

## E-700 CONFIGURATION MANUAL

### 1. DESCRIPTION:

E-Y-700-V2 software is prepared for the configuration of E-700 series universal input converters/transmitters. E-PK-700-11 connection cable is used to connect E-700 module to PC. Unless otherwise ordered, the factory settings of E-700 modules are; Input: Pt-100 3-wire resistance thermometer, Measuring Range: 0 to 400 °C, Output: 4-20 mA. Any changes to these settings will require reconfiguration of the module using this software.

### 2. MAIN WINDOW:

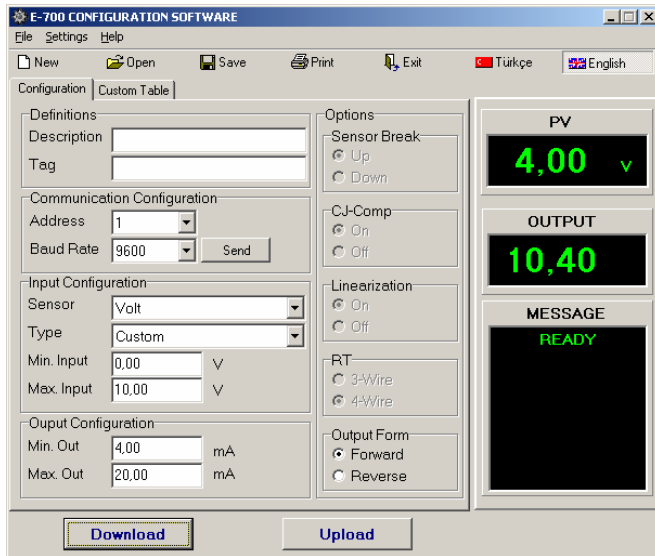


Figure 1. Main Window

The main window of the software is shown in Figure 1. The menu bar is located on the top of the window. Some of the sub-menu short cuts and language selection buttons are located just under the menu bar. **Configuration** tab includes **Definitions**, **Communication Configuration**, **Input Configuration**, **Output Configuration** and **Options** sections. **Download** and **Upload** buttons are located on the bottom of the window.

E-700 measures its input value and calculates the output corresponding to the input and transmits these values to the PC. The measured process value and calculated output value are displayed in **PV** and **OUTPUT** windows located in the right middle of the main window. When there is no module connected to the PC or there is no communication between PC and module, **PV** and **OUTPUT** windows will be blank and "NOT READY" message is displayed in **MESSAGE** window. If communication with the module is established, **MESSAGE** window displays "READY" message indicating that the module is ready for configuration. **MESSAGE** window also displays "Configuration downloaded" and "Configuration uploaded" messages for a few seconds just after the download and upload command executions

### 3. CONFIGURATION OPERATION:

1. Connect the module to the PC by using E-PK-700-11 connection cable. There is a 9 pin D connector at one end of the connection cable; this should be connected to the RS-232 port of the PC. USB to RS-232 converters may be used in case PC has no RS-232 port, provided that necessary software for USB to RS-232 converter is loaded to the PC. Plug the jack on the other side of the connection cable to the receptacle on the top panel of the E-700 converter (module). Apply operating power to the module. If the measured values are to be monitored, make also the necessary input connections.
2. Run the configuration program and monitor the main window. If the communication between PC and module is established, **MESSAGE** window will display "READY", otherwise "NOT READY". In case "NOT READY", click **Settings** menu on the menu bar and from the **Com Port** sub menu select the communication port assigned to your RS-232 port. If there is still no communication click **Send** button in **Communication Configuration** section. If still there is no communication, check your connections and power supply of the module and repeat the same procedure.
3. When the communication is established, click **Upload** button. This operation will display the present configuration of the module. Edit **Configuration** tab data for the new configuration and click **Download** button. Clicking **Download** button will transmit the configuration data to the module and "Configuration downloaded" message is displayed in the **MESSAGE** window. As a summary; editing the **configuration** tab data and transmitting its content to the module completes the configuration operation.

