

KY-780-0226-1

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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.

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.

2. TECHNICAL SPECIFICATIONS

2.1. General

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

Operation Influences :	
Ambient Temperature	< ± 0.01% / °C
CJC Error (For TC input)	< ± 1.0 °C
EMC Immunity	< ± 0.5% Span
Other :	
Warm-up Time	5 minutes
Communication Interface	HART 7
Damping Time	0 to 60 seconds (Configurable)
Memory	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			-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: Type K Thermocouple, **Scale:** 0-1200°C.

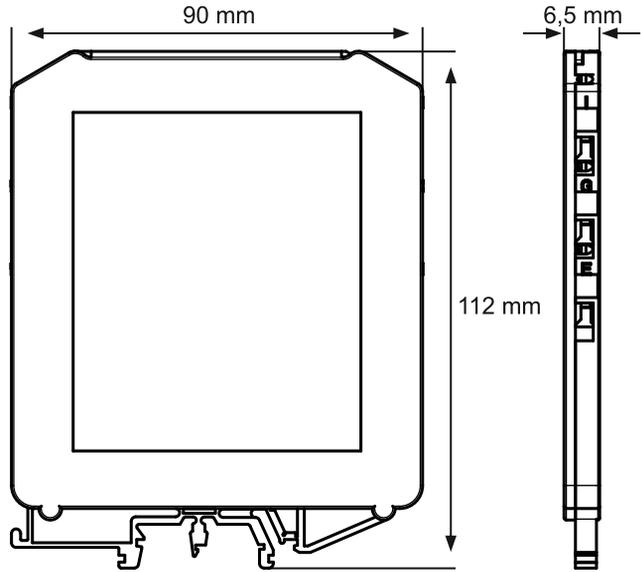
EU Directive Compliance;
 Electromagnetic Compatibility Directive EN 61326-1
 Low Voltage Directive EN 61010-1

3. TYPE CODING

E - 780 - W - X - Y - Z

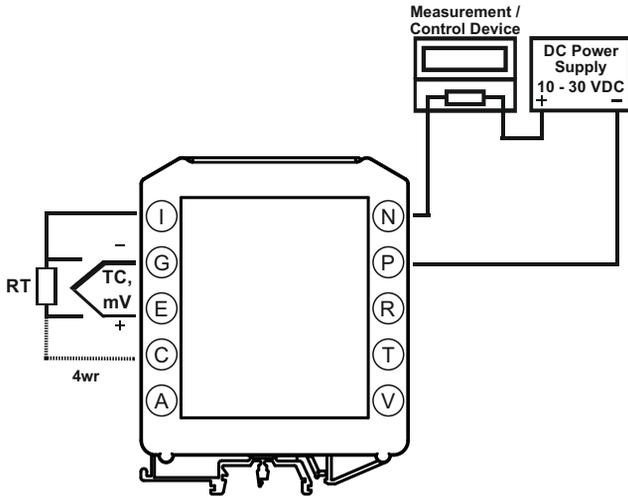
- Operating Voltage
 - 0: 2-wire (10 – 30 V DC)
 - 1: 4-wire (18 – 36 V DC)
- Communication
 - 0: None
 - 1: HART
- Output Signal
 - 1: 4 - 20 mA
- Input Signal
 - 1: Resistance Thermometer (RTD), Thermocouple (TC), mV and Resistance

4. DIMENSIONS

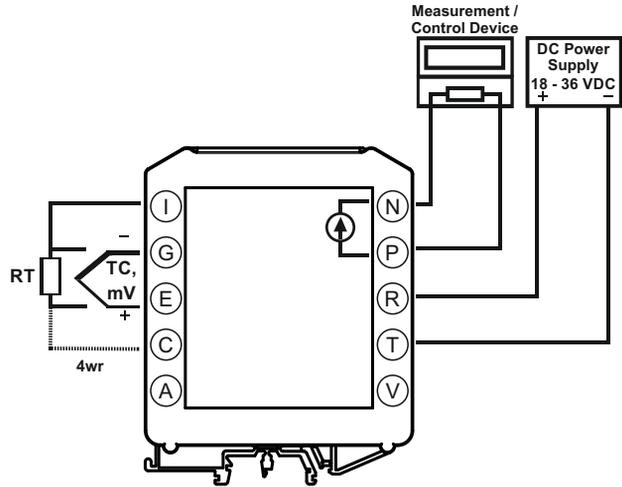


5. CONNECTION DIAGRAM

Connection Diagram for 2-Wire Types



Connection Diagram for 4-Wire Types



Manufacturer / Technical Support:

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