IO-Link

LTS 300-IO

Electronic Temperature Switch

with IO-Link interface

Temperature sensor Pt 1000 (class A)

accuracy according to IEC 60770:
0.35 % FSO

Nominal temperature

- process connection in stainless steel:
  from -40 up to 150 °C
- process connection in PVDF:
  from -30 up to 125 °C

Digital output signal

IO-Link according to specification V 1.1

smart sensor profile

data transfer rate 38.4 kbit/s

SIO mode (PNP / NPN), switchable

Analogue output

3-wire: 4 … 20 mA or 0 … 10 V,
switchable

Special characteristics

- indication of measured values
  on a 4-digit LED display
- rotatable and configurable
  display module
- parameter settings via IO-Link
  or menu (VDMA-conform)

Optional versions

- customer specific versions

The electronic temperature switch **LTS 300-IO** is equipped with an IO-Link interface as standard in order to exchange process data, diagnostic reports and status messages with a superordinate control level.

The parameters are set either also via the control level or via the VDMA-compliant menu system, which can be carried out at a local level using two keys.

The **LTS 300-IO** is designed for the mechanical and plant engineering sectors, to control temperature in industrial processes and manage the operation efficiently.

In addition, unusual display positions can be compensated to the multiple rotatability of the display so that the user is able to read the vital information without any problems.

Preferred areas of use are

Plant and machine engineering

- temperature detection
- status display
- system monitoring

CE ROHS REACH IO-Link

Measurement category		
Version of process connection	stainless steel	PVDF
Temperature measuring range	-40 … 150 °C	-30 … 125 °C
Pressure resistance	max. 160 bar within complete temperature range	max. 70 bar @ 23°C
Measuring resistance	temperature sensor Pt 1000 according to DIN EN 60751 class A	

Supply	
Voltage supply	V_S = 18 ... 30 V_{DC}
Output signal	
Output signal 1	IO-Link / SIO (PNP / NPN) switchable
Output signal 2	4 … 20 mA / 3-wire or 0 … 10 V / 3-wire or PNP / NPN switchable
Signal characteristics switching signal	
Accuracy [1]	≤ ± 0.5 % FSO
Repeatability	≤ ± 0.2 % FSO
Switching current	max. 200 mA
Switching frequency	max. 200 Hz
Delay time	0.0 … 50.0 sec
Switching cycles	> 100 x 10^6
Response time	< 12 msec
Standby delay time	110 msec
Signal characteristics analogue signal	
Accuracy [1]	≤ ± 0.35 % FSO
Long term stability	≤ ± 0.3 % FSO / year at reference conditions
Permissible load (4 … 20 mA)	R_{max} = 330 Ω
Permissible load (0 … 10 V)	R_{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO load: ≤ 0.1 % FSO
Adjustability	offset: ± 5 % span: - 10 %
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	

Thermal effects (offset and span)	
Thermal error	≤ ± 0.3 °C + 0.005 + T
In compensated range	0 ... 80 °C

Permissible temperatures			
Permissible temperatures	operating area	process connection in stainless steel	process connection in PVDF
	medium:	-40 …150 °C	-30 … 125 °C
	electronics / environment:	-40 … 85 °C	-40 … 85 °C
	storage:	-40 … 85 °C	-40 … 85 °C

Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

IO-Link	
Interface	IO-Link 1.1; slave
Data transfer	COM2 / 38.4 kbit/s
Mode	SIO / IO-Link
Standard	IEC 61131-2 IEC 61131-9

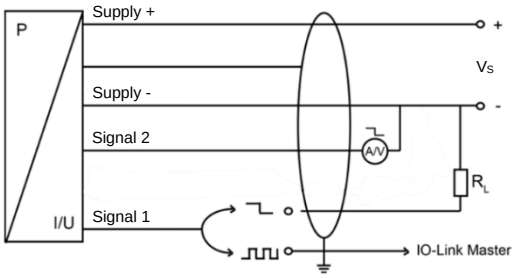
Mechanical stability		
Vibration	10 g / 25 Hz … 2 kHz	according to DIN EN 60068-2-6
Shock	500 g / 1 msec	according to DIN EN 60068-2-27

Materials		
Display housing	PA 6.6	
Housing		
	standard: stainless steel 1.4435 (316L) option: PVDF	
Seal	FKM	others on request
Media wetted parts	process connection, seal	

Miscellaneous	
Display	4-digit, 7-segment-LED display on black base body, white, blue foil digit height 7 mm range of indication -1999 ... +9999 visible range 22.5 x 10.5 mm 3 LEDs for unit switching (°C, °F, K) LED status display for IO-Link and contacts
Operation	2 buttons / functions according to VDMA 24574-1
Turn-on time	110 msec
Weight	approx. 220 g
Current consumption	≤ 40 mA
Protection class	IP 67
Installation position	any
CE-conformity	EMC Directive: 2014/30/EU

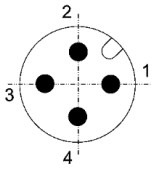
Wiring diagram

3-wire-system (IO-Link / SIO with contact, analogue output)



