Elimko
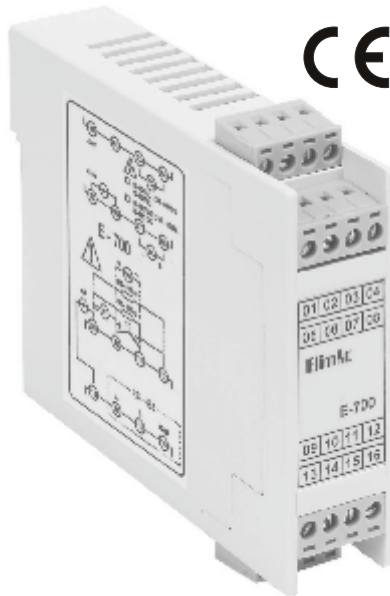
E-700 is a rail mountable converter/transmitter, intended to be used in an industrial enviroment.

○ The package of E-700 instrument contains the instrument, user manual and the guarantee certificate.

○ When you open the package, please check the package contents. If the delivered product is wrong type, any item is missing or there are visible defects, contact the vendor from which you purchased the product.

○ Before installation and operating the converter/transmitter please read the user manual thoroughly.

○ The installation and configuration of the converter/tarnsmitter must only be performed by a person qualified in instrumentation.

○ Keep the unit away from the flammable gases that could cause explosion.

○ Do not use alcohol or other solvents to clean the converter/transmitter. While the instruments power off, you can use a clean cloth soaked in water and tightly squeezed to clean the outer surface of the converter/ttransmitter.

○ The product life of this instrument is 10 years.

1. DESCRIPTION:

E-700 is an isolated universal input rail mountable converter/transmitter housed in a plastic case. It can be used almost in all industrial applications for converting sensor signals to standard voltage and current levels and driving process control instruments. RS-485 communication option makes possible data exchange between the unit and the controllers or PLC's over a RS-485 communication line by using Modbus RTU protocol.

The module can be fully configured by Elimko or self configured using Windows based software. For self configuration, E-PK-700-11 connection cable is necessary for PC connection and E-Y-700-V2 software for configuration program. Both are available from Elimko.

2. TYPE CODING:

E-700 -3-1-Y-Z

→ **Operating Voltage**
0: 85-265 V AC / 85-375 V DC
1: 20-60 V AC / 20-85 V DC

→ **Communication**
0: None
1: RS-485

3.SPECIFICATIONS:

General:

| Input	See Input Types TABLE
Output	0-20 mA / 4-20 mA
Operating Voltage	See TYPE CODING
Power Consumption	7 VA
Accuracy	%0.5 Reading Value
Temperature Drift	%0.01 /°C
CJ Error	0.02 °C/°C
RT Line Resistance	Maximum 100
TC Line Resistance	Maximum 100
Protection Class	IP 20
Operating Temperature	-10°C – +55°C (Without condensing and icing)
Storage Temperature	-25°C – +65°C (Without condensing and icing)
Weight	140 g

CE

❑ This controller complies with the European Low Voltage Directive 73/23/EEC, by the application of safety standard TS 2418 EN 61010-1. (Pollution degree 2)

❑ This controller complies with the EMC Directive 89/336/EEC, by the application of EMC standard TS EN 61326.

Input Types:

