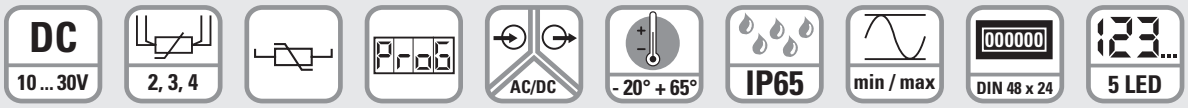
LED temperature displays | Pt100 and Ni100 input (DC) | Codix 531

Cost-effective temperature display for front panel mount with bright 5-digit LED display for values in °C or °F.

For very accurate temperature measurements using Pt100 and Ni100 resistance thermometers in 2, 3 or 4-wire technology, with permanently stored characteristic curves.

Minimum and maximum value detection for temperature monitoring over long periods of time.



Product features

- Input range: resistance thermometer.
- Compact and low-price temperature display.
- Easy programming and operation.
- Modern industrial design.
- 5 measurements/second.

Benefits

- Temperature display in °C or °F.
- MIN/MAX value acquisition and data backup in case of power off.
- Galvanic isolation with protection against incorrect polarity.
- Screw terminal connection: pitch 5 mm.
- Display hold input.

Order no.

Temperature display for Pt100 and Ni100 resistance thermometer — **6.531.012.300** 1)

Delivery specification

- Digital display
- Mounting clip
- Gasket
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- 1 set of self-adhesive symbols
- Instruction manual, multilingual

1) Stock types.

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Temperature displays

LED temperature displays | Pt100 and Ni100 input (DC) | Codix 531

Accessories	Dimensions in mm [inch]	Order no.
Adapter front bezel, 72 x 36 [2.83 x 1.42]	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set — black and silver anodized	**162704 Set**
Adapter front bezel, 48 x 48 [1.89 x 1.89]	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94] — black	**T008883**
Adapter front bezel, 60 x 50 [2.36 x 1.97]	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94] — black	**N003001**
Transparent cover, lockable, IP65	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	**N003002**
Sealing cover type K1, IP65	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	**G008301**
Mounting frame with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94] — chromated	**G300004**

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: www.kuebler.com/accessories.

Technical data

General technical data

Display	5 digits, red 7 segment LED display; 8 mm [0.32"] high
Display refresh	1 ... 2 times per second
Data backup	EEPROM
Operating temperature	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)

Electrical characteristics

Power supply	10 ... 30 V DC, galvanically isolated with integrated reverse polarity protection
Current consumption	max. 40 mA
Circuit type	2-wire, 3-wire and 4-wire technology, programmable
EMC standards	EN 55011 class B EN 61000-6-2, EN 61000-6-3 EN 61326-1
UL approval	file E128604

Mechanical characteristics

Housing	front panel mount 48 x 24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g [1.76 oz]
Connections	screw terminal, pitch 5.08 mm [2"] , 7 pin

Measuring signal inputs

Measuring rate		5 measurements / second
Input		Pt100 resistance thermometer Ni100 resistance thermometer with sensor breakage monitoring
Control inputs	HIGH LOW	4 ... 30 V DC 0 ... 2 V DC
Supply current		1 mA
Supply line	2-wire 3-wire, 4-wire	max. 20 Ω, programmable max. 20 Ω, no balancing required
Temperature ranges		
	Pt100 acc. to DIN IEC 751	-199.9°C ... +850.0°C [-327.8°F ... +1562.0°F]
	Ni100 acc. to DIN 43760	-60.0°C ... +250.0°C [-76.0°F ... +482.0°F]
Resolution		0.1°C (0.1°F) or 1°C (1°F)
Linearity error	Pt100 Ni100	< 0.1 % for the whole measuring range at an operating temperature of 20°C [68°F] < 0.2 %for the whole measuring range at an operating temperature of 20°C [68°F]
Temperature drift		0.1 $K/K_{Ambient}$

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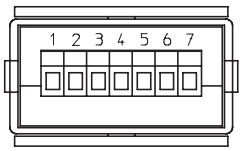
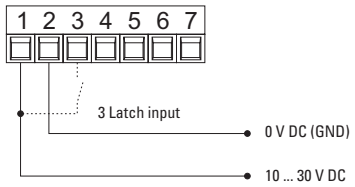
LED temperature displays | Pt100 and Ni100 input (DC) | Codix 531

