E-KC-101 SERIES ISOLATED HEAD-MOUNTED TYPE TEMPERATURE CONVERTER USER MANUAL

KY-KC101-0224-1

The E-KC-101 converter is designed for use in an industrial environment.

- The package of the E-KC-101 converter contains; the Converter, user manual and guarantee certificate.
- After opening the package, please visually check whether the type of the transmitter is suitable for the order, whether the above-mentioned parts are missing and whether the transmitter has been damaged during shipment.
- Before installing and operating the controller, please read the user manual thoroughly.
- The installation and configuration of the controller must only be performed by a person qualified in instrumentation.
- Keep the unit away from flamable gases, that could cause explotions.
- Do not use alcohol or other solvents to clean the transmitter. Use a clean cloth soaked in water tightly squeezed to gently wipe the outer surface of the transmitter.
- It is not used in medical applications.

1. DESCRIPTION

The E-KC-101 is a head mount type isolated two wire temperature transmitter. The transmitter converts the measured values to a 4 to 20 mA DC signal for transmission. Thermocouples (TC) and resistance thermometers (RTD) can be used as a temperature sensor. The transmitter also accepts resistance and DC mV as an input signal. The transmitter is configurable via by PC using proprietary software available from Elimko.

2. TECHNICAL SPECIFICATIONS

2.1. Operating Range and Measuring Accuracy (at 24 V supply voltage and 25°C ± 3°C ambient temperature)

SENSOR		STANDARD	LOWER LIMIT	TOP LIMIT	MINIMUM SCALE	ACCURACY A/D	ACCURACY D/A
RTD	Pt-50	IEC 60751	-200°C	840°C	25°C	±0.50°C	±0.1% Span
	Pt-100	IEC 60751	-200°C	840°C	25°C	±0.25°C	
	Pt-500	IEC 60751	-200°C	840°C	25°C	±0.25°C	
	Pt-1000	IEC 60751	-200°C	840°C	25°C	±0.25°C	
	Ni-50	DIN 43760	-60°C	180°C	25°C	±0.25°C	
	Ni-100	DIN 43760	-60°C	180°C	25°C	±0.25°C	
	Ni-120	DIN 43760	-60°C	180°C	25°C	±0.25°C	
	Ni-200	DIN 43760	-60°C	180°C	25°C	±0.25°C	
	Ni-500	DIN 43760	-60°C	180°C	25°C	±0.25°C	
	Ni-1000	DIN 43760	-60°C	180°C	25°C	±0.25°C	
T/C	B	IEC 60584	100°C	1800°C	100°C	±2.00°C	
	E		-200°C	840°C	50°C	±0.50°C	
	J		-200°C	1120°C	50°C	±0.50°C	
	K		-200°C	1360°C	50°C	±0.50°C	
	N		-200°C	1300°C	50°C	±0.50°C	
	R		-40°C	1760°C	100°C	±1.00°C	
	S		-40°C	1760°C	100°C	±1.00°C	
	T		-200°C	400°C	50°C	±0.50°C	
	L	DIN 43710	-200°C	900°C	50°C	±0.50°C	
	U		-200°C	600°C	50°C	±0.50°C	
mV			-200mV	1000mV	25mV	±0.075mV	
ohm			0 W	500 Ω	50 Ω	±0.50°C	

If the input type and scale is not specified while ordering, factory settings are; **Input Type** : Pt-100, and **Scale** : 0-200°C.

Electromagnetic Compatibility:
The E-KC-100 meets the requirements of TS EN 61326-1.

2.2. General Specifications

Electrical:	
Supply Voltage	9.0 - 36 V DC
Voltage Drop	9.0 V
Isolation Voltage, Test	1.0 kV AC
Isolation Voltage, Operation	50 V AC
Environmental Conditions:	
Operating Temperature	-20°C to +70°C
Max. Permissible Humidity	< 95% RH (with no condensation)
Protection Class	IP00
Calibration Temp.	25°C ±3°C
Mechanical:	
Dimensions	Ø 44.0 mm x 21.5 mm
Weight (approx.)	40 g
Connection Cables	Max. 1.5 mm² (AWG 16)
Resistance Thermometer (RTD) / Resistance Input:	
Sensor Connection Test	2-Wire, 3-Wire, 4-Wire (Configurable)
Maximum Wire Resistance	50 Ω
2-Wire Compensation Resistance	Maximum 100 Ω (Configurable)
Measurement Current	< 150 µA
Error Signaling	Wire Break, Short Circuit
Thermocouple (TC) / mV Input:	
Input Impedance	> 10 MΩ
Maximum Wire Resistance	500 Ω
Cold Junction Compensation (CJC)	Constant, Internal NTC, External Pt-100 (Configurable)
Error Signaling	Wire Break
Output:	
Output Signal	4 - 20 mA or 20 - 4 mA
Load Resistance	< ((Vsupply - 9) / 0.021) Ω
Malfunction Indication	3.8 mA or 21.0 mA (Configurable)
Output Update	10 per second
Operating Influences:	
Ambient Temperature	< ± 0.01% / °C
CJC Error (For TC Inputs)	< ± 1.0 °C
EMC Immunity	< ± 0.5% Span
Other:	
Warm-Up Time	5 minutes
Damping (Configurable)	0 to 60 seconds (Configurable)
Memory	Maximum Write-Erase Operation: 10.000 times

