when there isn't a fault condition. It is set "OFF" as factory default.



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"ALRM TYPE" Alarm Type Setting Menu

Operating mode of the alarm is set in this menu. Alarm has 3 operating modes which are High, Low and Range (High-Low).



When the alarm type is selected as **High Alarm**, first contact output opens after an on-delay time ("H ON DEL") if the measured current becomes more than the entered maximum current value ("HIGH VALUE") and immediate opening option is inactive. In this case, up segment on the LCD and the dot in the C1 segment turn on. When the measured current drops below the set maximum value ("HIGH VALUE") as much as the high hysteresis value ("HIGH HYS") and immediate opening option is inactive, first output contact closes after an off-delay time ("H OFF DEL"). In this case, up segment on the LCD and the dot in the C1 segment turn off.

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When the alarm type is selected as **Low Alarm**, first contact output opens after an on-delay time (“**L ON DEL**”) if the measured current becomes less than the entered minimum current value (“**LOW VALUE**”) and immediate opening option is inactive. In this case, down segment on the LCD and the dot in the C1 segment turn on. When the measured current rises above the set minimum value (“**LOW VALUE**”) as much as the low hysteresis value (“**LOW HYS**”) and immediate opening option is inactive, first output contact closes after an off-delay time (“**L OFF DEL**”). In this case, down segment on the LCD and the dot in the C1 segment turn off.

When the alarm type is selected as **High-Low Alarm (Range)**, “**LOW VALUE**” operates as low alarm and “**HGH VALUE**” operates as high alarm. While this alarm type is selected, minimum current value (“**LOW VALUE**”) can't be entered higher than maximum current value (“**HGH VALUE**”).

HIGH ALARM “HGH VALUE”

The highest value that you want the measured current to reach is entered in this menu. A value between +/- Shunt Current can be entered. If the value is entered as 0 (zero), high alarm is deactivated.



“HIGH HYS”

Return value (to the normal operation) from the high current fault which is the hysteresis current value is entered in this menu. A value between 0...Shunt Current/2 can be entered.



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“H ON DEL”

It is the delay time for the high current alarm to activate. The value is entered as seconds. It can be entered between 000.0 and 999.9 seconds.



“H OFF DEL”

It is the delay time for the high current alarm to deactivate. The value is entered as seconds. It can be entered between 000.0 and 999.9 seconds.



LOW ALARM “LOW VALUE”

The lowest value that you want the measured current to reach is entered in this menu. A value between +/- Shunt Current can be entered. If the value is entered as 0 (zero), low alarm is deactivated.



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“LOW HYS”

Return value (to the normal operation) from the low current fault which is the hysteresis current value is entered in this menu. A value between 0...Shunt Current/2 can be entered.



“L ON DEL”

It is the delay time for the low current alarm to activate. The value is entered as seconds. It can be entered between 000.0 and 999.9 seconds.



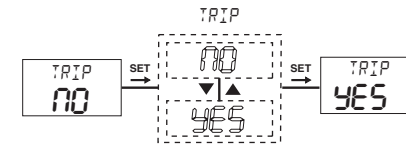
“L OFF DEL”

It is the delay time for the low current alarm to deactivate. The value is entered as seconds. It can be entered between 000.0 and 999.9 seconds.



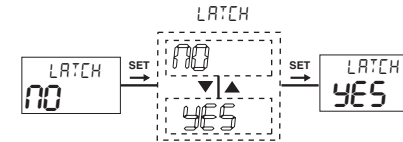
“TRIP”

If the measured current value becomes more than 1.5 times of set maximum current value when the “TRIP” function is selected as “YES”, related alarm contact will open without a delay. In this case, up segment on the LCD and the dot in the C1 segment turn on. If the measured current value becomes less than 0.5 times of set minimum current value, related alarm contact will open without a delay. In this case, down segment on the LCD and the dot in the C1 segment turn on.



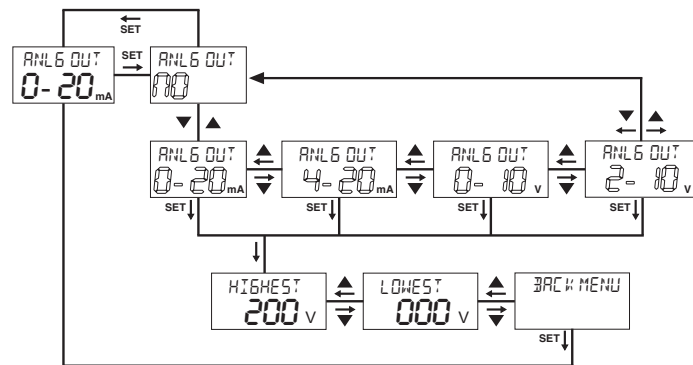
“LATCH”

When the latch function is selected as “YES”, a predefined alarm contact will open in case an alarm state arises. When the alarm state is resolved, the contact remains open (It latches). To close the alarm outputs after the alarm state is resolved, SET button is pressed. When the latch function is selected as “NO”, the opened alarm output will close after the predefined delay time.



2.2.4 “ANLG OUT” Analog Output Setting Menu “ANLG OUT”

The device can give a voltage or current output with respect to the measured current according to your selection. Analog output value can be selected as 0-10V, 2-10V, 0-20mA or 4-20mA. The user can set the analog output type, turn off the analog output, learn the active analog output type or set the minimum and maximum values which the device will take into consideration when generating an analog output.