Terminal assignment

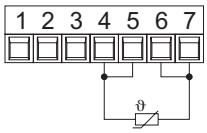
1	2	3	4	5	6	7
10 ... 30 V DC	0 V DC (GND)	Latch input	Pt100/Ni100	Pt100/Ni100	Pt100/Ni100	Pt100/Ni100



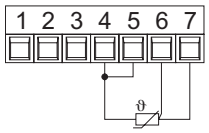
Connection power supply and latch input



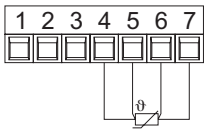
Connection resistance thermometer Pt100/Ni100



2-wire resistance thermometer



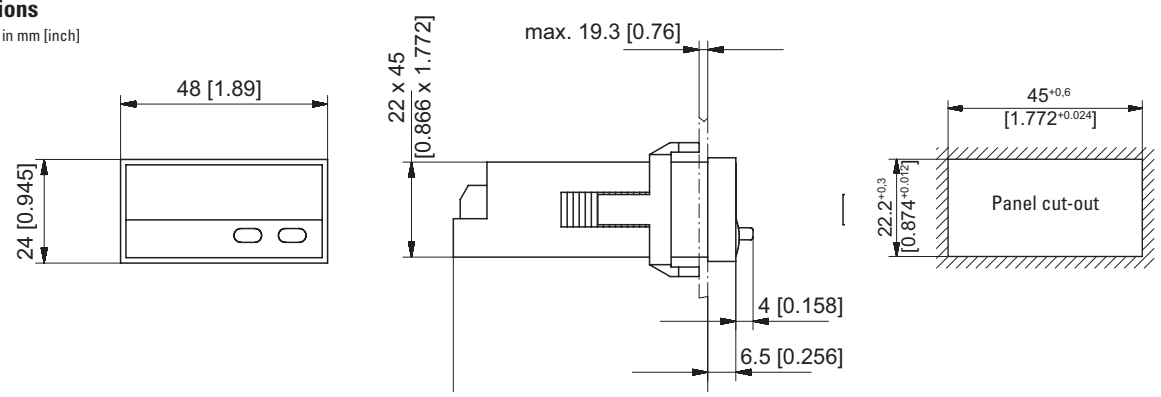
3-wire resistance thermometer



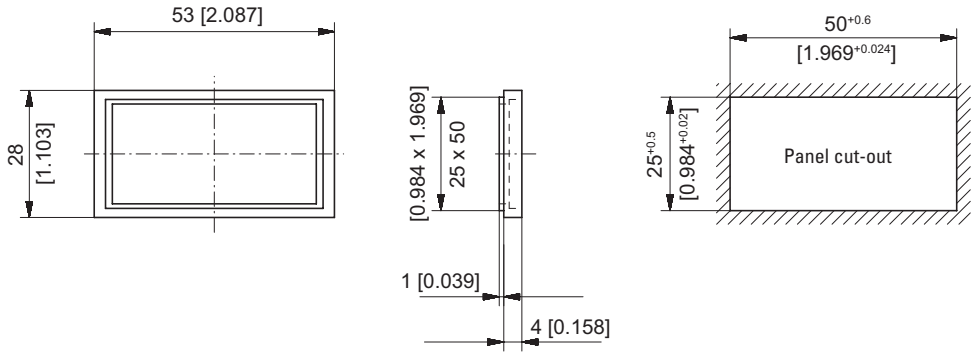
4-wire resistance thermometer

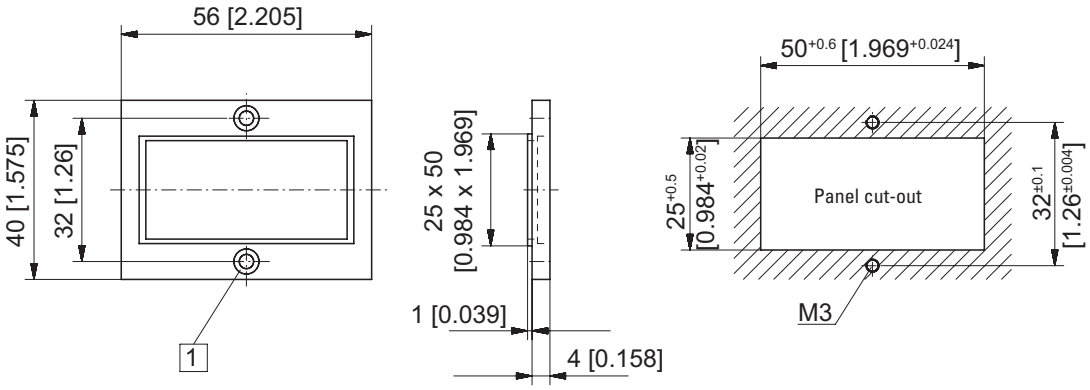
Dimensions

Dimensions in mm [inch]



Front bezel





1 Countersinking Af3, DIN 74

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LED temperature displays | For thermocouple inputs J, K and N (DC) | Codix 532

Cost-effective temperature display for front panel mount with bright 5-digit LED display for values in °C or °F.

For very accurate temperature measurements using J, K or N thermocouples with permanently stored characteristic curves and selectable cold junction compensation.

Minimum and maximum value detection for temperature monitoring over long periods of time.

Product features

- Input ranges: J, K, N thermocouples with external or internal cold junction compensation.
- Compact and cost-effective temperature display.
- Easy programming and operation.
- Modern industrial design.
- 5 measurements / second.

Benefits

- Temperature display in °C or °F.
- MIN/MAX value acquisition and data backup in case of power off.
- Galvanic isolation with protection against incorrect polarity.
- Screw terminal connection: pitch 5 mm.
- Display hold input.

Order no.

Temperature display for J, K and N thermocouplers	**6.532.012.300** 1)

Delivery specification

- Digital display
- Mounting clip
- Gasket
- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]
- 1 set of self-adhesive symbols
- Instruction manual, multilingual

1) Stock types

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LED temperature displays | For thermocouple inputs J, K and N (DC) | Codix 532

Accessories	Dimensions in mm [inch]	Order no.