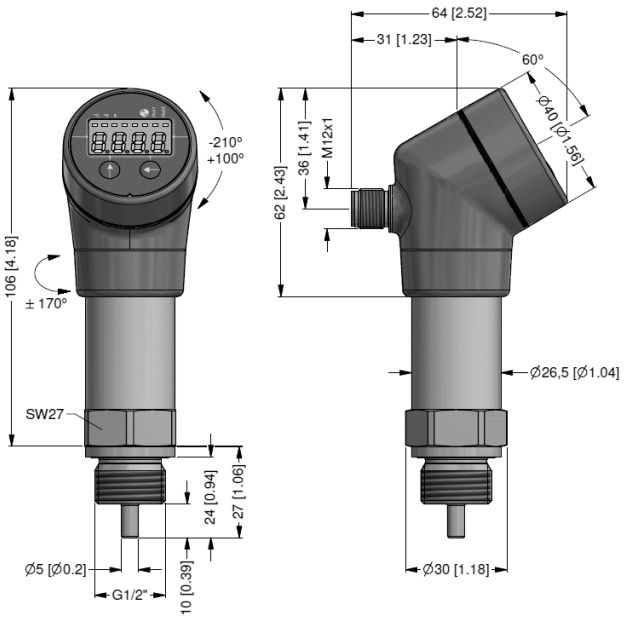
Electrical connection

Pin configuration	Description	M12x1 (4-pin), metal
Supply +	supply	1
Supply –	supply	3
Output signal 1	IO-Link / SIO (PNP / NPN)	4
Output signal 2	4 … 20 mA – 3-wire / 0 …10 V – 3-wire (PNP / NPN)	2
Shield	shielding	plug housing



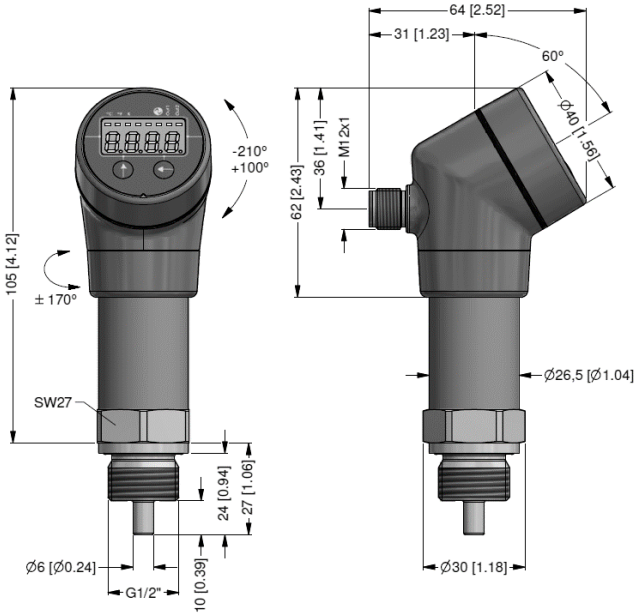
Dimensions (mm / in)

process connection in stainless steel



G1/2" DIN 3852 with Pt 1000

process connection in PVDF



G1/2" DIN 3852 with Pt 1000

Digital-Thermometer für industrielle Anwendungen
Digital thermometer for industrial applications

LDT 30
LDT 31

Rel. 20181029

Anwendungsbereich:

Die Digital-Thermometer **LDT 30** und **LDT 31** dienen zur örtlichen Temperaturanzeige. Der Batteriebetrieb und ein präziser Platin-Temperatursensor ermöglichen eine autarke und sehr genaue Temperaturmessung, dies auch bei widrigen Umgebungsbedingungen.

Service intended:

*The digital thermometer **LDT 30** and **LDT 31** are made for local temperature indication. As the come with integrated battery and a platin temperature sensor, they allow a self-sufficient and very precise measurement of temperatures, even at adverse ambient conditions.*

LDT 30

LDT 31

Technische Daten	***Technical data***
Gehäuse	***Case***
Ø 100mm, Edelstahl	*Ø 100mm, stainless steel*
Schutzart	***Degree of protection***
IP 65 nach EN 60529	*IP 65 per EN 60529 / IEC 529*
Temperaturfühler	***Stem / cable***
Edelstahl 1.4571 - Ø6, Ø8 oder Ø10 mm	*Stainless steel 316Ti - Ø6, Ø8 or Ø10 mm*
Schutzrohr	***Thermowell***
optional auf Anfrage	*optional on request*
Messorgan	***Temperature element***
Pt1000 - Klasse B, DIN EN 60751	*Pt1000 Class B, DIN EN 60751*
Batterie	***Battery***
3,6V; 2600 mAh - AA, Lithium auswechselbar Standzeit ca. 5-10 Jahre	*3,6V; 2600 mAh - AA, Lithium* *interachangeable* *lifetime aprox. 5-10 years*
Anzeige	***Display***
4-stellige LCD Ziffernhöhe 18 mm	*4-digits LCD* *height of digits 18 mm*
zulässige Temperaturen T_{min} / T_{max}	***Permissible temperatures*** T_{min} / T_{max}
Lagertemperatur - 20 ... + 70°C	*Storage temperature - 20 ... + 70°C*
Umgebungstemperatur - 10 ... + 60°C	*Ambient temperature - 10 ... + 60°C*
Genauigkeit	***Accuracy***
Anzeige: 0,3% FS +/- 1 Digit Sensor: +/- 0,3K bei 0°C; +/-(0,3 + 0,005*|t|) Messrate: 16s	*Display: 0.3% FS +/- 1 Digit* *Sensor: +/- 0.3K at 0°C; +/-(0.3 + 0.005*|t|)* *measuring rate: 16s*
Fehlerüberwachung	***Fault monitoring***
HI = Drahtbruch LO = Kurzschluss Bat = schwache Batteriespannung	*HI = wire breakage* *LO = short* *Bat = low battery voltage*