3. DIMENSIONS

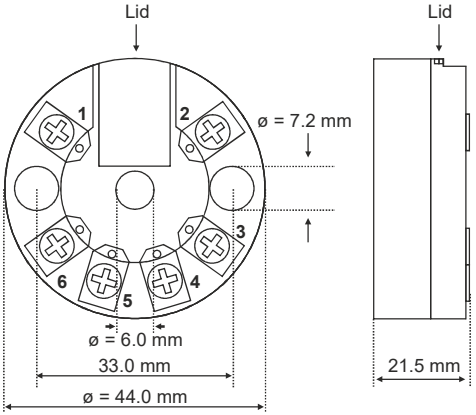


Figure 1. Mechanical Dimensions of E-KC-101

5. HARDWARE CONFIGURATION

The hardware configuration of E-KC-101 temperature transmitter is accomplished by means of a two position DIP switch located under the cover. There is also a 4-pin connector mounted just under the DIP switch as shown in **Figure.3**.

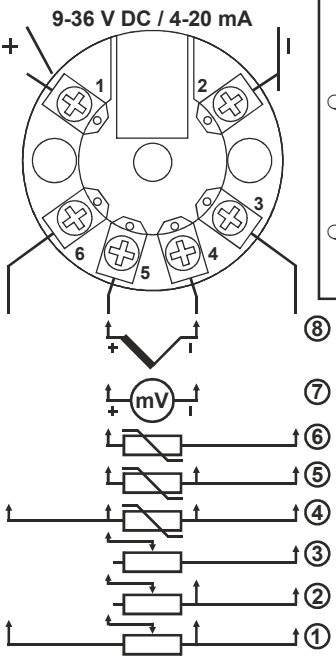
The connector is used for optional display or PC connection.

The configuration depending upon the position of DIP switches is given in the below table (Table 3).

The DIP switch 1 is used for write protection. When the switch is ON position, no "write" or "command" commands are accepted.

The assigned function of 4-pin connector is selected by DIP switch 2. When the switch is ON position, the connector drives the external display. When the switch is OFF position, the drive signals to external displayceases, the connector can be used for PC connection.

4. WIRING CONNECTION



- Before operating the transmitter, ensure that the transmitter is correctly configured. Incorrect configuration could result in damage to the process being controlled.
- 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 cable and ground the shielded cable.
- The cables used for powering the transmitter and the power outputs must conform to the standarts IEC 60245 and IEC 60227.

For thermocouple inputs, be sure to use the proper compensation cables and pay attention to the polarity of the connection.

① 4 Wire Potentiometer
② 3 Wire Potentiometer
③ 2 Wire Potentiometer
④ 4 Wire RTD
⑤ 3 Wire RTD
⑥ 2 Wire RTD
⑦ mV Input
⑧ TC Input

Figure 2. Electrical Connections of E-KC-101

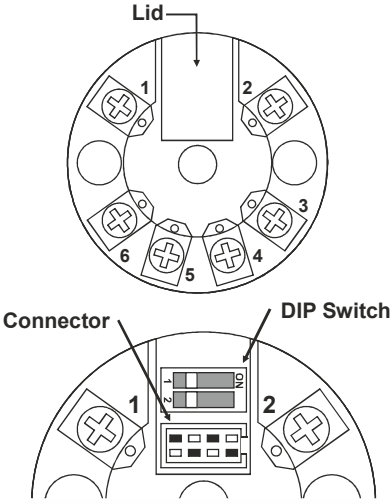


Figure 3. Switch and Display or PC Connectors of E-KC-101

Table 3. DIP Switch Configuration of E-KC-101

DIP Switch	ON	OFF
1	Write Protected	No Write Protection
2	Connector is used for optional Display	Connector is used for PC connection

Manufacturer / Technical Support :
Elimko Elektronik İmalat ve Kontrol Ltd. Şti.
ASO 2. Organize Sanayi Bölgesi Alcı OSB Mahallesi
2001. Cad. No:14 Temelli 06909 Ankara / TURKİYE
Tel: +90 312 212 64 50 (Pbx) • Fax: +90 312 212 41 43
E-mail: elimko@elimko.com.tr • www.elimko.com.tr