Adapter front bezel, 72 x 36 [2.83 x 1.42]	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set — black and silver anodized	**162704 Set**
Adapter front bezel, 48 x 48 [1.89 x 1.89]	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94] — black	**T008883**
Adapter front bezel, 60 x 50 [2.36 x 1.97]	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94] — black	**N003001**
Transparent cover, lockable, IP65	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	**N003002**
Sealing cover type K1, IP65	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	**G008301**
Mounting frame with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94] — chromated	**G300004**

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: www.kuebler.com/accessories.

Technical data

General technical data

Display	5 digits, red 7 segment LED display; 8 mm [0.32"] high
Display refresh	1 ... 2 times per second
Data backup	EEPROM
Operating temperature	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)

Electrical characteristics

Power supply	10 ... 30 V DC, galvanically isolated with integrated reverse polarity protection
Current consumption	max. 40 mA
EMC standards	EN 55011 class B EN 61000-6-2, EN 61000-6-3 EN 61326-1
UL approval	file E128604

Mechanical characteristics

Housing	front panel mount 48 x 24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g [1.76 oz]
Connections	screw terminal, pitch 5.08 mm [2"] , 7 pin

Measuring signal inputs

Measuring rate		5 measurements / second
Input		thermocouple sensor J (Fe-CuNi) K (Ni-CrNi) N (NiCrSi-NiSi) with sensor breakage monitoring
Temperature ranges (according to DIN IEC 584)	J (Fe-CuNi)	-210.0°C ... +1200.0°C [-346.0°F ... +2192.0°F]
	K (Ni-CrNi)	-200.0°C ... +1372.0°C [-328.0°F ... +2501.6°F]
	N (NiCrSi-NiSi)	-200.0°C ... +1300.0°C [-328.0°F ... +2370.0°F6
Resolution		0.1°C (0.1°F) or 1°C (1°F)
Linearity error		< 0.4 % for the whole measuring range at an operating temperature of 20°C [68°F]
Temperature drift		0.1 $K/K_{Ambient}$
Cold junction error		±1°C typ. / ±3°C max.
Control inputs	HIGH	4 ... 30 V DC
	LOW	0 ... 2 V DC