“HIGHEST”

The current value corresponding to the maximum value of the selected analog output type is set in this menu. This value can be entered between +/- Shunt Current values.

Example: When the analog output type is selected as 0 - 20 mA and “HIGHEST” value is set as 100A, current value on the analog output will be 20 mA when the measured current becomes 100A.



“LOWEST”

The current value corresponding to the minimum value of the selected analog output type is set in this menu. This value can be entered between +/- Shunt Current values.

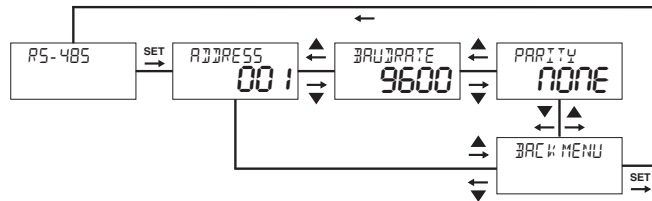
Example: When the analog output type is selected as 0 - 20 mA and “LOWEST” value is set as 10A, current value on the analog output will be 0 mA when the measured current becomes 10A.



2.2.5 “RS-485” Serial Communication Setting Menu

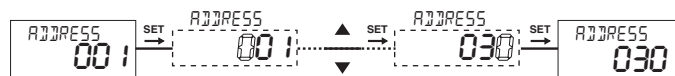
All measured parameters can be transferred via RS485 line with MODBUS protocol and menus can be set remotely.

Note: Communication feature is available only on **DCA-10S/10CS/11S/11CS** models. In order for the communication to be accomplished; Address, Baudrate and Parity values must be entered to the device correctly. RS – 485 menu has 3 sub-menus. “**ADDRESS**”, “**BAUDRATE**”, “**PARITY**”.



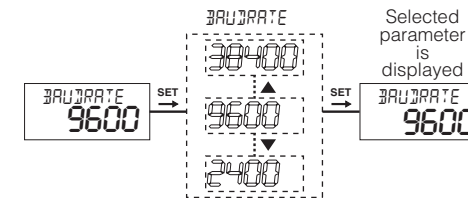
“ADDRESS” Address Setting

Address information can be entered between 1 and 247.



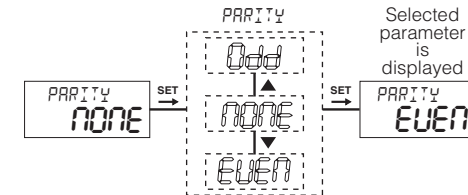
“BAUDRATE” Baudrate Settings

Enter one of the 2400 bps, 4800 bps, 9600 bps, 19200 bps, 38400 bps values as stated in the communication software.



“PARITY” Parity Setting

Parity can be entered as none, odd or even.



MODBUS RTU PROTOCOL

Standart MODBUS RTU message is shown below.

T	ADDRESS 8 BIT	FUNCTION 8 BIT	DATA N x 8 BIT	CRCH	CRCL	T
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The T times corresponds to a time in which data must not be exchanged on the communication bus to allow the connected devices to recognize the end of one message and the beginning of another. This time must be at least 3.5 characters at the selected baud rate. Address range (1-247) is address of the connected device. The data field contains data sent to the slave by master or data sent to master by slave. CRC is a error check method by using MODBUS RTU protocol and consists of 2 bytes.

Modbus Functions:

03H	READ HOLD REGISTERS	10H	PRESET MULTIPLE REGISTERS
06H	PRESET SINGLE REGISTER	2BH	READ DEVICE INFO

Read Hold (03H) function is used for reading the measured parameter (intantenaous measurement value, minimum and maximum measurement values) and other setting values of the device. If any register other than this area has been tried to reead, the device will send an error message. For example; below message can be sent to read the measured current value:

01 Device Address	03 Function	40 MSB Address	00 LSB Address	00 Register number MSB	01 Register number LSB	91 CRC MSB	CA CRC LSB
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Preset Single Register (06H) function is used for change device settings (shunt voltage/current etc.) and resetting the measured minimum/maximum values. For example; below message can be sent to set the shunt voltage value to 100:

01 Device Address	06 Function	80 MSB Address	00 LSB Address	00 Data MSB	64 Data LSB	A1 CRC MSB	E1 CRC LSB
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Preset Multiple register (10H) function is used for changing more than one register value. For example; below message can be sent to set the shunt voltage and shunt current values to 100:

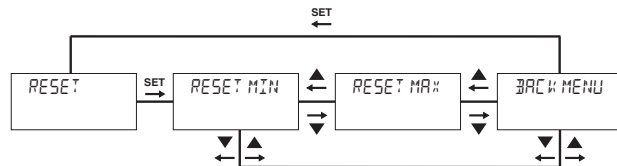
01 Device Address	10 Function	80 MSB Addr.	00 LSB Addr.	00 Register number MSB	02 Register number LSB	04 Byte count	00 Data MSB	64 Data LSB	00 Data MSB	64 Data LSB	D2 CRC MSB	ED CRC LSB
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Read device info (2BH) function is used to learn the manufacturer name, the device code, hardware version and software version. The query packet to read the device info is as following:
01 2B 0E 01 00 70 77

2.2.6 “RESET” Reset Menu

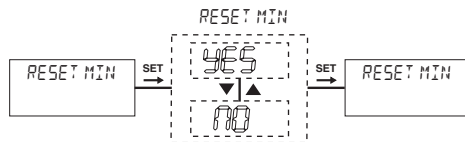
Minimum and maximum values among measured current values are stored on the device. Reset menu is used in order to delete these values. There are 2 sub-menus under Reset menu: “RESET MIN”, “RESET MAX”. To see the measured minimum and maximum values, refer to the “Special Functions for Buttons” section of this user manual.