### 4. EXPLANATIONS:

#### 4. 1. Menu Bar:

Menu bar contains **File**, **Settings** and **Help** menus.

Sub menus in **File** menu and their functions are as follows;

**New** Loads the default configuration data.  
**Open** Loads the previously saved configuration.  
**Save** Saves the present configuration.  
**Print** Prints the configuration.  
**Exit** Closes the configuration program.

Sub menus in **Settings** menu and their functions are as follows;

**Printer** Opens the Windows printer configuration.  
**Com Port** Selects the RS-232 communication port.

Sub menus in Help menu and their functions are as follows;

E-700 User Manual	Opens the E-700 USER MANUAL.
E-700 Conf. Manual	Opens the E-700 CONFIGURATION MANUAL (This Document)
About Program	Displays the version of the configuration program.

#### 4. 2. Short Cuts and Language Selection Buttons:

New, Open, Save, Print and Exit are short cuts for the sub menus under the File menu. Language selection buttons Türkçe and English are used to select the configuration language as Turkish and English.

#### 4. 3. Configuration Tab:

Configuration data is monitored and modified in this window. The sections in the Configuration tab and their functions are described below.

##### 4.3.1. Definitions:

The modules can be assigned some description and tag number. This section involves **Description** and **Tag** text boxes.

<b>Description</b>	The module description is written to this text box. Description must not be longer than 24 characters.
<b>Tag</b>	Tag number of the module is written to this text box. Tag number may any character, but must not be longer than 8 characters.

##### 4.3.2. Communication Configuration:

Module address and communication baud rate are defined in this section. Two combo boxes, one for module address and one for baud-rate, and **Send** button are included in this section.

<b>Address</b>	Assigned Modbus address to the module is selected in this combo box. (1 to 31)
<b>Baud Rate</b>	Baud rate is selected in this combo box. (9600, 19200 or 38400)

After selection, **Send** button should be clicked to transmit the selections to the module. If the modules are used in communication systems the assigned addresses must be different but the baud rates must be the same. Even parity must be used for communication.

##### 4.3.3. Input Configuration:

This section includes two combo boxes one for sensor and one for sensor type; and two text boxes for defining measuring range of the module.

<b>Sensor</b>	The sensor used for the module is selected in this combo box. Alternatives are Thermocouple, Resistance Thermometer, Resistor, Milivolt, Miliampere, Volt, Pulse (0-60 Hz.), Pulse (0-60 kHz.) and Modbus RTU.
<b>Type</b>	Sensor type is selected in this combo box. Alternatives depend upon the selected sensor. If the sensor is selected as thermocouple, the alternatives are Type B, Type E, Type J, Type K, Type L, Type N, Type R, Type S, Type T and Type U. If the sensor is selected as Resistance thermometer, the alternatives are Pt-100, Pt-50, Pt-500, Pt-1000, Ni-100, Ni-200, Ni-500 and Ni-1000. For all other sensors the alternatives are Linear, Square Root and Custom. If Custom is selected, <b>Custom Table</b> tab becomes active; in this window 20 segment linearization can be defined. (See section 5. CUSTOM LINEARIZATION)
<b>Min. Input</b>	This text box defines the minimum value of the measured signal.
<b>Max. Input</b>	This text box defines the maximum value of the measured signal.

Minimum and maximum values are depended upon the selected sensor type. If the selected range is out of range of the sensor type or less than the minimum span, a warning is displayed in an error window while downloading.

##### 4.3.4. Output Configuration:

This section includes two text boxes for defining the output range of the module.

<b>Min. Output</b>	This text box defines the module output corresponding to minimum input.
<b>Max. Output</b>	This text box defines the module output corresponding to maximum input.

Minimum and maximum values are must be between 0 and 20.00, otherwise a warning is displayed in an error window while downloading.

##### 4.3.5. Options:

This section includes five groups each having two radio buttons to select the function.