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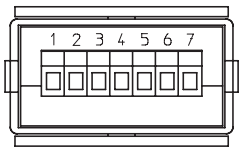
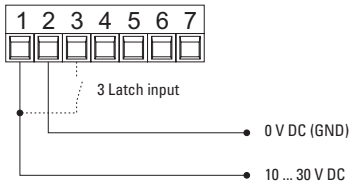
LED temperature displays | For thermocouple inputs J, K and N (DC) | Codix 532

Terminal assignment

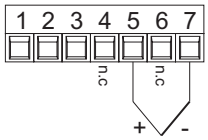
1	2	3	4	5	6	7
10 ... 30 V DC	0 V DC GND	Latch input	n.c.	Thermocouple +	n.c.	Thermocouple –



Connection power supply and latch input

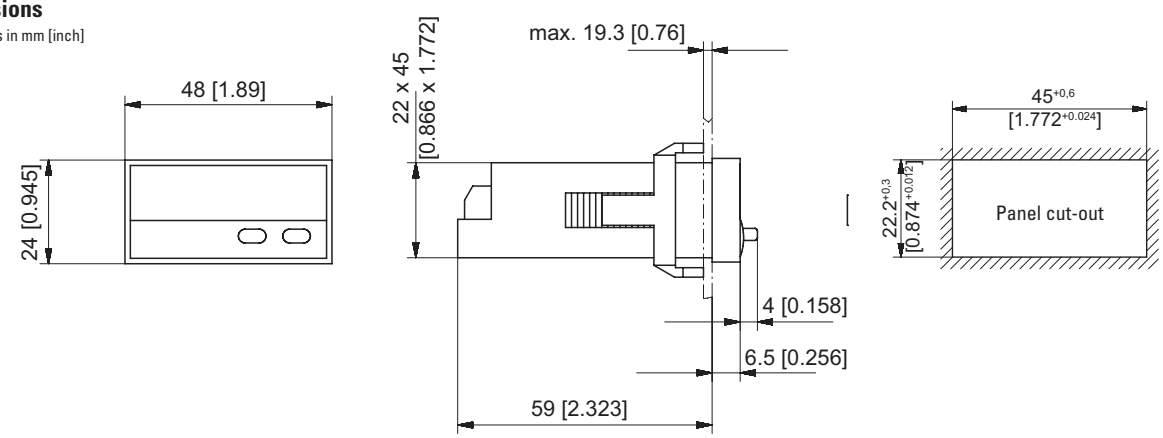


Connection thermocouple sensor

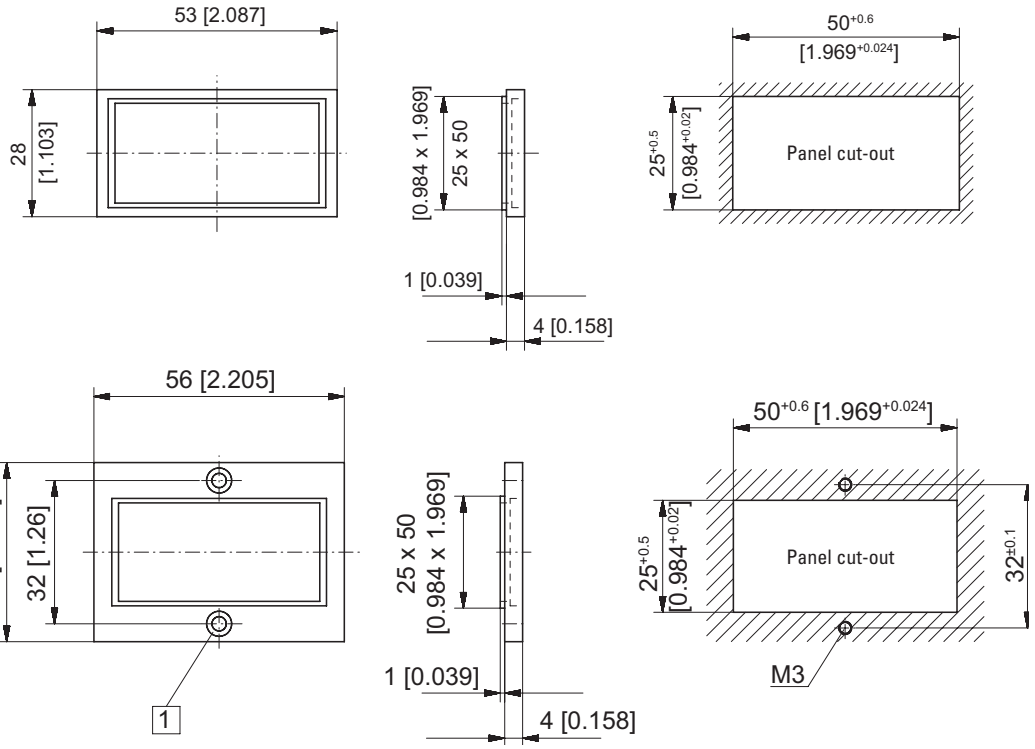


Dimensions

Dimensions in mm [inch]



Front bezel



1 Countersinking Af3, DIN 74

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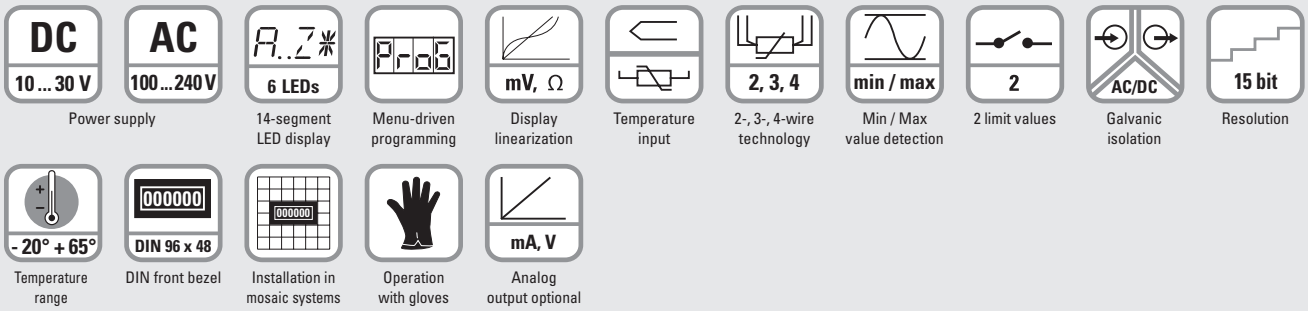
LED temperature controllers | For temperature sensors with limit value (AC+DC) | Codix 564

The temperature controller Codix 564 displays temperature values in high resolution. In addition it can monitor and control 2 limit values. All current temperature sensors, such as thermocouple types B, E, J, K, N, R, S and T, as well as mV inputs, Pt100 and resistance inputs, can be connected to the device.

These fast displays set new standards when it comes to user friendliness. Their easy-to-read 14-segment LED display, easy-to-understand running help texts and a practical quick-start guide eliminate the need to wade through time-consuming full instruction manuals.

With optional analog output.



User-friendly