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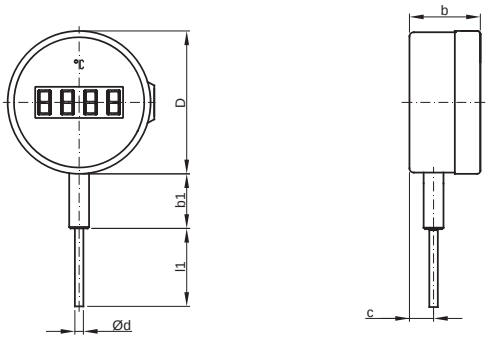
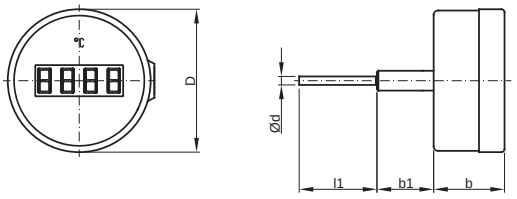
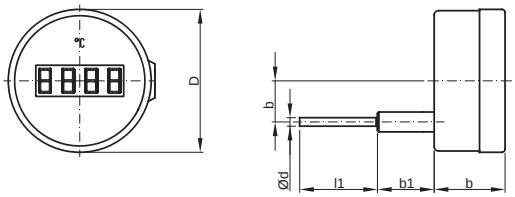


Typ LDT 30-U-7-N100
Anschluss unten
bottom connection



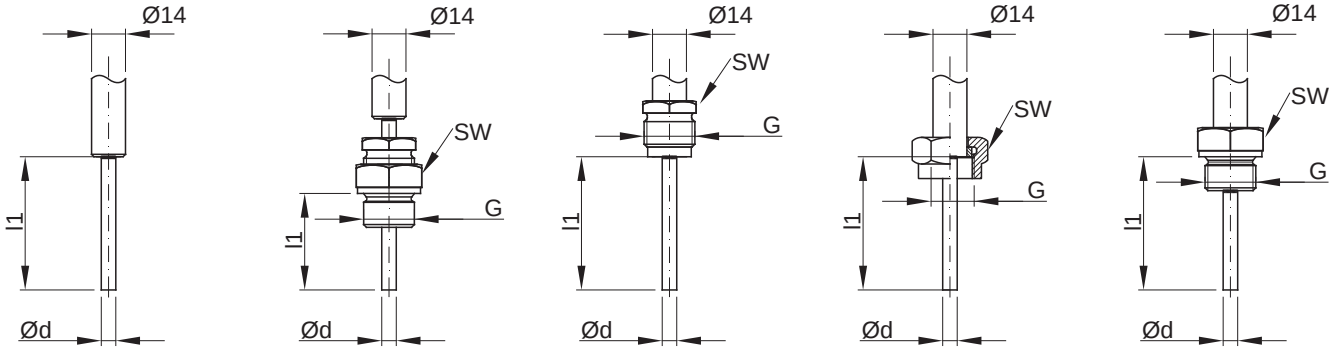
Typ LDT 30-H-7-N100
Anschluss hinten zentrisch
rear centric connection



Typ LDT 30-HE-7-N100
Anschluss hinten exzentrisch
rear eccentric connection

NG *DS*	b	b1	b2	c	D	Ød	l1	G
	mm							
100	50	40	29	17	101	6 8 10	200[1)]	G½B[1)] *1/2" BSP*

[1)] Andere Abmessungen auf Anfrage / *other dimensions on request*



Form 1
glatter Schaft
plain stem

Form 2
verstellbare Klemmverschraubung
adjustable compression fitting

Form 4
Einschraubzapfen drehbar
male nut

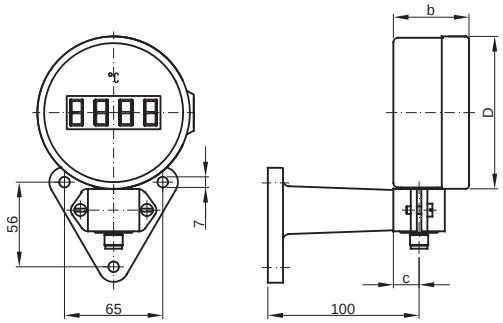
Form 5
Überwurfmutter
union nut

Form 6
Einschraubzapfen fest
male thread

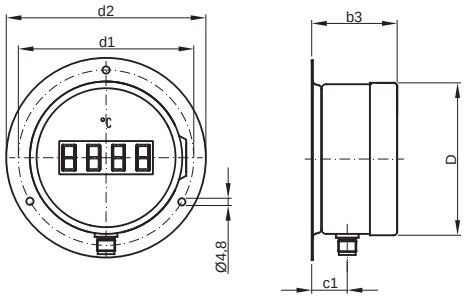
Typ *Type*	Messbereich *Measuring range*	Code
LDT 30 - U - 7 - N100	- 99,9 ... 0 ... + 550 °C	500
LDT 30 - H - 7 - N100		500
LDT 30 - HE - 7 - N100		500
LDT 30 - U - 7 - N100	- 50 ... 0 ... + 200 °C	200
LDT 30 - H - 7 - N100		200
LDT 30 - HE - 7 - N100		200

Digital-Thermometer für industrielle Anwendungen
Digital thermometer for industrial applications