NOTE: Stored values are not affected from power outages. After you select YES option under the value that you want to reset and approve the changes when you exit or a zero (0) value is written into the addresses that these values are stored, measured minimum and maximum values are deleted.



“RESET MIN” Minimum Value Reset Menu

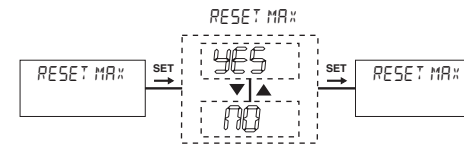
It is the menu where stored minimum current value is deleted.



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“RESET MAX” Maximum Value Reset Menu

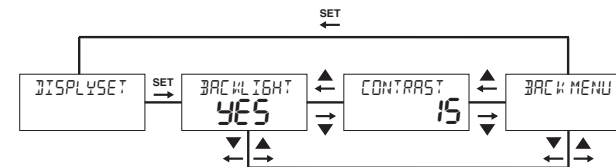
It is the menu where stored maximum current value is deleted.



2.2.7 “DISPLYSET” Display Setting Menu

Settings about the device display are done in this menu. Display setting menu has 2 sub-menus: “BACKLIGHT”, “CONTRAST”.

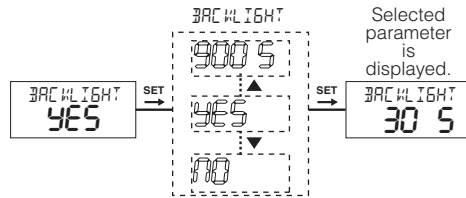
“BACKLIGHT”, “CONTRAST”.



“BACKLIGHT” LCD Backlight Setting Menu

Backlight feature of the device is configured in this menu. Available choices are as following: “NO” Off. “YES” Continuously on. “30 s” On for 30 seconds, “60 s” On for 1 minute, “300 s” On for 5 minutes, “900 s” On for 15 minutes. Backlight turns off after the selected time if no button is pressed at the end of that time.

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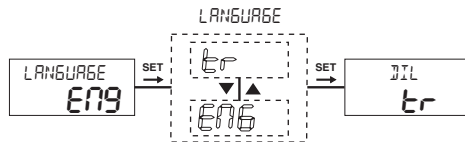
“CONTRAST” Contrast Setting Menu

Contrast of the device display is set in this menu. It can be set to a value between “00” and “15”.



2.2.8 “LANGUAGE” Language Setting Menu

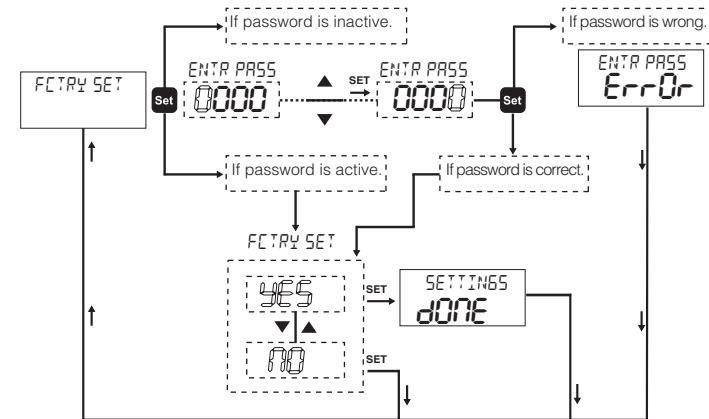
Language of the device is set in this menu. There are 2 language options as “Tr” Turkish and “Eng” English.



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2.2.9 “FCTRY SET” Factory Setting Menu

Factory settings are loaded in this menu. A 4 digit password is asked when entering this menu. If password protection is active, the password isn’t asked again when entering this menu because it was entered during entering the main menu. If “YES” option is selected in this menu and “SAVE” confirmation is approved at the exit of main menu, factory settings are loaded (Refer to: Factory Default Values).

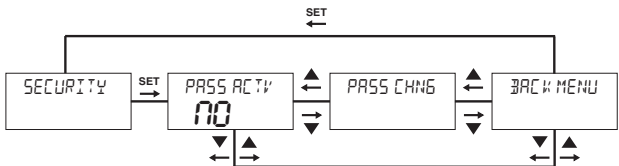


NOTE: When factory settings are loaded, language setting stays unchanged. The language will be the same as the one selected last.

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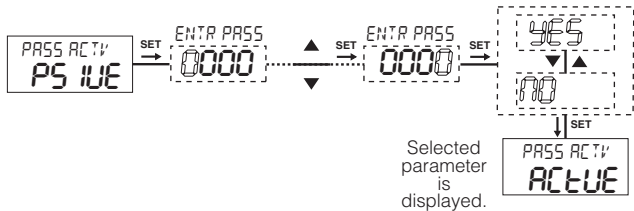
2.2.10 “SECURITY” Security Setting Menu

Device password settings are done in this menu. There are 2 sub-menus under SECURITY menu. “PASS ACTV”, “PASS CHNG”. Password activation and changing operations are done under these menus. Factory default password is “0000”.