- Practical quick-start guide for setting the parameters and operating the device.
- Help text as running text.
- Easy-to-read 14-segment LED, 6-digit display, 14 mm high.
- Simple programming via 4 keys on the front.
- One front key as well as 2 additional inputs can be programmed for specific applications.
- Characteristic curves for thermocouples and RTD permanently stored.
- MIN/MAX memory function, individually resettable.

Powerful

- Sampling rate of 10 readings per second.
- Customized linearization via 12 control points.
- 2 relay outputs (changeover contacts) for limit monitoring with hysteresis and ON/OFF delay function.
- Analog output for the current measured value, MIN-value, MAX-value.
- Auxiliary sensor power supply with AC version.
- Inputs and outputs galvanically isolated.
- Digital filter (first-order) for smoothing display fluctuations with unstable input signals.

Order code

6.564 . 010 . X0X
(a) (b) (c) (d)

(a) *Input type*
4 = Temperature signal input [1)]

(b) *Outputs*
0 = relays [1)]

(c) *Power supply*
0 = 100 ... 240 V AC, ±10 % [1)]
3 = 10 ... 30 V DC [1)]

(d) *Further outputs (optional)*
0 = none [1)]
9 = analog output [1)]
(only for DC version)

Delivery specification:
- Process device
- Mounting clip
- Gasket
- Instruction manual, multilingual
- 1 sheet of self-adhesive symbols
- Quick-start guide

Practical quick-start guide for setting the parameters and operating the device.

