UNITY
GRUP TEKNOLOJİ A.Ş.

UTC03

USER MANUAL

2024

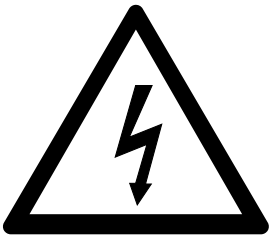
VER.8.3/22.02.2023

CONTENTS

SECURITY MEASURES

1-) A product suitable for a healthy and safe working environment should be selected and the device should be used in accordance with the instructions.

2-) The necessary checks, maintenance and cleaning of the device should be done before production. However, electrical repairs should not be made under voltage.



3-) No electrical device should be touched with wet hands and no repairs should be attempted.

4-) The operator should be informed about the operation of the device and only those who are responsible for the device should handle it.

SECURITY MEASURES

5-) Attention should be paid to the lighting of the environment according to the location of the device.

6-) Employees should be required to comply with the safety measures and signs in the environment.

7-) Electrical devices and machines should have a protection type appropriate to the environment in which they are operated. They should be isolated against factors such as moisture, steam, oil, dust, and heat.

8-) At the end of the day, the device should be turned off and made safe after use.

SAFE USE WARNINGS

- Before performing any operation on the device, disconnect all supply voltages.
- Do not disassemble the device while it is energized.
- Do not clean the device with solvents or similar substances. Use only a dry cloth to clean the device.
- Before operating the device, check that the connections are correct. Keep signal cables away from contactors, inductive loads, electrical noise emitting devices and energy-carrying lines.
- In order to protect the device from adverse environmental conditions such as humidity, vibration, pollution and high/low temperature, install it away from contactors, electrical noise emitting devices and energy-carrying lines.
- To be least affected by electrical noise; Use shielded cables and ground the shield.
- In case of any problem with your device, contact our authorized dealer.
- The manufacturer cannot be held responsible in any way for any undesirable situations that may arise as a result of not implementing the above precautions.

OVERVIEW

Unity UTC03 tension control devices are designed for very precise winding and unwinding operations with a microprocessor. It ensures that the tension of the material is kept the same in every diameter during winding and unwinding of the bobbin. When the desired tension in the material is set to the device, the unwinder and winder are controlled according to the weight information coming from the load cell. Thanks to the precise tension control, it prevents problems such as elongation, loosening in the material and pressure slippage in printing machines. This provides great convenience to the machine operator and saves time. UTC03 is designed considering its understandable interface and dynamic structure to be used in industrial automation applications. It has the dimensions of 138 X 105 X 50 and easily fits into the panel during installation with its panel type structure. The device, which prioritizes ease of use, allows easy switching between parameters thanks to the buttons on it. It provides 0-24 volt 3 Ampere brake output and 0-10 volt analog output in parallel with the brake output. It communicates with industrial devices via Modbus RTU RS485 communication protocol. (This feature is used optionally.)

GENERAL AND TECHNICAL SPECIFICATIONS

WORKING VOLTAGE	24 VDC
BRAKE OUTPUT VOLTAGE AND CURRENT	0-24VDC 3A
WORKING TEMPERATURE	-40 ve +80
RESPONSE TIME	1MS
PROTECTION CLASS	IP 20
CONNECTION TYPE	PLUG-IN TERMINAL GROUPS
MOUNTING TYPE	PANEL TYPE
DIMENSIONS (W*H*D)	138 X 105 X 50
INDICATOR	4 X 20 LCD SCREEN
INPUTS	2X LOADCELL, EXTERNAL START, EXTERNAL SET VALUE, PROX SWITCH INPUT FOR PID START
OUTPUTS	0-10 VDC 50mA ANALOG OUTPUT, 0-24VDC 3A BRAKE OUTPUT
CONTACT OUTPUT	2X OPTOCOUPLER
MINIMUM OUTPUT RESISTANCE	5 OHM
OUTPUT CURRENT	3A