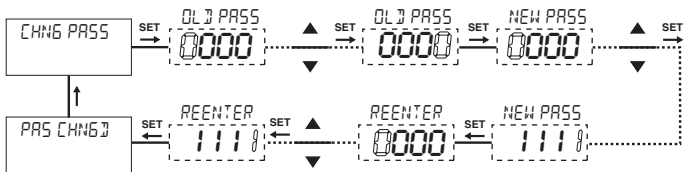
“PASS ACTV” Password Activation Menu

Password protection is activated or deactivated in this menu.



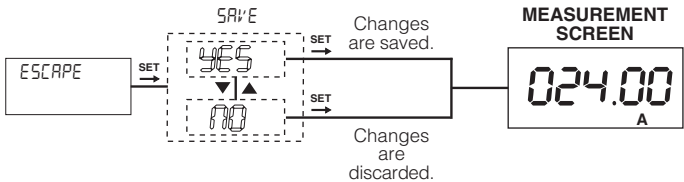
“CHNG PASS” Change Password Menu

Password is changed in this menu.



2.2.11 “ESCAPE” Exiting Main Menu

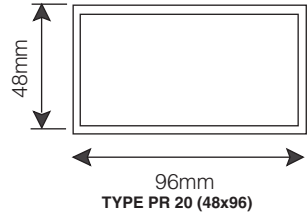
It is used to exit the main menu. If any changes has been made in the menus, a confirmation is asked to save those changes. If there are no changes, measurement results are displayed without a confirmation.



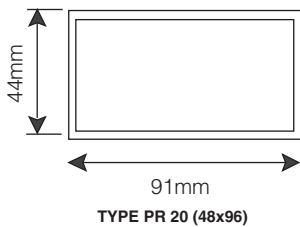
3. INSTALLATION

3.1. DIMENSIONS AND INSTALLATION

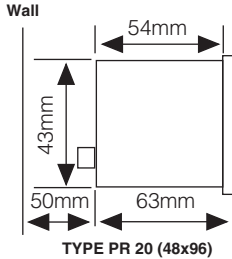
Dimensions



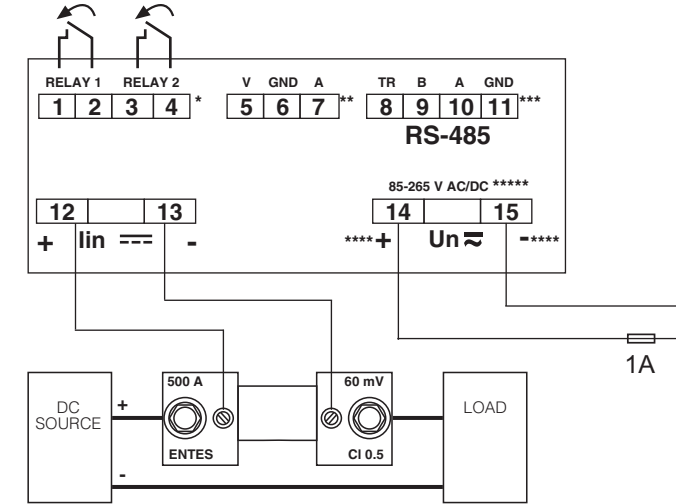
Panel Cutout Dimensions



Control Panel Area Dimensions

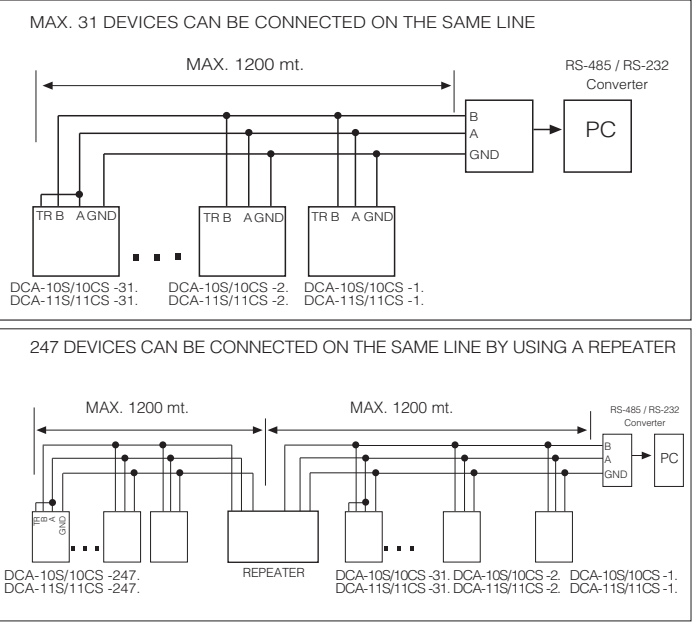


3.2. CONNECTION DIAGRAM



- * Only for DCA-10C/10CS/11C/11CS
- ** Only for DCA-10A/11A
- *** Only for DCA-10S/10CS/11S/11CS
- **** Only for DCA-11/11A/11C/11S/11CS
- ***** DCA-10/10A/10C/10S/10CS 85-265V AC/DC, DCA-11/11A/11C/11S/11CS 9-56V DC