<b>Sensor Break</b>	Determines the behaviour of module in case of sensor break. It can be set "Up" or "Down". If it is selected as "Up" and sensor break occurs, the output is calculated by assuming the measured input is equal to the maximum input. If it is selected as "Down" and sensor break occurs, the output is calculated by assuming the measured input is equal to the minimum input. If the selected sensor is thermocouple, resistance thermometer or Milivolt, sensor break is sensed.
<b>CJ-Comp</b>	This group is active if the selected sensor is thermocouple. Determines whether the cold junction compensation is to be done or not.
<b>Linearization</b>	This group is active if the selected sensor is thermocouple or resistance thermometer. Determines whether the linearization is to be done or not.
<b>RT</b>	This group is active if the selected sensor is resistance thermometer or resistor. It selects 3-wire or 4-wire connection.
<b>Output Form</b>	It can be set "Forward" or "Reverse". If it is selected as "Forward", as the measured value increases, the output value changes towards from the minimum output to maximum output. If it is selected as "Reverse", as the measured value increases, the output value changes towards from the maximum output to minimum output.

#### 4. 4. Download Button:

If there is no communication between the module and the PC, **Download** button is not activated. Clicking **Download** button transmits the configuration data to the module. If transmission is managed properly **MESSAGE** window displays "Configuration Downloaded" message for duration of two seconds. If for any reason (transmission error etc.) configuration is not loaded to the module, **MESSAGE** window displays "Configuration could not be Downloaded" message for duration of two seconds.

#### 4. 4. Upload Button:

If there is no communication between the module and the PC, **Upload** button is not activated. Clicking **Upload** button receives the configuration data from the module and displays in the **Configuration** tag. If reception is managed properly **MESSAGE** window displays "Configuration Uploaded" message for duration of two seconds. If for any reason (transmission error etc.) configuration is not received from the module, **MESSAGE** window displays "Configuration could not be Uploaded" message for duration of two seconds.

#### 5. CUSTOM LINEARIZATION:

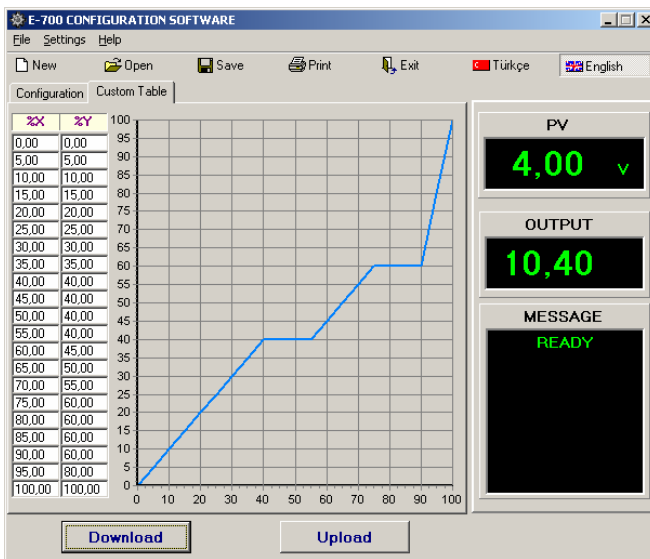


Figure 2. Custom Table Tab

Excluding thermocouple and resistance thermometer, for all other selectable sensors a user defined linearizer can be loaded to the module. If **Type** combo box is selected as "Custom", **Custom Table** tab becomes active; in this window 20 segment linearization can be defined. When **Custom Table** tab is selected the appearance of the main windows is given in Figure 2. Input (X) and Output (Y) relations are defined in the columns on the left of the window. These two columns are editable and any change in X and Y values is displayed in the chart. The values of X and Y should be entered as a percentage of input and output ranges respectively. If the entered values are not accepted an error window opens and gives warning after pressing the enter key.

When the **Custom Table** is configured, download and upload commands should be executed in order to be sure that the linearization table is properly loaded to the module.