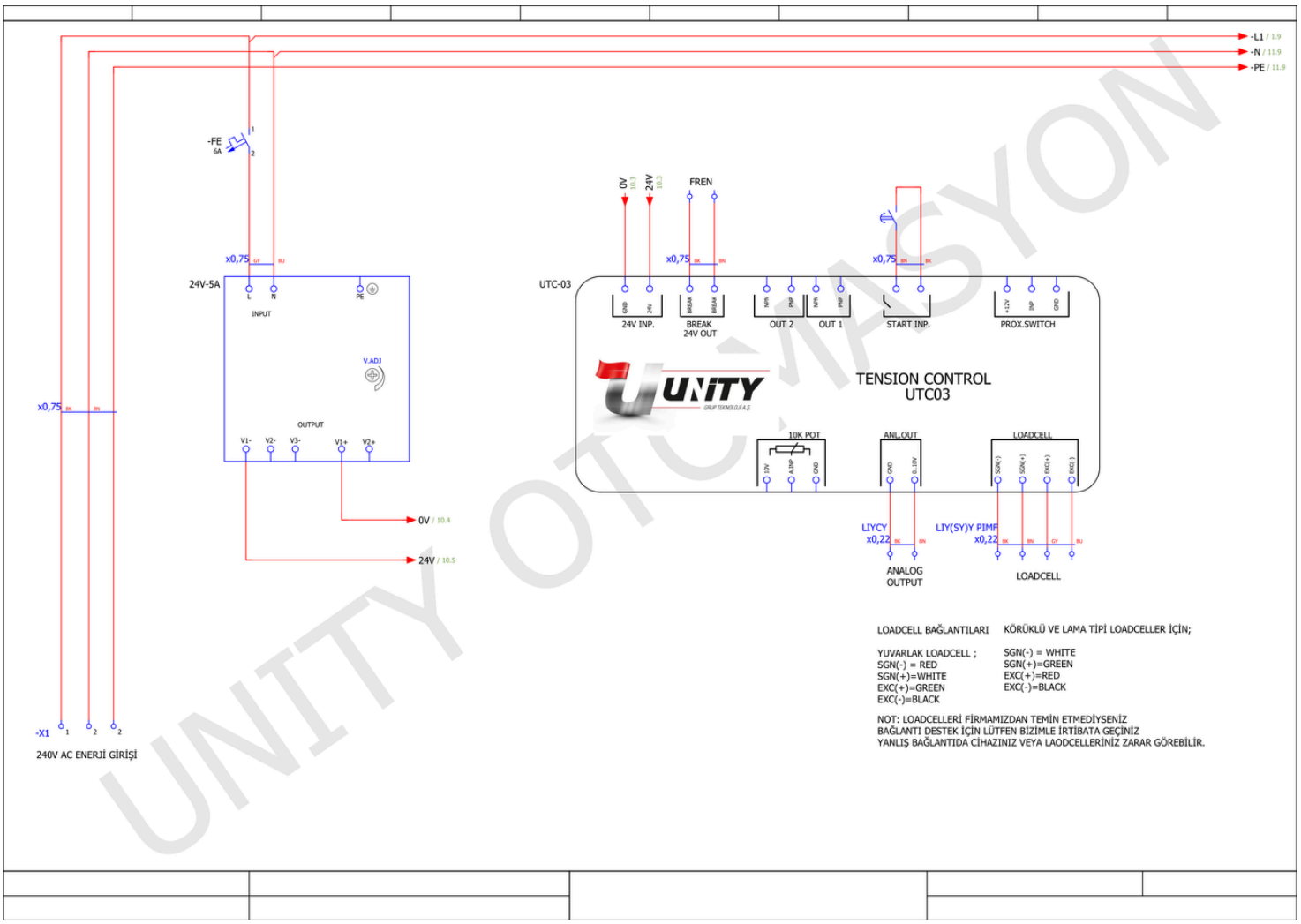
WHERE IS IT USED?