3.3. PC CONNECTION



4. FACTORY DEFAULT VALUES:
Alarms:(DCV-10C/10CS/11C/11CS)

1.Alarm:	
Alarm Status	: Passive
Latch	: Off
Trip	: Off
Contact Position (Output Inverse)	: Off
Alarm Type	: High Alarm
High Alarm Value	: 100A
Low Alarm Value	: 10A
High Alarm Hysteresis	: 10A
Low Alarm Hysteresis	: 5A
High Alarm On Delay (d_on_time)	: 20s
High Alarm Off Delay (d_off_time)	: 10s
Low Alarm On Delay (d_on_time)	: 20s
Low Alarm Off Delay (d_off_time)	: 10s

2.Alarm:	
Alarm Status	: Passive
Latch	: Off
Trip	: Off
Contact Position (Output Inverse)	: Off
Alarm Type	: High Alarm
High Alarm Value	: 100A
Low Alarm Value	: 10A
High Alarm Hysteresis	: 10A
Low Alarm Hysteresis	: 5A

High Alarm On Delay (d_on_time)	: 20s
High Alarm Off Delay (d_off_time)	: 10s
Low Alarm On Delay (d_on_time)	: 20s
Low Alarm Off Delay (d_off_time)	: 10s
Shunt Parameters:	
Shunt Current	: 150A
Shunt Voltage	: 150 mV
RS 485: (DCA-10S/10CS/11S/11CS)	
Address	: 1
Baudrate	: 9600
Parity	: None
Analog Output: (DCA-10A/11A)	
Analog Output	: 0 - 20 mA
Assign Hi	: 200A
Assign Lo	: 0A
Period	: 1 (second)
Display	
Backlight	: On
Contrast	: 15
Security	
Password Protection	: Off
Password	: 0

5. TECHNICAL FEATURES:	
Operating Voltage (Un)	:85-265V AC/DC (DCA-10/10A/10C/10S/10CS), 10-56V DC (DCA-11/11A/11C/11S/11CS)
Frequency	:50/60 Hz (DCA-10/10A/10C/10S/10CS)
Supply Input Power Consumption	:< 4 VA
Measuring Input Power Consumption	:< 1 VA
Measuring Input Resistance (Rin)	:< 1K
Iin	: +/- 150mV
Measuring Current Range	: +/-10000A
Accuracy	:0.5% ±1 Digit [(10% - 100%) x full scale]
Shunt Current	:1A- 10000A (10kA)
Shunt Voltage	:50mV - 150mV
Relay Outputs (2 pieces)	:2 NO, 5A 1250 VA (DCA-10C/10CS/11C/11CS)
Communication	:MODBUS RTU (RS-485) Programmable.(DCA-10S/10CS/11S/11CS)
Baudrate	:2400 - 38400
Address	:1-247
Parity	:None, Odd, Even
Analog Output	:(DCA-10A/11A)
Analog Voltage Output	:0-10 V or 2-10 V
Load Resistance	:>= 1K2
Update Period	:100ms (milliseconds).
Analog Current Output	:0-20 mA or 4-20 mA
Load Resistance	:<= 500ohm
Update Period	:100ms (milliseconds).
Accuracy	:±0.01 FS%
Period	:1 - 600 seconds

Ambient Temperature	: -20 ... 70°C
Display	: 2.5 inches Backlit LCD
Dimensions	: PR-20
Device Protection Class	: Double Insulation - Class II (□)
Casing Protection Class	: IP 40
Terminal Protection Class	: IP 00
Wire Width (For Terminals)	: 2.5mm ²
Casing Material	: Nonflammable
Installation Type	: Flush Mounting (PR-20)
Weight	: 0.240 kg
Installation Class	: Class III
Panel Cutout Dimensions	: 48X96 mm (PR-20)

6. REGISTER TABLE:

16 Bit Register Table						
Address (HEX)	Description	W/R	Range	Unit	Multiplier	Format
0x0000	DC Voltage Value	R	+/- 150 mV	V	0,01	signed int
0x0001	Max. Measurement Value	R/W	+/- 150 mV	V	0,01	signed int
0x0002	Min. Measurement Value	R/W	+/- 150 mV	V	0,01	signed int
0x8000	Shunt Current	R/W	1 – 10000	A	1	unsigned int
0x8001	Shunt Voltage	R/W	50-150	mV	1	unsigned int
0x8002	Alarm 1 Activation	R/W	0 – 1	-	1	unsigned int
			0 --->Protection Inactive			
			1 --->Protection Active			
0x8003	Alarm 1 Latch Function	R/W	0-1	-	1	unsigned int
			0 ----> Latch Inactive			
			1 ----> Latch Active			
0x8004	Alarm 1 Trip Function	R/W	0-1	-	1	unsigned int
			0 ----> Trip Inactive			
			1 ----> Trip Active			