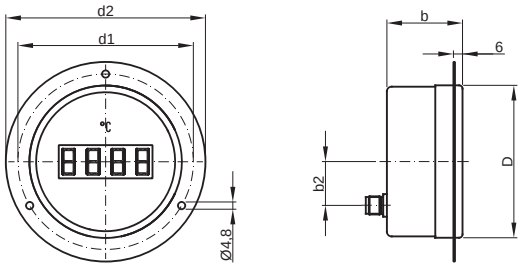
LDT 30
LDT 31



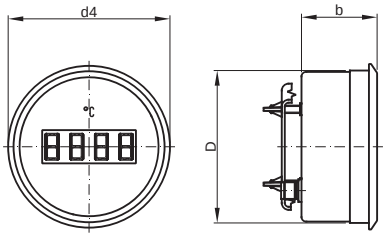
Typ LDT 31-U-1-N100
Anschluss unten
Bottom connection



Typ LDT 31-U-3-N100
Anschluss unten mit Rand hinten
Bottom connection with surface mounting flange



Typ LDT 31-H-2-N100
Anschluss hinten mit Rand vorne
Back connection with panel mounting flange

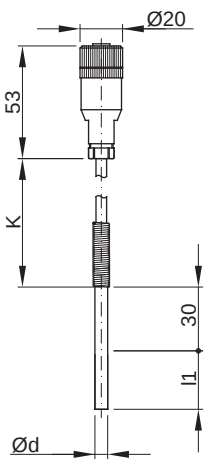


Typ LDT 31-H-4-N100
Anschluss hinten mit Dreikantfronteing
Back connection with triangular bezel

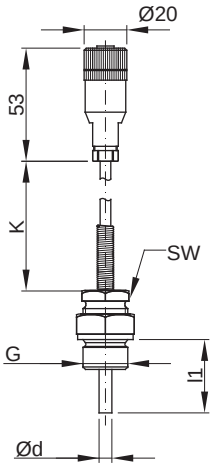
NG *DS*	b	b2	b3	c	c1	D	d1	d2	d4	Ød	l1	K	G	Tafelausschnitt *panel cut-out*	
	mm														
100	50	29	56,5	17	23,5	101	116	132	107	6 8 10	200[1)]	1000	G½B[1)] 1/2" BSP	105	(103)[2)]

[1)] Andere Abmessungen auf Anfrage / *other dimensions on request*

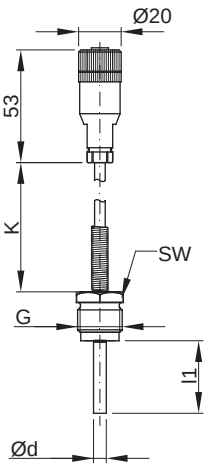
[2)] Auschnitt für **LDT 31**-H-4-N100 / *cut out for **LDT 31**-H-4-N100*



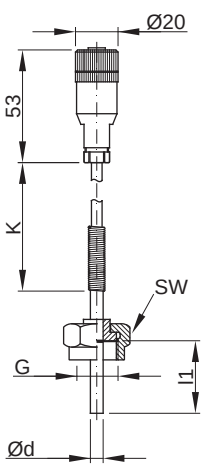
Form 1
glatter Schaft
plain stem



Form 2
verstellbare Klemmverschraubung
adjustable compression fitting



Form 4
Einschraubzapfen
drehbar
male nut



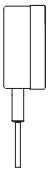
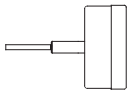
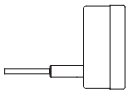
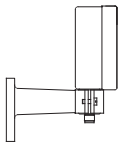
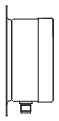
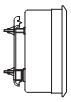
Form 5
Überwurfmutter
union nut

Typ *Type*	Messbereich *Measuring range*	Code
LDT 31 - U - 1 - N100	- 50 ... 0 ... + 200 °C	200
LDT 31 - U - 3 - N100		200
LDT 31 - H - 2 - N100		200
LDT 31 - H - 4 - N100		200

LDT 30
LDT 31

Digital-Thermometer für industrielle Anwendungen
Digital thermometer for industrial applications

Lieferbare Ausführungen / available executions:

						
LDT 30-U-7	LDT 30-H-7	LDT 30-HE-7	LDT 31-U-1	LDT 31-U-3	LDT 31-H-2	LDT 31-H-4

Bestell-Schlüssel / Order-Code:

LDT [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Modell / *model* :	
30	Starrer Fühler / *rigid stem*
31	Kabelausführung / *cable execution*

Anschlussrichtung / *connection style* :	
H	zentrisch hinten / *centric back*
HE	exzentrisch hinten / *excentric back*
U	unten / *bottom*

Einbauart / *mounting method* :	
1	mit Messgerätehalter / *with mounting backet*
2	mit 3-Loch-Frontring / *with 3-hole front flange*
3	mit hinterem Befestigungsrand / *with back flange*
4	mit Dreikantfrontr. u. Klemmbügel / *with bracket for panel mount.*
7	starrer Fühler / *rigid stem* (Standard)

Gehäusedurchmesser / *Case diameter* :	
N100	Nenngröße 100 mm / *Nominal size 100 mm*

Fühlerform:	
F1	glatter Fühler / *plain without thread* (Standard)
F2	Klemmverschraubung G 1/2" / *sliding male swivel nut 1/2" BSP*
F4	drehbarer Einschraubzapfen G 1/2" / *male swivel nut 1/2" BSP*
F5	Überwurfmutter G 1/2" / *female swivel nut 1/2" BSP*
F6	fester Einschraubzapfen G 1/2" / *fixed male 1/2" BSP*
FX	andere (AUF ANFRAGE) / *other (ON REQUEST)*