- It is used to control the tension of the material in winder and unwinder applications.
- It is used in the iron and steel industry in the stage of winding the wires produced on the reels with constant tension.
- The tension is controlled by inspecting the material wrapped on the roll or reel at an instantaneous time interval.
- In the textile sector, ensuring and keeping the knitting tensions stable while winding the product on the reels, etc.

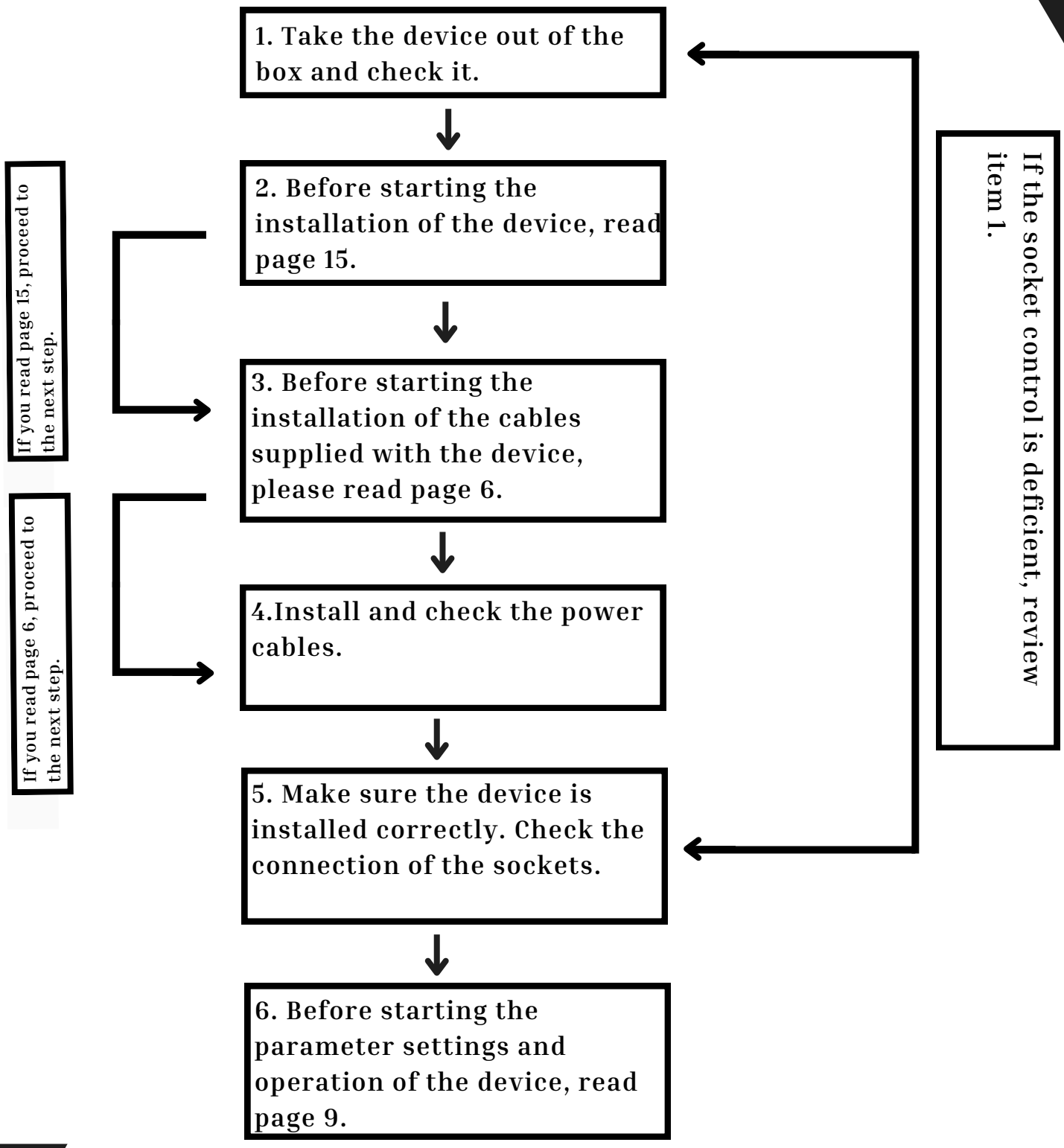
AREAS OF USAGE

- Process automation.
- Winder - Unwinder.
- Paper and printing.
- Plastic packaging and label industry.
- Production and technological lines.
- Textile factories.
- Packaging.
- Label.
- Hygiene.