Sensor	Standard	Minimum Value	Maximum Value	Minimum Span
TC Type B	IEC 584-1	0°C	1800°C	200°C
TC Type E	IEC 584-1	-150°C	850°C	50°C
TC Type J	IEC 584-1	-200°C	1100°C	50°C
TC Type K	IEC 584-1	-200°C	1300°C	50°C
TC Type L	DIN 43710	-200°C	900°C	50°C
TC Type N	IEC 584-1	-200°C	1200°C	50°C
TC Type R	IEC 584-1	0°C	1760°C	200°C
TC Type S	IEC 584-1	0°C	1760°C	200°C
TC Type T	IEC 584-1	-200°C	400°C	50°C
TC Type U	DIN 43710	-200°C	600°C	50°C
Pt-100	IEC 751	-200°C	800°C	10°C
Pt-50	IEC 751	-200°C	800°C	10°C
Pt-500	IEC 751	-200°C	800°C	10°C
Pt-1000	IEC 751	-200°C	800°C	10°C
Ni-100	DIN 43760	-60°C	85°C	10°C
Ni-200	-	-60°C	180°C	10°C
Ni-500	-	-60°C	180°C	10°C
Ni-1000	-	-60°C	180°C	10°C
Resistor	-	0	5000	20
mV	-	-1500 mV	1500 mV	10 mV
mA	-	0 mA	20 mA	1 mA
V	-	-100 V	100 V	1 V
Pulse	-	0 Hz	600 Hz	0.1 Hz
Pulse	-	0 Hz	60000 Hz	100 Hz
Modbus	-	-32767	32767	100

4. MODULE DIMENSIONS:

The drawing showing the dimensions of E-700 converter/transmitter is given in the figure. The modules are mountable to a standard 35 mm DIN rail. (DIN 46277, EN 50022) Four pluggable screw type connectors each having four terminals is used for external connection. The cross section of the wire that will be connected to the terminals can be up to 2.5 mm^2.

There is no need to open the module for configuration. The PC connection receptacle for configuration is located on the top panel of the module.
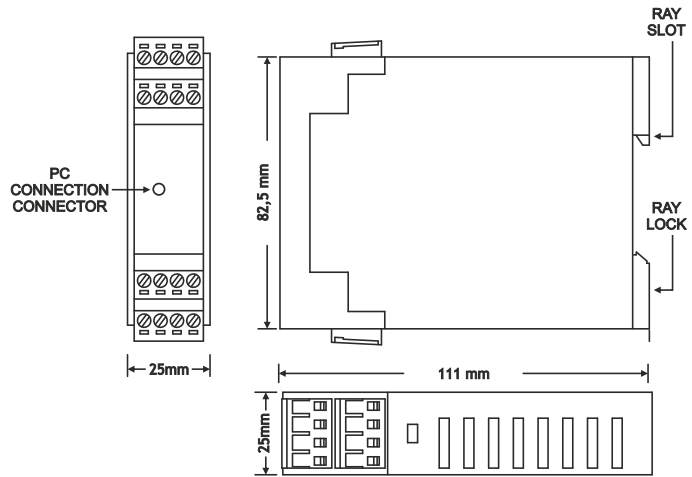
5. CONNECTION DIAGRAM:

The operating voltage is applied to the terminals 03 and 04. The connections for various types of input sensors are given in the figure. The terminals 05(+) and 06(-) are used for output connections. RS-485 communication line is connected to the terminals 14, 15 and 16 if RS-485 communication option is included.

❏ Dangerous voltage exists on terminals 03 and 04. Never touch these terminals while the module is energized. If these terminals are plugged to a wrong place, E-700 may be damaged.

❏ Before operating, ensure that the converter is correctly configured for your application. Incorrect configuration could result in damage to the process being controlled.

❏ The module does not include a power switch. Therefore, the power supply must be wired through proper fuse or circuit breaker.

❏ To minimize the pick-up of electrical noise, the wiring of low voltage lines, particularly the sensor input should be routed away from the high current power cables. Where it is not possible, use shielded cables with the shield grounded at both ends.