Temperaturmessbereich / *Temperature measuring range* :	
200	-50...+200°C
500	-99.9...+500°C
XXX	Sonderbereich (AUF ANFRAGE) / *special range (ON REQUEST)*

Fühler:	
d6	6 mm (Standard)
d8	8 mm
d10	10 mm

200	Einbaulänge / *insertion length* in mm (Standard 200 mm)

1	nur Modell **LDT 31**: Kabellänge in m (Standard 1 m) / *only model **LDT 31** : cable length in m (standard 1 m)*

Digital-Thermometer für industrielle Anwendungen
Digital thermometer for industrial applications

LDT 30
LDT 31

Rel. 20181029

Anwendungsbereich:

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Service intended:

*The digital thermometer **LDT 30** and **LDT 31** are made for local temperature indication. As the come with integrated battery and a platin temperature sensor, they allow a self-sufficient and very precise measurement of temperatures, even at adverse ambient conditions.*

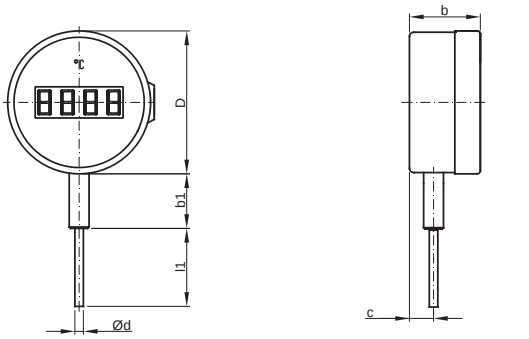
LDT 30

LDT 31

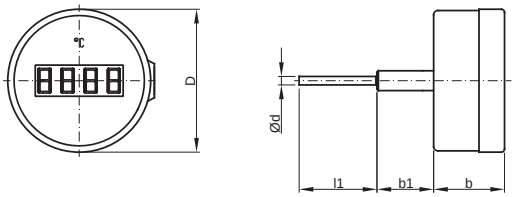
Technische Daten	***Technical data***
Gehäuse	***Case***
Ø 100mm, Edelstahl	*Ø 100mm, stainless steel*
Schutzart	***Degree of protection***
IP 65 nach EN 60529	*IP 65 per EN 60529 / IEC 529*
Temperaturfühler	***Stem / cable***
Edelstahl 1.4571 - Ø6, Ø8 oder Ø10 mm	*Stainless steel 316Ti - Ø6, Ø8 or Ø10 mm*
Schutzrohr	***Thermowell***
optional auf Anfrage	*optional on request*
Messorgan	***Temperature element***
Pt1000 - Klasse B, DIN EN 60751	*Pt1000 Class B, DIN EN 60751*
Batterie	***Battery***
3,6V; 2600 mAh - AA, Lithium auswechselbar Standzeit ca. 5-10 Jahre	*3,6V; 2600 mAh - AA, Lithium* *interachangeable* *lifetime aprox. 5-10 years*
Anzeige	***Display***
4-stellige LCD Ziffernhöhe 18 mm	*4-digits LCD* *height of digits 18 mm*
zulässige Temperaturen T_{min} / T_{max}	***Permissible temperatures*** T_{min} / T_{max}
Lagertemperatur - 20 ... + 70°C	*Storage temperature - 20 ... + 70°C*
Umgebungstemperatur - 10 ... + 60°C	*Ambient temperature - 10 ... + 60°C*
Genauigkeit	***Accuracy***
Anzeige: 0,3% FS +/- 1 Digit Sensor: +/- 0,3K bei 0°C; +/-(0,3 + 0,005*|t|) Messrate: 16s	*Display: 0.3% FS +/- 1 Digit* *Sensor: +/- 0.3K at 0°C; +/-(0.3 + 0.005*|t|)* *measuring rate: 16s*
Fehlerüberwachung	***Fault monitoring***
HI = Drahtbruch LO = Kurzschluss Bat = schwache Batteriespannung	*HI = wire breakage* *LO = short* *Bat = low battery voltage*

LDT 30
LDT 31

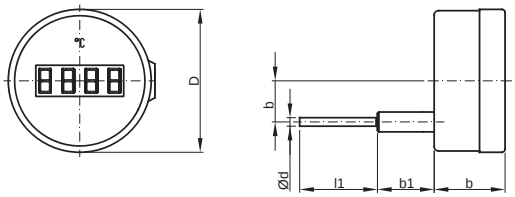
Digital-Thermometer für industrielle Anwendungen
Digital thermometer for industrial applications



Typ LDT 30-U-7-N100
Anschluss unten
bottom connection



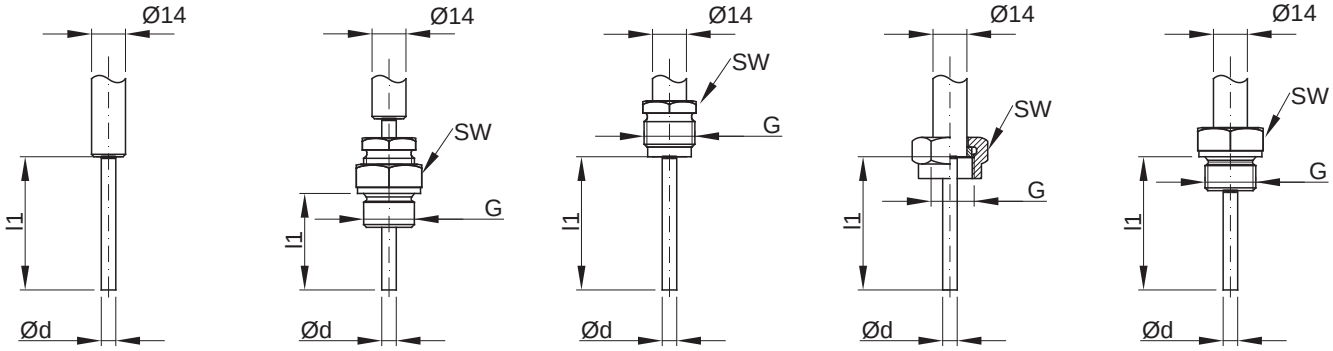
Typ LDT 30-H-7-N100
Anschluss hinten zentrisch
rear centric connection