CONNECTION DIAGRAM

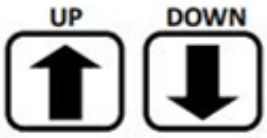


FLOW DIAGRAM



KEY USER GUIDE

Hold for 3 seconds to enter.



'UP and DOWN keys are used for parameter transitions within the menu. Also, outside the menu, the set value parameter from the device parameters is used to increase or decrease the TENSION SET value if selected via the panel.

If the START information from the device parameters is on the panel, this button takes the device to START position.

'If the STOP information from the device parameters is on the panel, this button puts the device in STOP position.

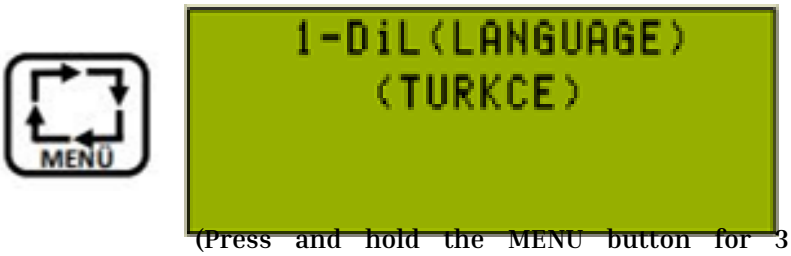
'When the device is in the start position, press the ESC button for a long time and enter the test mode. In the test mode, the PID is canceled and the output remains constant. The purpose of this is to detect material release, load cell or mechanical problems. When the device is in the stop position, it is used to reset the device output when pressed for a long time. It is also used to exit the menu within the selected parameter.

'Used to enter device parameters. Press Enter key to confirm changed values.

'When the device is in stop position and there is no material on the loadcell roller, press the Tare key for 5 seconds to reset the current tension created by the weight of the loadcell roller and the tare process is completed.

DEVICE PARAMETERS

(Press and hold the MENU button for 3 seconds.)



Press ENTER to enter the Language Option parameter. Here, the UP and DOWN keys determine whether the language will be TURKISH or ENGLISH.

(Press and hold the MENU button for 3 seconds.)

By pressing the ENTER key, the FACTORY SETTINGS parameter is entered. By selecting the YES or NO option with the UP and DOWN keys, the factory settings are returned.

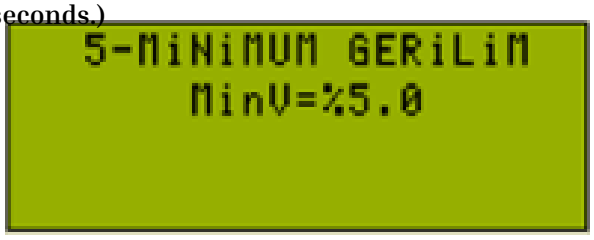
(Press and hold the MENU button for 3 seconds.)

By pressing the ENTER key, the KP value is determined with the UP and DOWN arrow keys. The KI and KD values in the device parameters are kept constant. By increasing the KP value, the response time is increased, while by decreasing it, the response time is reduced.

(Press and hold the MENU button for 3 seconds.)

By pressing the ENTER key, the STOPV VOLTAGE is determined as a percentage with the OK keys. The STOPV voltage is the output of the device in the stop position from the Analog and Brake zones in the amount determined as a percentage. This parameter is used to prevent the material from creating a gap during the start and stop times of the machine.