Address (HEX)	Description	W/R	Range	Unit	Multiplier	Format
0x8005	Alarm 1 Contact Position	R/W	0-1	-	1	unsigned int
			0 ----> Normal			
			1 ----> Inverted			
0x8006	Alarm 1 Alarm Type	R/W	0-2	-	1	unsigned int
			0 ---> High Protection Active			
			1 ---> Low Protection Active			
			2 ---> Range Protection Active			
0x8007	Alarm 1 High Warning Value	R/W	+/- Shunt Current	A	1	signed int
0x8008	Alarm 1 Low Warning Value	R/W	+/- Shunt Current	A	1	signed int
0x8009	Alarm 1 High Hysteresis	R/W	0- Shunt Current/2	A	1	unsigned int
0x800A	Alarm 1 Low Hysteresis	R/W	0- Shunt Current/2	A	1	unsigned int
0x800B	Alarm 1 High Alarm ON Delay	R/W	0-999.9	second	0,1	unsigned int
0x800C	Alarm 1 High Alarm OFF Delay	R/W	0-999.9	second	0,1	unsigned int

Address (HEX)	Description	W/R	Range	Unit	Multiplier	Format
0x800D	Alarm 1 Low Alarm ON Delay	R/W	0-999.9	second	0,1	unsigned int
0x800E	Alarm 1 Low Alarm OFF Delay	R/W	0-999.9	second	0,1	unsigned int
0x800F	Alarm 2 Activation	R/W	0-1	-	1	unsigned int
			0 ---> Protection Inactive			
			1 ---> Protection Active			
0x8010	Alarm 2 Latch Function	R/W		-	1	unsigned int
			0 ----> Latch Inactive			
			1 ----> Latch Active			
0x8011	Alarm 2 Trip Function	R/W	0-1	-	1	unsigned int
			0 ----> Trip Inactive			
			1 ----> Trip Active			
0x8012	Alarm 2 Contact Position	R/W	0-1	-	1	unsigned int
			0 ----> Normal			
			1 ----> Inverted			
0x8013	Alarm 2 Alarm Type	R/W	0-2	-	1	unsigned int
			0 ---> High Protection Active			
			1 ---> Low Protection Active			
			2 ---> Range Protection Active			

Address (HEX)	Description	W/R	Range	Unit	Multiplier	Format
0x8014	Alarm 2 High Warning Value	R/W	+/- Shunt Current	A	1	signed int
0x8015	Alarm 2 Low Warning Value	R/W	+/- Shunt Current	A	1	signed int
0x8016	Alarm 2 High Hysteresis	R/W	0- Shunt Current/2	A	1	unsgined int
0x8017	Alarm 2 Low Hysteresis	R/W	0- Shunt Current/2	A	1	unsgined int
0x8018	Alarm 2 High Alarm ON Delay	R/W	0-999.9	second	0,1	unsigned int
0x8019	Alarm 2 High Alarm OFF Delay	R/W	0-999.9	second	0,1	unsigned int
0x801A	Alarm 2 Low Alarm ON Delay	R/W	0-999.9	second	0,1	unsigned int
0x801B	Alarm 2 Low Alarm OFF Delay	R/W	0-999.9	second	0,1	unsigned int

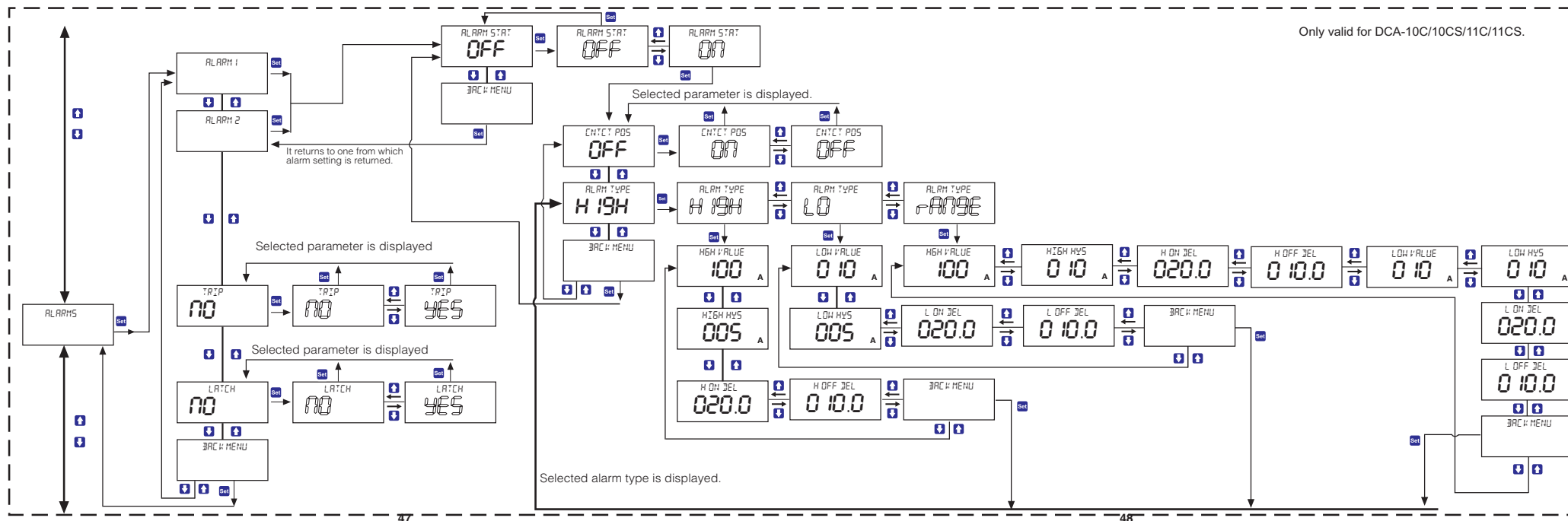
Address (HEX)	Description	W/R	Range	Unit	Multiplier	Format
0x801C	Relay Status	R	b0: 0 Relay 1 open b0: 1 Relay 1 closed	-	Data & 0x00FF	binary
			b2: 0 Relay 1 High Alarm Fault b2: 1 Relay 1 Low Alarm Fault	-		
			b3: 0 Relay 1 High Alarm ON delay doesn't count b3: 1 Relay 1 High Alarm ON delay counts	-		
			b4: 0 Relay 1 High Alarm OFF delay doesn't count b4: 1 Relay 1 High Alarm OFF delay counts	-		
			b5: 0 Relay 1 Low Alarm ON delay doesn't count b5: 1 Relay 1 Low Alarm ON delay counts	-		
			b6: 0 Relay 1 Low Alarm OFF delay doesn't count b6: 1 Relay 1 Low Alarm OFF delay counts	-		
			b7: 0 Relay 2 open b7: 1 Relay 2 closed	-		
			b8: 0 Relay 2 High Alarm b8: 1 Relay 2 Low Alarm	-		
			b9: 0 Relay 2 High Alarm ON delay doesn't count b9: 1 Relay 2 High Alarm ON delay counts	-		
			b10: 0 Relay 2 High Alarm OFF delay doesn't count b10: 1 Relay 2 High Alarm OFF delay counts	-		
			b11: 0 Relay 2 Low Alarm ON delay doesn't count b11: 1 Relay 2 Low Alarm ON delay counts	-		
			b12: 0 Relay 2 Low Alarm OFF delay doesn't count b12: 1 Relay 2 Low Alarm OFF delay counts	-		