The guide can be affixed directly to the front of the unit and can be removed and re-applied as required.

1) Stock types.

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LED temperature controllers | For temperature sensors with limit value (AC+DC) | Codix 564

Accessories	Dimensions in mm [inch]		Order no.
Mounting frame with cut-out 92 x 45 [3.62 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey	**G300005**

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Technical data

General technical data

Display	6-digit, 14 segment LED
Digit height	14 mm [0.55“]
Display range	-199999 … 999999, with leading zero blanking
Data retention	> 10 years, EEPROM
Operation	5 keys
Operating temperature	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
Storage temperature	-25°C ... +75°C [-13°F ... +167°F]
Relative humidity (non-condensing)	R.H. 93 % at +40°C [+104°F]
Altitude	up to 2000 m [6562‘]

Electrical characteristics

Power supply	AC supply	100 ... 240 V AC / max. 9 VA, 50 / 60 Hz, tolerance ±10 % ext. fuse protection: T 0.1 A
	DC supply	10 ... 30 V DC / max. 3.8 W with galvanic isolation and reverse polarity protection ext. fuse protection: T 0.4 A
Mains hum suppression (programmable)		50 Hz or 60 Hz
Sensor power supply	AC supply	24 V DC ±15 %, 30 mA
EMC standard		EN 55011 class B EN 61000-6-2, EN 61000-6-3 with shielded signal and control cables
Device safety	designed to	EN 61010 part 1
	protection class	2 (front side)
	application area	pollution level 2
	overvoltage category	II
UL approval		file E128604

Measuring signal inputs

Sampling rate	10 readings/sec
Temperature drift	< 100 ppm/$K_{Ambient}$

Input Thermocouple

thermocouple:	range:	accuracy at 23°C [73.4°F]:
type B	+250°C ... 1820°C [+482°F ... 3308°F]	typ. 1.0°C, max. 2.0°C
E	-200°C ... +1000°C [-328°F ... +1832°F]	typ. 0.2°C, max. 0.5°C
J	-210°C ... +1200°C [-346°F ... +2192°F]	typ. 0.2°C, max. 0.5°C
K	-200°C ... 499.9°C [-328°F ... +931,82°F]	typ. 0.6°C, max. 1.0°C
	-500°C ... +1372°C [-868°F ... 2502°F]	typ. 0.3°C, max. 0.5°C
N	-200°C ... +1300°C [-328°F ... 2372°F]	typ. 0.3°C, max. 0.7°C
R	-50°C ... +1768°C [-58°F ... +3214°F]	typ. 1.0°C, max. 2.0°C
S	-50°C ... +1768°C [-58°F ... +3214°F]	typ. 1.0°C, max. 2.0°C
T	-200°C ... +400°C [-328°F ... +752°F]	typ. 0.2°C, max. 0.5°C

Resolution J, K, T, E, N	1 or 0.1°C/°F
Resolution S, R, B	1°C/°F
Reference point	internal or external constant
Reference point accuracy	≤ ±1°C

Input mV

Measuring range	±105 mV (resolution ±15 bit)
Measuring accuracy at 23°C [73.4°F] (% of range)	typ. 0.02 / max. ≤ 0.05
Input resistance	> 2 MΩ

Input Pt100

Measuring range	-200°C … +850°C [-328°F ... +1562°F]
Resolution	1 or 0.1°C / °F
Measuring accuracy at 23°C [73.4°F]	typ. 0.3°C, max. ≤ 0.6°C
Measuring current	200 µA
Connection	2-, 3-, 4-wire
Lead wire resistance	max. 25 Ω per wire

Input 500 Ω

Measuring range	0 ... 525 Ω (resolution ±15 bit)
Measuring accuracy at 23°C [73.4°F]	typ. 0.1 Ω, max. ≤ 0.2 Ω
Measuring current	200 µA
Connection	2-, 3-, 4-wire
Lead wire resistance	max. 25 Ω per wire