❏ The connection cables for powering the module must conform to the standards IEC 60245 and IEC 60227.
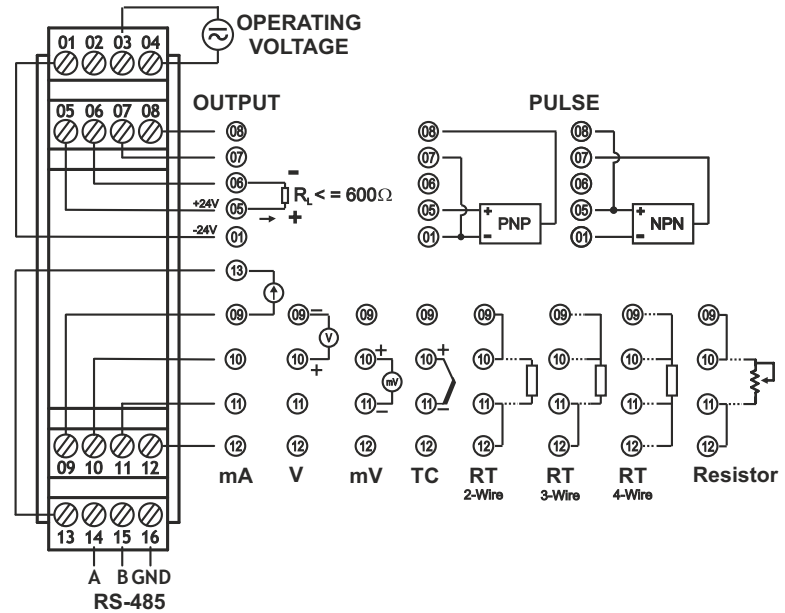
6. MODBUS REGISTER ADDRESSES:

Modules with RS-485 communication option operate as Modbus RTU slaves and can be used for exchanging data between the module and the controllers or PLC's over a RS-485 communication line by using Modbus RTU protocol. Function codes 03, 06 and 16 are supported. The Modbus Register addresses of parameters are given in the below Table. Parameters with property 'R' can only be read, 'R/W' can be read or written.

Addresses between 22 and 50 include the TAG values for the module. Addresses between 64512 and 64530 include the calibration values for the module. Any write operation to these addresses will modify these values and may cause faulty operation.

Address	Parameter	R/W	Min.	Max.	Explanation
0	Process Value	R			
1	Output Value	R			
2	Status	R			See Note 1
3	Sensor	R			See Note 2
4	Modbus Input	R/W	-32767	32767	
5-9	Reserved				
10	Sensor	R/W	0	8	See Note 2
11	Type	R/W	0	9	See Note 3
12	Min. Input Value	R/W			See Note 4
13	Max. Input Value	R/W			See Note 4
14	Min. Output Value	R/W	0	2000	
15	Max. Output Value	R/W	0	2000	
16	Sensor Break	R/W	0	1	0:Down, 1:Up
17	Output Form	R/W	0		0:Forward, 1:Reverse
18	Reserved				
19	CJ Comp.	R/W	0	1	0:Yes, 1:No
20	Linearization	R/W	0	1	0:Yes, 1:No
21	RT Connection	R/W	0	1	0:3-wire, 1:4-wire

Note 1: The least significant three bits of the parameter correspond to OPEN, UFL and OFL states respectively. OPEN is set when the sensor is broken. UFL and OFL are set when the measured value is less than the minimum sensor value and more than the maximum sensor value respectively.

Note 2: The parameter value defines the sensor; 0: TC (Thermocouple), 1: RT (Resistance thermometer), 3: Resistor, 4: mV, 5: Volt, 6: Pulse (0-600 Hz), 7: Pulse (0-60 kHz), 8: Modbus input.

Note 3: Type parameter defines the sensor type. Type values corresponding the sensor types are given in the below table.

Parameter Value	TC	RT	Other
0	Type B	Pt-100	Linear
1	Type E	Pt-50	Square root
2	Type J	Pt-500	Custom
3	Type K	Pt-1000	Linear
4	Type L	Ni-100	Linear
5	Type N	Ni-200	Linear
6	Type R	Ni-500	Linear
7	Type S	Ni-1000	Linear
8	Type T	Pt-100	Linear
9	Type U	Pt-100	Linear

Note 4: For the minimum and maximum values of the parameters, see the "Input Types" Table in SPECIFICATIONS section.