Address (HEX)	Description	W/R	Range	Unit	Multiplier	Format
0x801D	Analog Output Type/Range	R/W	0 – 4	-	1	unsigned int
			0 OUTPUT INACTIVE			
			1 OUTPUT TYPE VOLT RANGE = 0-10 V			
			2 OUTPUT TYPE VOLT RANGE = 2-10 V			
			3 OUTPUT TYPE CURRENT RANGE = 0-20 mA			
			4 OUTPUT TYPE CURRENT RANGE = 4-20 mA			
0x801E	Assign Hi	R/W	- / + (Shunt Current)	A	1	signed int
0x801F	Assign Lo	R/W	- / + (Shunt Current)	A	1	signed int
0x8020	Comm. Address	R/W	1 – 247	-	1	unsigned int
0x8021	Baud Rate	R/W	0 — 4	bps	1	unsigned int
			2400			
			4800			
			9600			
			19200			
			38400			
0x8022	Parity		0 – 2	-	1	unsigned int
			0 ---->None, 1 ---->Odd, 2 ----> Even			
0x8023	Pass. Protection	R/W	0----> Off — 1----> On	-	1	unsigned int
0x8024	Password	R/W	0-9999	-	1	unsigned int

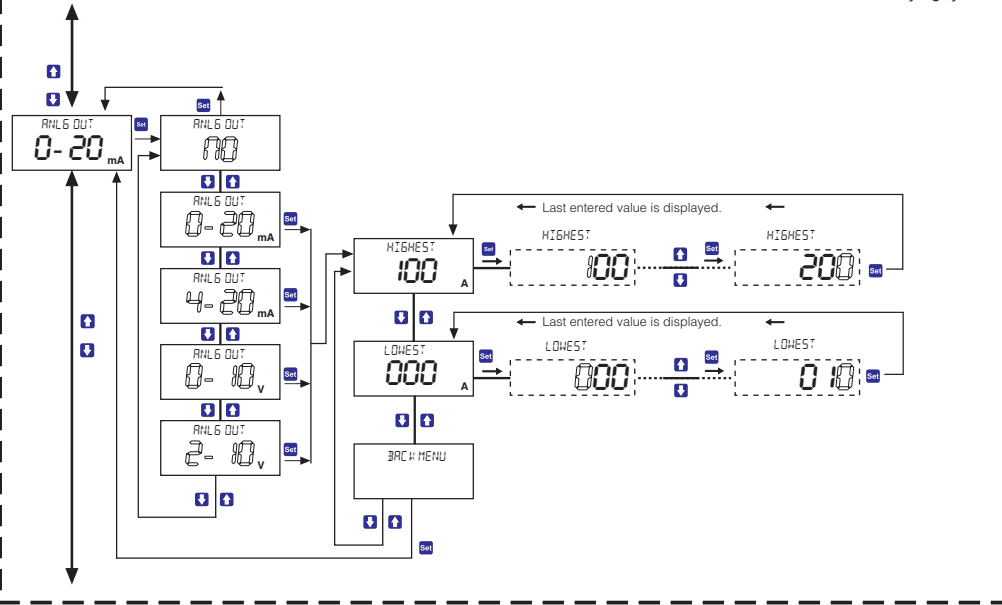
Address (HEX)	Description	W/R	Range	Unit	Multiplier	Format
0x8025	Backlight Status	R/W	0 – 4	-	1	unsigned int
			0----> Backlight Off			
			1----> Backlight On continuously			
			2----> Backlight On for 30 seconds			
			3 ---->Backlight On for 1 minute			
			4 ---->Backlight On for 5 minutes			
			5 ---->Backlight On for 15 minutes			
0x8026	Contrast	R/W	0-15	-	1	unsigned int
0x8027	Average Period	R/W	1 – 600	second	1	unsigned int
0x8028	Language	R/W	0 – 1	-	1	unsigned int
			0 ----> TR			
			1----> ENG			

