

Electrical specifications:  
**Specifications range:** -20°C to +60°C  
**Common specifications:**  
 Supply voltage, universal ..... 21.6...253 VAC, 50...60 Hz or 19.2...300 VDC  
 Max. consumption ..... ≤ 2.5 W  
 Fuse ..... 400 mA SB / 250 VAC  
 Isolation voltage, test / operation ..... 2.3 kVAC / 250 VAC  
 Communications interface ..... Programming front 4501  
 Signal / noise ratio ..... Min. 60 dB (0...100 kHz)  
 Response time (0...90%, 100...10%):  
 Temperature input ..... ≤ 1 s  
 mA / V input ..... ≤ 400 ms  
 Calibration temperature ..... 20...28°C  
 Accuracy, the greater of the general and basic values:

General values	
Input type	Temperature coefficient
All	≤ ±0.1% of span / °C

Basic values	
Input type	Temperature coefficient
mA	≤ ±4 μA
Volt	≤ ±20 μV
RTD	≤ ±0.2°C
Lin. R	≤ ±0.1 Ω
Potentiometer	≤ ±0.1 Ω
TC type: E, J, K, L, N, T, W3, W5, LR	≤ ±1°C
	≤ ±2°C

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EMC immunity influence ..... < ±0.5% of span  
 Extended EMC immunity:  
 NAMUR NE 21, A criterion, burst ..... < ±1% of span  
 Auxiliary supplies:  
 2-wire supply (terminal 44...43) ..... 25...16 VDC / 0...20 mA  
 Max. wire size ..... 1x2.5 mm<sup>2</sup> stranded wire  
 Screw terminal torque ..... 0.5 Nm  
 Relative humidity ..... < 95% RH (non-cond)  
 Dimen., without display front (HxBxD): 109 x 23.5 x 104 mm  
 Dimensions, w. display front (HxBxD): 109 x 23.5 x 116 mm  
 Tightness (enclosure / terminals) ..... IP50 / IP20  
 Weight ..... 170 g / 185 g with 4501  
**RTD, linear resistance and potentiometer input:**

Input type	Min. value	Max. value	Norm
P1100	-200°C	+850°C	IEC 60751
N1100	-60°C	+250°C	DIN 43760
Lin. R	0 Ω	10000 Ω	
Potentiometer	10 Ω	100 kΩ	

Cable resistance p. wire (max.), RTD ..... 50 Ω  
 Sensor current, RTD ..... Norm. 0.2 mA

Effect of sensor cable resistance (3- / 4-wire), RTD ..... < 0.002 Ω / Ω  
 Sensor error detection, RTD ..... Yes  
 Short circuit detection, RTD ..... < 15 Ω

Type	Min. value	Max. value	Norm
B	+400°C	+1820°C	IEC 60584-1
E	-100°C	+1000°C	IEC 60584-1
J	-100°C	+1200°C	IEC 60584-1
K	-137.2°C	+1372°C	IEC 60584-1
L	-180°C	+900°C	DIN 43710
N	-180°C	+1300°C	IEC 60584-1
R	-50°C	+1760°C	IEC 60584-1
S	-50°C	+1760°C	IEC 60584-1
T	-200°C	+400°C	IEC 60584-1
U	-200°C	+600°C	DIN 43710
W3	0°C	+2300°C	ASTM E968-90
W5	0°C	+2300°C	ASTM E968-90
LR	-200°C	+800°C	GOST 30444-84

Cold junction compensation (CJC):  
 via internally mounted sensor ..... < ±0.1°C  
 Sensor error detection, all TC types, Yes  
 Sensor error current:  
 when detecting ..... Norm. 2 μA  
 else ..... 0 μA

**Current input:**  
 Measurement range ..... -1...25 mA  
 Programmable measurement ranges 0...20 and 4...20 mA  
 Input resistance ..... Norm. 20 Ω + PTC 50 Ω

**Voltage input:**  
 Measurement ranges ..... -20 mV...12 VDC  
 Programmable measurement ranges 0/0.2...1; 0/1...5; 0/2...10 V  
 Input resistance ..... Norm. 10 MΩ

**Current output:**  
 Signal range (span) ..... 0...20 mA  
 Programmable signal ranges 0/4...20 and 20...4/0 mA  
 Load (max.) ..... 20 mA / 800 Ω / 16 VDC  
 Load stability ..... ≤ 0.01% of span / 100 Ω  
 Sensor error detection ..... 0 / 3.5 / 23 mA / none  
 NAMUR NE 43 Upscale / Downscale 23 mA / 3.5 mA  
 Current limit ..... ≤ 28 mA

**Voltage output:**  
 Signal range ..... 0...10 VDC  
 Programmable signal ranges 0/0.2...1; 0/1...5; 0/2...10; 1...0.2/0; 5...1/0; 10...2/0 V  
 Load (min.) ..... 500 kΩ

**Relay outputs:**  
 Relay functions ..... Setpoint, Window, Sensor error, Power and Off  
 Hysteresis, in % / display counts ..... 0.1...25% / 1...2999  
 On and Off delay ..... 0...3600 s  
 Max. voltage ..... 250 VRMS  
 Max. current ..... 2 A / AC or 1 A / DC  
 Max. AC power ..... 500 VA  
 Sensor error detection ..... Break / Make / Hold

**Observed authority requirements:** Standard:  
 EMC 2004/108/EC;  
 Emission and immunity ..... EN 61326  
 LVD 73/23/EEC ..... EN 61010-1  
 UL, Standard for Safety ..... UL 508

**OPTIONAL VERSIONS**

Optional versions have identical specifications and accessories as listed for the standard model except where noted below. More than one option may be used.  
 N/A

**NOTES:**



See PCB Declaration of Conformance PS057 for details.

Drawn: <i>[Signature]</i>	Engineer: <i>[Signature]</i>	Sales: <i>[Signature]</i>	Approved: <i>[Signature]</i>	Spec Number:
Date: 3/15/06	Date: 3/20/06	Date: 3/20/06	Date: 3/20/06	33025

Form DD030 Rev.F 2/23/99

*All specifications are at room temperature unless otherwise specified.*

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