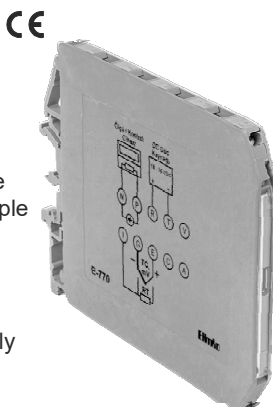


KY-780-1123-1

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### 1. DESCRIPTION

E-780 series devices are rail-mountable industrial devices in a plastic case designed to be used as signal converters. E-780 series converters convert resistance thermometer (RTD) and thermocouple (TC) type temperature sensors, resistance and DC mV signals to standard 4 - 20 mA output signals. The input and output signals of the E-780 series devices are galvanically isolated.



E-780 series converters can be ordered as 2-wire or 4-wire types. In 2-wire types, the operating voltage and output signal are not galvanically isolated, in 4-wire types, the operating voltage and output signal are galvanically isolated.

E-780 series converters can be configured with special PC software provided by Elimko and optionally available HART communication interface.

### 2. TECHNICAL SPECIFICATIONS

#### 2.1. General

<b>Electrical :</b>	
<b>Operating Voltage</b>	10 - 30 V DC (2-wire types) 18 - 36 V DC (4-wire types)
<b>Voltage Drop</b>	10.0 V
<b>Isolation Voltage, Test</b>	1 kV AC
<b>Isolation Voltage, Operation</b>	50 V AC
<b>Environmental Conditions:</b>	
<b>Operating Temperature</b>	-10°C to +55°C
<b>Operating Humidity</b>	< 95% RH (non-condensing)
<b>Protection Class</b>	IP20
<b>Calibration Temperature</b>	25°C ±3°C
<b>Mechanical:</b>	
<b>Dimensions</b>	90 mm x 112 mm x 65 mm
<b>Weight (approx.)</b>	60 g
<b>Connection Cables</b>	Maximum 1.5 mm <sup>2</sup> (AWG 16)
<b>Resistance Thermometer (RTD) / Resistance Input :</b>	
<b>Sensor Connection Type</b>	2-wire, 3-wire, 4-wire (Configurable)
<b>Maximum Wire Resistance</b>	50 Ω
<b>2-wire Compensation Resistance</b>	Maximum 100 Ω (Configurable)
<b>Measurement Current</b>	< 150 μA
<b>Error Signaling</b>	Sensor Break, Short Circuit
<b>Thermocouple (TC) / Millivolt Input :</b>	
<b>Input Impedance</b>	> 10 MΩ
<b>Maximum Wire Resistance</b>	500 Ω
<b>Cold Junction Compensation (CJC)</b>	Constant, Internal NTC, External Pt-100 (Configurable)
<b>Error Signaling</b>	Sensor Break
<b>Output :</b>	
<b>Output Signal</b>	4 - 20 mA or 20 - 4 mA
<b>Load Resistance</b>	< ((Voperation - 10) / 0.020) Ω 2-wire types Maximum 600 Ω (4-wire types)
<b>Malfunction Indication</b>	3,8 mA or 21,0 mA (Configurable)
<b>Output Update</b>	10 per second

E-780 device control units are designed for rail mounting and should be used in an industrial environment.

- The package of E-780 device contains; Device, User manual, Guarantee certificate.
- After opening the package, please check the contents with the above list. 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 installing and operating the device, 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 feamable gases, that could cause explosion.
- Do not use alcohol or other solvents to clean the device. Use a clean cloth soaked in water tightly squeezed to gently wipe the outer surface of the device.
- It is not used in medical applications.