32 Bit Register Table

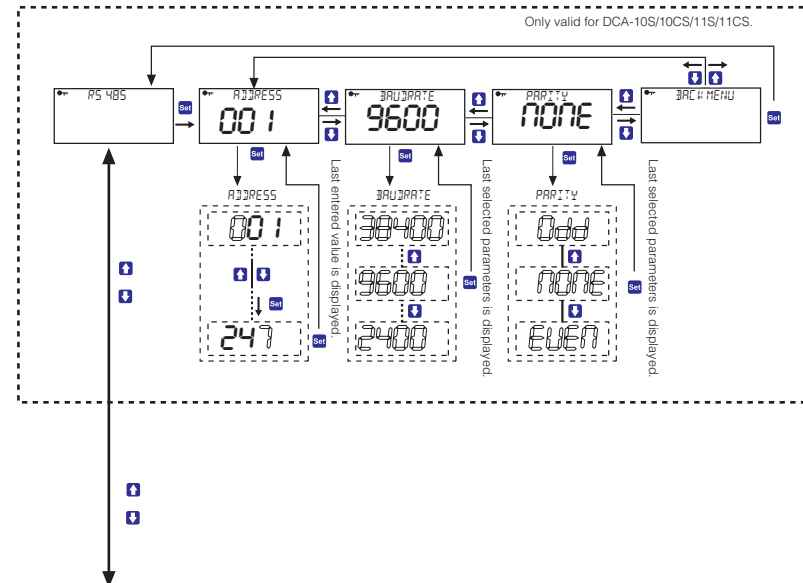
Address (HEX)	Description	W/R	Range	Unit	Multiplier	Format
0x4000	DC Current Value	R	+/- 10000A	A	0,001	long int
0x4002	Max. Measurement Value	R/W	+/- 10000A	A	0,001	long int
0x4004	Min. Measurement Value	R/W	+/- 10000A	A	0,001	long int

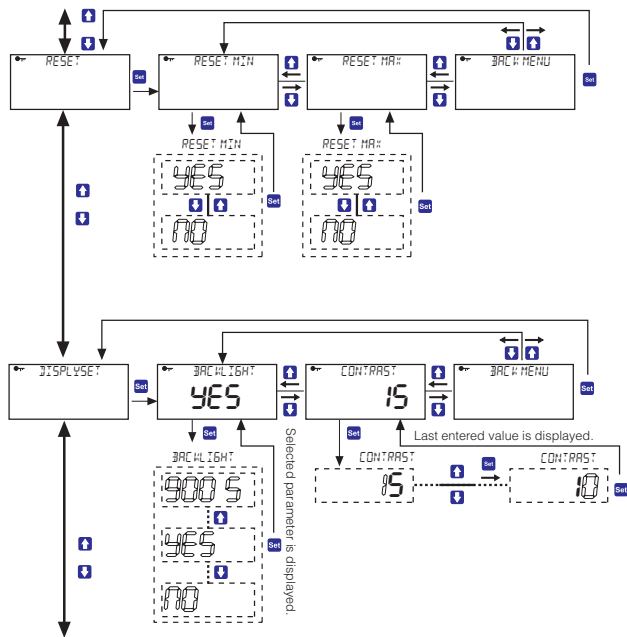


Sadece DCA-10A/11A için geçerlidir.

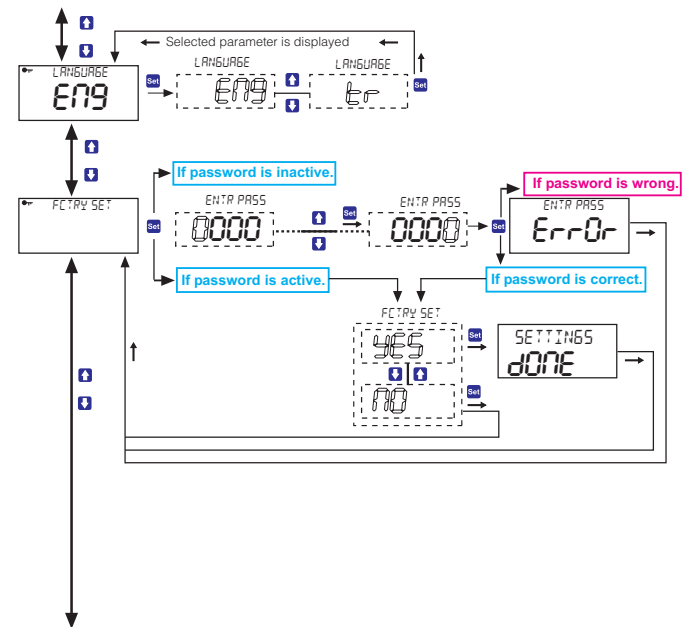


Only valid for DCA-10S/10CS/11S/11CS.





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