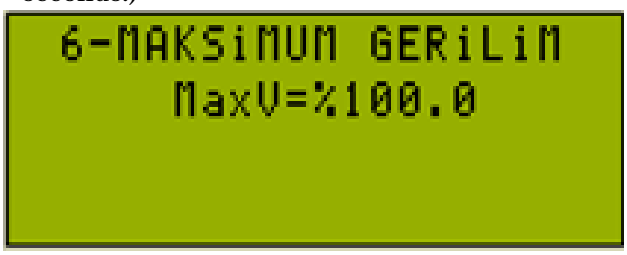
(Press and hold the MENU button for 3 seconds.)



By pressing the ENTER key, MINV VOLTAGE is determined as a percentage with the OK keys. MinV voltage is determined as the minimum vertical and output level of the device in the PID start position. The output value cannot fall below the value specified here.

DEVICE PARAMETERS

(Press and hold the MENU button for 3 seconds.)



By pressing the ENTER key, the MAXV voltage is determined as a percentage with the OK keys. The MAXV voltage indicates the output level of the device in the start position at maximum voltage. The output value cannot exceed the value specified here.

(Press and hold the MENU button for 3 seconds.)

By pressing the ENTER key, the SET ADJUSTMENT CONTROL position is determined. Set Adjustment Control offers two options as FROM TERMINAL and FROM PANEL. By selecting PANEL, the current tension is determined with the ARROW keys. If FROM TERMINAL is selected, the current tension is adjusted from the 10K POT input on the rear terminal.

(Press and hold the MENU button for 3 seconds.)

By pressing the ENTER key, START STOP CONTROL position is determined. Start Stop control parameter can be set as FROM TERMINAL and FROM PANEL. If FROM PANEL is selected, control is provided with START and STOP keys on the device. If FROM TERMINAL is selected, START INP on the rear terminal can perform START and STOP operation.

(Press and hold the MENU button for 3 seconds.)

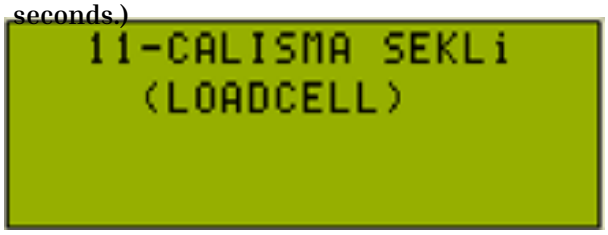
By pressing the ENTER key, the ANALOG OUTPUT increase direction is selected. The inversion is performed by selecting ANALOG OUTPUT as 0...10V or 10...0V.

DEVICE PARAMETERS

(Press and hold the MENU button for 3 seconds.)

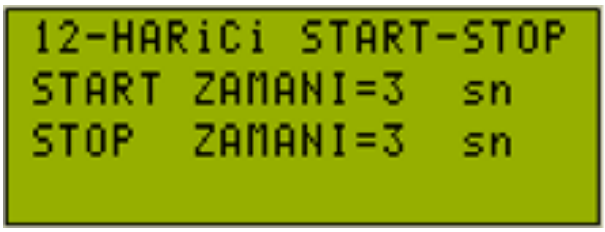
Pressing the ENTER key determines the LOADCELL capacity selection. The values you can select are 50, 100, 250 kg.

(Press and hold the MENU button for 3 seconds.)



The weight information coming from LOADCELL is compared with the set value. According to the compared value, PID process is applied to the current tension or set tension result. Analog output is provided according to the result of PID process. The WORKING TYPE is determined by pressing ENTER key. Here, LOADCELL is selected as MANUAL, DANCER and WITH TRANSMITTER. In MANUAL mode, the value read from the load cell is disabled. When the determined set value is started, it is directly reflected to the output. In DANCER mode, the value read from the load cell is disabled. The external 0-10V value entered from outside is converted to the current tension. In TRANSMITTER mode, the weight information read from the load cell is provided as 0-10V analog output.

(Press and hold the MENU button for 3 seconds.)



Press the ENTER key to enter the EXTERNAL START STOP parameter. If the start is controlled from the terminal, the start and stop times of the device are determined from this parameter.

(Press and hold the MENU button for 3 seconds.)