Typ LDT 30-HE-7-N100
Anschluss hinten exzentrisch
rear eccentric connection

NG *DS*	b	b1	b2	c	D	Ød	l1	G
	mm							
100	50	40	29	17	101	6 8 10	200[1)]	G½B[1)] *1/2" BSP*

[1)] Andere Abmessungen auf Anfrage / *other dimensions on request*



Form 1
glatter Schaft
plain stem

Form 2
verstellbare Klemmverschraubung
adjustable compression fitting

Form 4
Einschraubzapfen drehbar
male nut

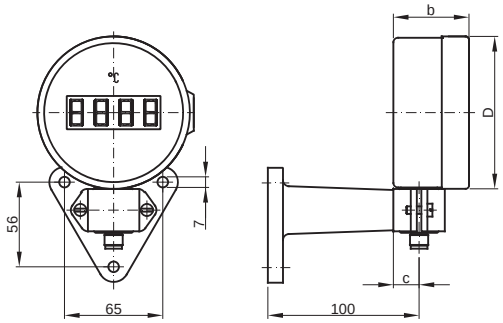
Form 5
Überwurfmutter
union nut

Form 6
Einschraubzapfen fest
male thread

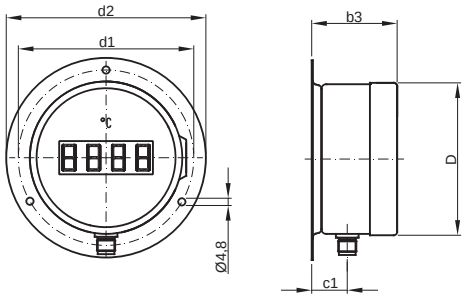
Typ *Type*	Messbereich *Measuring range*	Code
LDT 30 - U - 7 - N100	- 99,9 ... 0 ... + 550 °C	500
LDT 30 - H - 7 - N100		500
LDT 30 - HE - 7 - N100		500
LDT 30 - U - 7 - N100	- 50 ... 0 ... + 200 °C	200
LDT 30 - H - 7 - N100		200
LDT 30 - HE - 7 - N100		200

Digital-Thermometer für industrielle Anwendungen
Digital thermometer for industrial applications

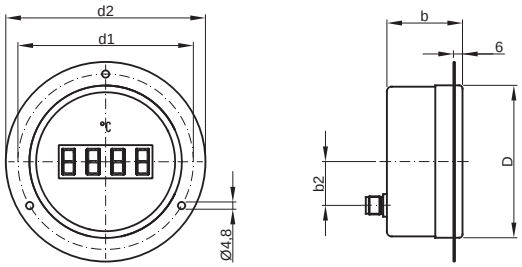
LDT 30
LDT 31



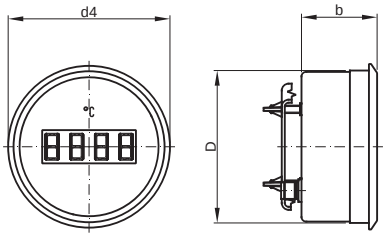
Typ LDT 31-U-1-N100
Anschluss unten
Bottom connection



Typ LDT 31-U-3-N100
Anschluss unten mit Rand hinten
Bottom connection with surface mounting flange



Typ LDT 31-H-2-N100
Anschluss hinten mit Rand vorne
Back connection with panel mounting flange

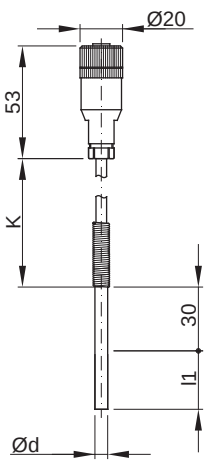


Typ LDT 31-H-4-N100
Anschluss hinten mit Dreikantfronteing
Back connection with triangular bezel

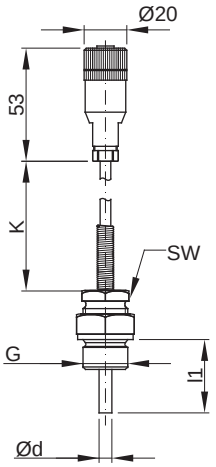
NG *DS*	b	b2	b3	c	c1	D	d1	d2	d4	Ød	l1	K	G	Tafelausschnitt *panel cut-out*	
	mm														
100	50	29	56,5	17	23,5	101	116	132	107	6 8 10	200[1)]	1000	G½B[1)] 1/2" BSP	105	(103)[2)]