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LED temperature controllers | For temperature sensors with limit value (AC+DC) | Codix 564

Mechanical characteristics

Housing	Panel mount housing to DIN 43700 RAL 7021
Dimensions	96 x 48 x 102 mm [3.78 x 1.89 x 4.02“]
Panel cut-out	92 +0.8 x 45 +0.6 mm [3.62 +0.032 x 1.77 +0.024“]
Installation depth	approx. 92 mm [3.62“] incl. terminals
Weight	approx. 180 g [6.34 oz]
with analog output	200 g [7.06 oz]
Protection	IP65 (front side)
Housing material	Polycarbonate UL94 V-2
Vibration resistance acc. to EN 60068-2-6	10 - 55 Hz / 1 mm / XYZ 30 min in each direction
Shock resistance acc. to EN 60068-2-27	100 G / 2 ms / XYZ 3 times in each direction
acc. to EN 60068-2-29	10 G / 6 ms / XYZ 2000 times in each direction

Connections

Power supply and outputs	Plug-in screw terminal, 8-pin, RM 5.00, core ø max. 2.5 mm² [AWG 13]
Signal and control inputs	Plug-in screw terminal, 9-pin, RM 3.50, core ø max. 1.5 mm² [AWG 15]

Alarm outputs

Relays		changeover contacts
Switching voltage	max.	250 V AC / 125 V DC
	min.	5 V AC / 5 V DC
Switching current	max.	5 A AC / 5 A DC
	min.	10 mA DC
Switching capacity	max.	1250 VA / 150 W
Pull-in time		approx. 10 ms

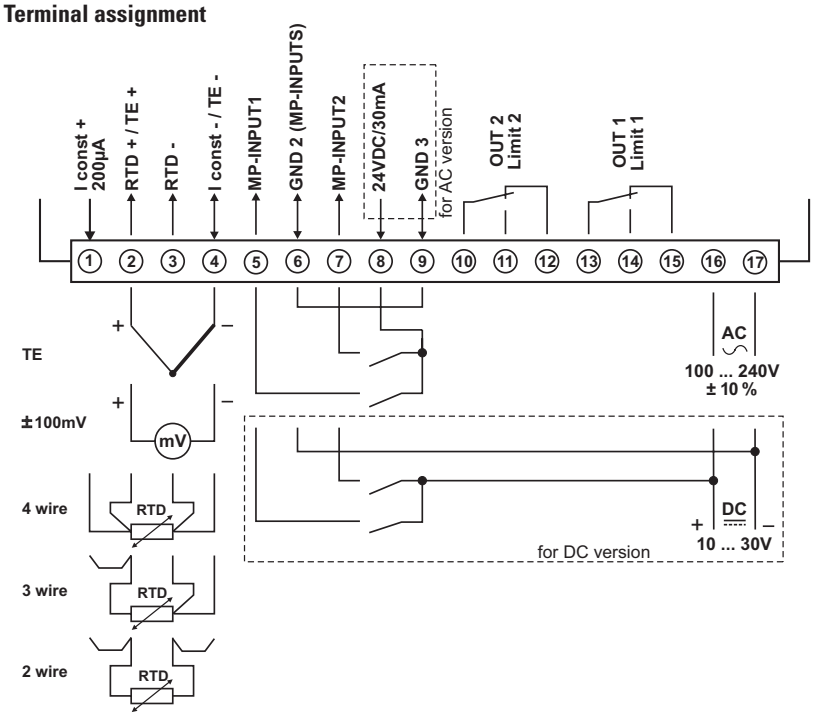
Analog output (optional - only for DC version)

Output ranges		0 (4) ... 20 mA / 0 (2) ... 10 V
Load	current output	≤ 500 Ω
	voltage output	≥ 2000 Ω
Resolution		15 bit
Update time (basic device measuring rate)		100 ms
Temperature drift		≤ 100 ppm/$K_{Ambient}$
Accuracy		±0.1 % of the output range high value
Output ripple		≤ 10 mV
Isolation voltage		500 V AC for 1 minute or 1 kV DC for 1 second