Press the ENTER key to enter the DEVICE START STOP parameter. START-STOP times are determined with the panel keys on the device.

DEVICE PARAMETERS

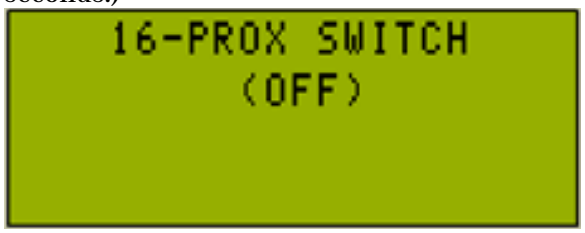
(Press and hold the MENU button for 3 seconds.)

By pressing the TARE button on the panel, the weight of the roller to which the Loadcell is connected is reset. This weight is recorded in the TARE WEIGHT parameter.

(Press and hold the MENU button for 3 seconds.)

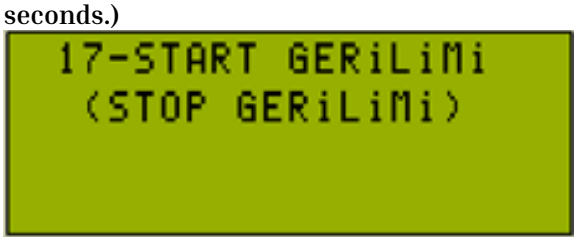
By pressing the TARE button on the panel, the weight of the roller to which the Loadcell is connected is reset and the desired weight is calibrated. (Calibration process is explained on page 14.)

(Press and hold the MENU button for 3 seconds.)



When this parameter is activated, PID control at the start of the device is provided according to the pulse value coming from outside.

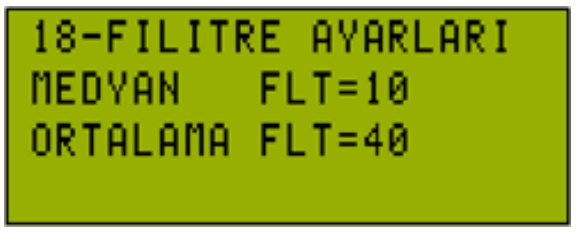
(Press and hold the MENU button for 3 seconds.)



By pressing the ENTER key, START VOLTAGE menu is entered. This menu contains STOP VOLTAGE and FINAL VOLTAGE parameters. It is used to specify where the output will start when the device is taken from stop to start position.

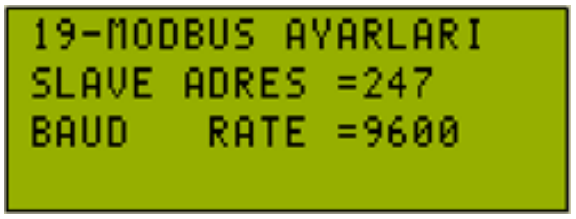
DEVICE PARAMETERS

(Press and hold the MENU button for 3 seconds.)



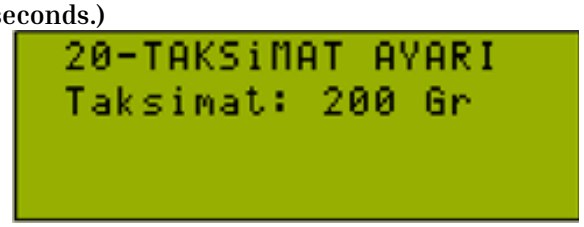
This parameter is used to set the filter settings of the loadcell. It is used to prevent problems that may arise from vibrations in the roller connected to the loadcell. In the MEDIAN parameter, it creates a delay in the value that will be reflected on the screen during the weight to be applied to the loadcell. In the AVERAGE parameter, it takes the arithmetic average of the values taken from the loadcell and reflects it on the scre

(Press and hold the MENU button for 3 seconds.)