[1)] Andere Abmessungen auf Anfrage / *other dimensions on request*

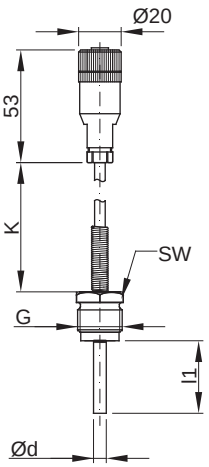
[2)] Auschnitt für **LDT 31**-H-4-N100 / *cut out for **LDT 31**-H-4-N100*



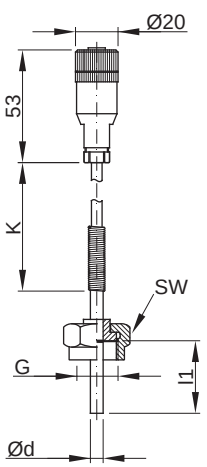
Form 1
glatter Schaft
plain stem



Form 2
verstellbare Klemmverschraubung
adjustable compression fitting



Form 4
Einschraubzapfen
drehbar
male nut



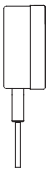
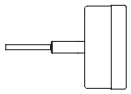
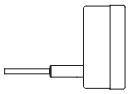
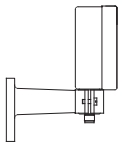
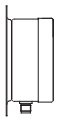
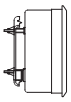
Form 5
Überwurfmutter
union nut

Typ *Type*	Messbereich *Measuring range*	Code
LDT 31 - U - 1 - N100	- 50 ... 0 ... + 200 °C	200
LDT 31 - U - 3 - N100		200
LDT 31 - H - 2 - N100		200
LDT 31 - H - 4 - N100		200

LDT 30
LDT 31

Digital-Thermometer für industrielle Anwendungen
Digital thermometer for industrial applications

Lieferbare Ausführungen / available executions:

						
LDT 30-U-7	LDT 30-H-7	LDT 30-HE-7	LDT 31-U-1	LDT 31-U-3	LDT 31-H-2	LDT 31-H-4

Bestell-Schlüssel / Order-Code:

LDT [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Modell / *model* :	
30	Starrer Fühler / *rigid stem*
31	Kabelausführung / *cable execution*

Anschlussrichtung / *connection style* :	
H	zentrisch hinten / *centric back*
HE	exzentrisch hinten / *excentric back*
U	unten / *bottom*

Einbauart / *mounting method* :	
1	mit Messgerätehalter / *with mounting backet*
2	mit 3-Loch-Frontring / *with 3-hole front flange*
3	mit hinterem Befestigungsrand / *with back flange*
4	mit Dreikantfrontr. u. Klemmbügel / *with bracket for panel mount.*
7	starrer Fühler / *rigid stem* (Standard)

Gehäusedurchmesser / *Case diameter* :	
N100	Nenngröße 100 mm / *Nominal size 100 mm*

Fühlerform:	
F1	glatter Fühler / *plain without thread* (Standard)
F2	Klemmverschraubung G 1/2" / *sliding male swivel nut 1/2" BSP*
F4	drehbarer Einschraubzapfen G 1/2" / *male swivel nut 1/2" BSP*
F5	Überwurfmutter G 1/2" / *female swivel nut 1/2" BSP*
F6	fester Einschraubzapfen G 1/2" / *fixed male 1/2" BSP*
FX	andere (AUF ANFRAGE) / *other (ON REQUEST)*

Temperaturmessbereich / *Temperature measuring range* :	
200	-50...+200°C
500	-99.9...+500°C
XXX	Sonderbereich (AUF ANFRAGE) / *special range (ON REQUEST)*

Fühler:	
d6	6 mm (Standard)
d8	8 mm
d10	10 mm

200	Einbaulänge / *insertion length* in mm (Standard 200 mm)

1	nur Modell **LDT 31**: Kabellänge in m (Standard 1 m) / *only model **LDT 31** : cable length in m (standard 1 m)*

Hand-held Measuring Device for barometric pressure, temperature, humidity and airflow

XA1000

Rel. 20140526

Hand held measuring device XA1000 - „all in one“

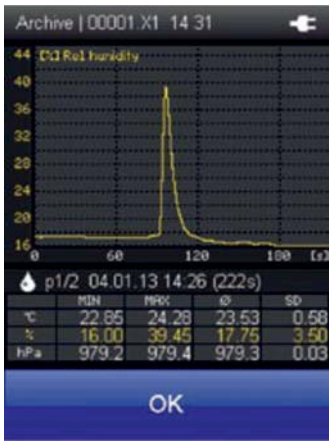
Universal measuring device for professionals with the inclusion of exchangeable SDI sensors (automatically recognised).

High accurate measurement of
- Barometric air pressure
- Temperature
- Relative Humidity and Air Flow

Online-/Offline data recording

Can be calibrated

Including PC-Software SmartGraph3 to archive and evaluate of the stored data



- Touchscreen operation
- USB interface incl. cable

Technical Data	
Display:	TFT 240 x 320, 65k colours, with capacitive Touch screen
Display surface:	Toughened glass, scratch-resistant, 7 degree of hardness
Display resolution:	2 decimal places
Interface:	USB (cable and PC software SmartGraph3 included)
Data storage:	up to 200 gauges taking approx. 1 million values
Power supply:	4 Alkaline LR6 AA (included), or via USB 5V Optional: mains adapter 115…230 VAC
Power consumption:	approx. 400 mW (active)
Battery life:	approx. 1 year passive; min. 24 hours active
Integr. sensor supply:	5.5 V ±10% DC, max. 200 mA
Integrated **Air Pressure sensor:** (barometric pressure)	Range 800…1100 mbar Accuracy 0.5 mbar (at 25°C/1013.25 mbar) Resolution 0.024 mbar Measuring principle: piezoresistive
Opteration conditions:	<90% r.h. (20 g/m³) non-condensing max. 4000 m altitude above sea level
Storage conditions:	-20…+60°C ambient temperature <90% r.h. non-condensing
Dimension:	170 x 62 x 34 mm
Weight:	approx. 205 g