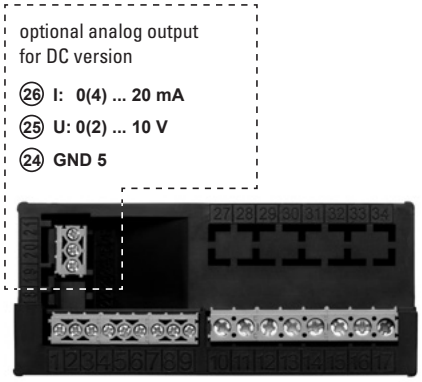
Control inputs MPI 1 / MPI 2

Quantity		2 optocouplers
Function		programmable
Switching levels	LOW	< 2 V
	HIGH	> 4 V (max. 30 V)
Pulse length		> 100 ms

Terminal assignment



Rear side view



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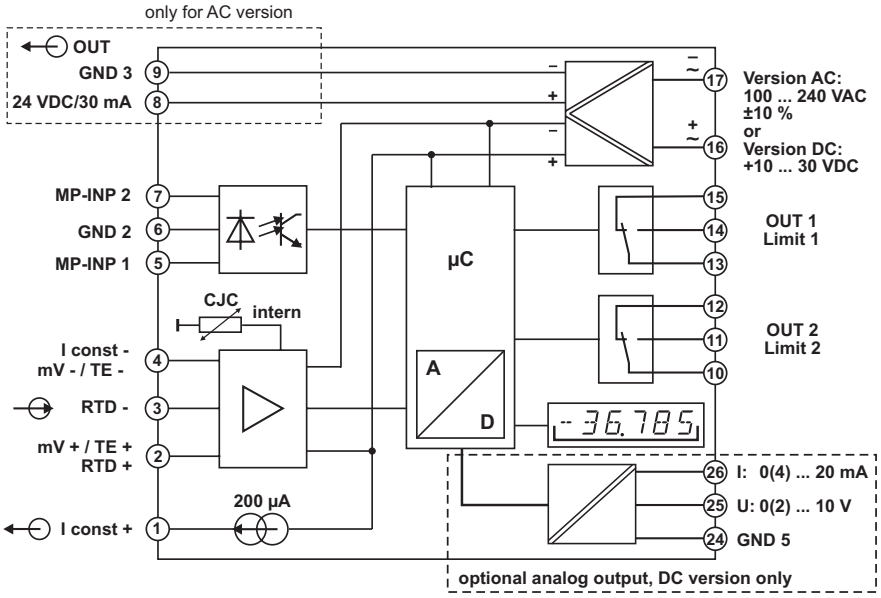
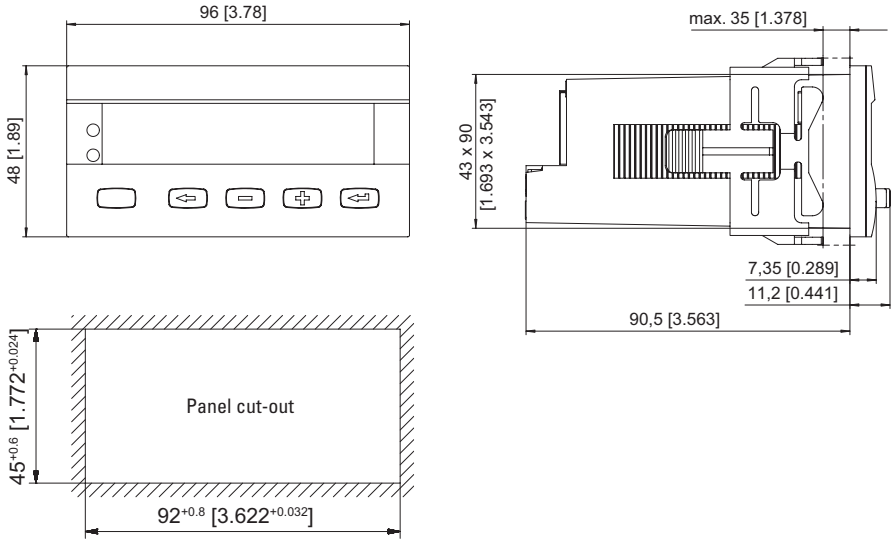
LED temperature controllers | For temperature sensors with limit value (AC+DC) | Codix 564

Block diagram



Dimensions

Dimensions in mm [inch]