<b>Operation Influences :</b>	
<b>Ambient Temperature</b>	< ± 0.01% / °C
<b>CJC Error (For TC input)</b>	< ± 1.0 °C
<b>EMC Immunity</b>	< ± 0.5% Span
<b>Other :</b>	
<b>Warm-up Time</b>	5 minutes
<b>Communication Interface</b>	HART 7
<b>Damping Time</b>	0 to 60 seconds (Configurable)
<b>Memory</b>	Maximum Write-Erase Operation: 10.000 times

#### 2.2. Measurement Accuracy (Operating Voltage = 24 V and Ambient Temperature = 25°C ± 3°C)

SENSOR	STANDARD	LOWER LIMIT	UPPER LIMIT	MINIMUM RANGE	ACCURACY		
					A/D	D/A	
RTD	Pt-50	IEC 60751	-200°C	840°C	25°C	±0.50°C	±0.1% Full Scale
	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		DIN 43710	-200°C	600°C	50°C	±0.50°C
mV		-200mV	1000mV	25mV	±0.075mV		
ohm		0 Ω	500 Ω	50 Ω	±0.50°C		

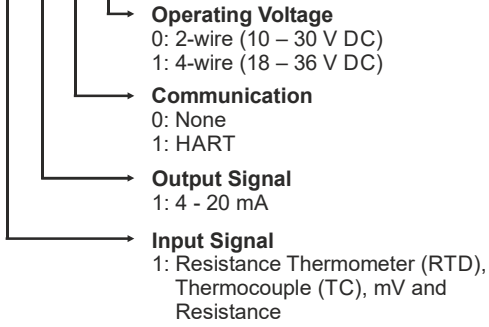
Factory default settings if not specified in the order; **Input Type:** Pt-100, **Scale:** 0-100°C.

#### EU Directive Compliance;

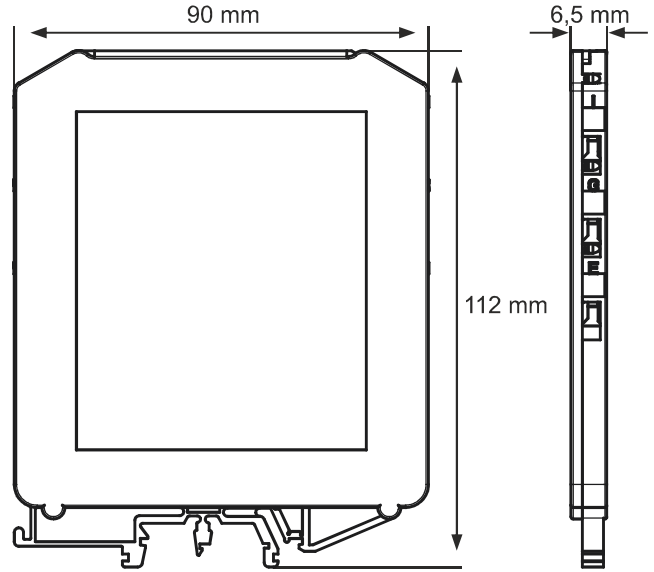
Electromagnetic Compatibility Directive EN 61326-1  
Low Voltage Directive EN 61010-1

**3. TYPE CODING**

E - 780 - W - X - Y - Z

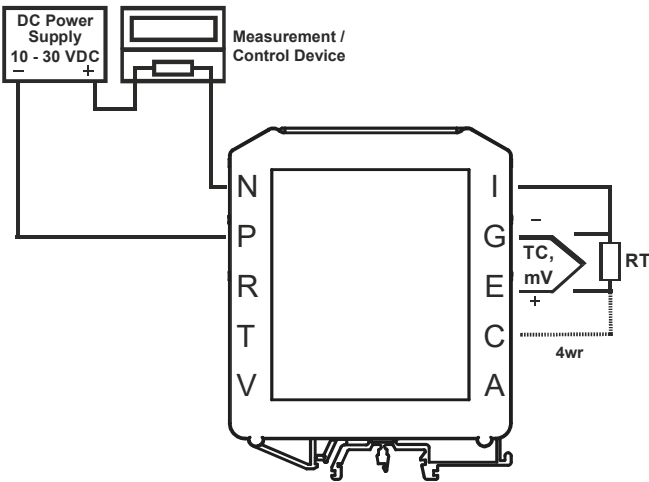


**4. DIMENSIONS**



**5. CONNECTION DIAGRAM**

Connection Diagram for 2-Wire Types



Connection Diagram for 4-Wire Types