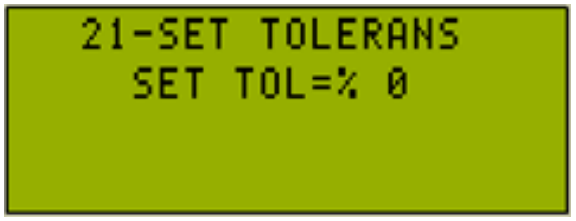
In this parameter, the connected Loadcells are addressed with the slave settings and the communication speed is determined by the baud rate. (This parameter is used optionally in our devices.)

(Press and hold the MENU button for 3 seconds.)



The increase (rise) sensitivity of the force applied to the loadcell is adjusted.

(Press and hold the MENU button for 3 seconds.)



When the target set value tolerance is defined for this parameter, the selected set value creates a difference above and below the set value after the output reaches the target within the specified percentage tolerance. The device output is fixed within this difference and the device does not interfere with the device output in any way as long as it does not go out of tolerance.

CALIBRATION

WHAT IS UTC03 CALIBRATION AND WHY IS IT DONE?

Press the menu button for 3 seconds to enter the device's parameters section. The calibration (15- (CALIBRATION)) menu is entered from the parameters. While on the calibration menu, press the enter button once and switch to the sub-tab.

(KALİB.AGR: XX)

The calibration weight starts to flash. The weight value to be calibrated is set in kilograms using the UP and DOWN buttons. The value is saved by pressing the enter button and the sub-tab is switched to.

Empty Pan: xx

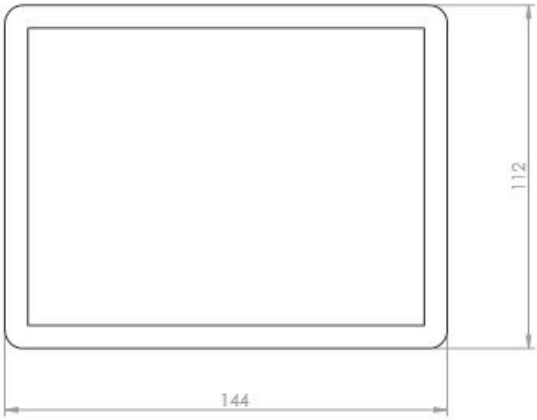
When there is no weight on the load cell connected to the roller, the enter button is pressed to introduce it and the sub-tab is switched to.

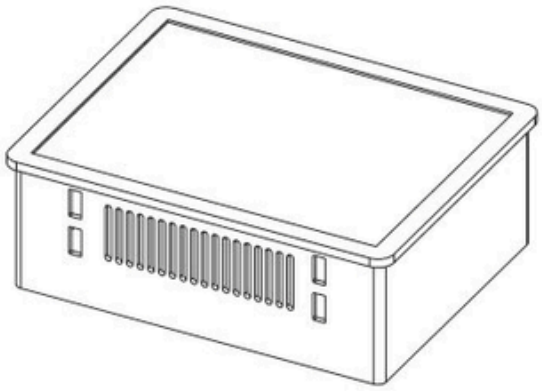
Full Pan: xx

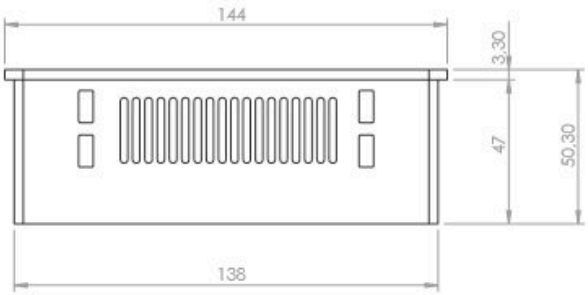
The weight to be calibrated is placed on the roller and when the values on the device are fixed, the load cell connected to the roller is pressed to introduce it. If the correct introduction is not made, the device's display screen will show a "CALIBRATION ERROR" warning.

If no problem is detected during the calibration process, the device displays the message "CALIBRATION SUCCESSFUL". Thus, the loadcell calibration process is completed.

TECHNICAL DRAWING







OUR CONTACT INFORMATION

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