Calculated measurement categories for external temperature/humidity sensors
Mathematical: MIN, MAX, AVG, HOLD
Temperature (°C/°F)
Relative humidity (% r.h)
Relative humidity of ice (% r.h)
Water vabour density (absolute humidity) g/m³
Dew point temperature °C/°F
Frost point temperature °C/°F
Mixing ratio at saturation (100%) g/kg
Volume fraction of water vapour/mass fraction of water vapour (%)
Wet-bulb temperature °C/°F
Ice-bulb temperature °C/°F
Specific Enthalpy (mass of air) kJ/kg
Saturation vapour pressure above ice/water (hPa)
Vapour particle pressure (hPa)
Air density kg/m³

Calculated measurement categories for external airflow sensors
Operational airflow volume: Various units: m³/s, m³/h, l/min
Standard airflow volumes: DIN 1343: °C; 1013.25 hPa ISO 2533: 15°C; 1013.25 hPa DIN 1945: 20°C; 1013.25 hPa

XA1000

Hand-held Measuring Device for barometric pressure, temperature, humidity and airflow

Temperature-Humidity Sensors	Digital temperature/humidity sensor TFF20 Reference device in service and maintenance, suitable for air conditioning and heading segments.	Allround SDI temperature/humidity sensor compact, stainless steel tube HVAC field, reference for ISO 9000.	SDI temperature/humidity sensor 4 mm diameter compact slim with stainless steel protective tube also measurements in difficult to access areas.	SDI high temperature/humidity sensor Stainless steel sensor with Teflon probe, suitable for high temperature.
Order-Code:	**8120.TFF**	**9130.540**	**9130.520**	**9130.530**
Dimensions	Length 85 mm x diameter 12 mm	Sensor length 74 mm x diameter 12 mm Housing 117 x 38 mm	Sensor tube length 250 mm x diameter 4 mm Housing 117 x 38 mm	Sensor tube length 250 mm x diameter 12 mm Housing 117 x 38 mm
Weight	approx. 50 g	approx. 80 g	approx. 85 g	approx. 200 g
Protection	Polycarbonate / IP 65	Housing/Sensor IP 40 Sensor head plastic mesh	Housing IP 40 / sensor IP 40 sensor head: screwable, stainless steel cap, PTFE filter	Housing IP 40 / sensor IP 40 sensor head stainless steel sinter filter
Perm. operation temp.	0...50°C	0...50°C	0...50°C	0...50°C
Permitted humidity	0...95% r.h.	0...95% r.h.	0...95% r.h.	0...95% r.h.
Storage temperature	-20...+60°C+60°C	-20...+60°C	-20...+60°C	-20...+60°C
Storage humidity	20...80% r.h.	20...80% r.h.	20...80% r.h.	20...80% r.h.
Relative Humidity:				
Measurement range	0.00...100.00% r.h.	0...100% r.h.	0.00...100.00% r.h.	0.00...100.00% r.h.
Accuracy	±2% (0...90%); ±3% (90...100%) r.h.	±2% (0...90%); ±3% (90...100%) r.h.	±2% (0...90%); ±3% (90...100%) r.h.	±2% (0...90%); ±3% (90...100%) r.h.
Resolution	0.01% r.h.	0.1% r.h.	0.1% r.h.	0.1% r.h.
Principle	capacitive	capacitive	capacitive	capacitive
Temperature:				
Measurement range	-40...+80°C	-20...+70°C	-40...+100°C	-40...+180°C
Accuracy (20°C)	±0.1°C	±0.2°C	±0.2°C	±0.2°C
Accuracy	±0.2°C (0...40°C), otherwise ±0.5°C	±0.4°C (-10...+50°C), otherwise ±0.5°C	±0.7°C	±0.7°C
Resolution	better 0.01°C	0.1°C	0.1°C	0.1°C
Principle	Pt1000, Class A, DIN EN 60751	NTC	Pt1000, Class B, DIN EN 60751	Pt1000, Class B, DIN EN 60751
Absolute Humidity:				
Measurement range	0...300 g/m³			
Unit	g/m³			
Dew Point Temperature:				
Measurement range	-40...+80°C			
Mixing Ratio Compatibility:				
Measurement range	0...550 g/kg			

Airflow-Temperature Sensors	SDI Airflow-/Temperature Sensor 0...2 m/s Reference device in service and maintenance, Proof air tightness of buildings and rooms.	SDI Airflow-/Temperature Sensor 0...20 m/s Airflow and temperature measurement in climate measurement technology.
Order-Code:	**6120.510**	**6120.520**
Dimensions	Sensor tube length 200 mm x diameter 6 mm Housing 117 x 38 mm	Sensor tube length 200 mm x diameter 6 mm Housing 117 x 38 mm
Weight	approx. 200 g	approx. 200 g
Protection	Housing: plastic (ABS) IP40 sensor head: stainless steel	Housing: plastic (ABS) IP40 sensor head: stainless steel
Perm. operation temp.	0...50°C	0...50°C
Permitted humidity	0...95% r.h.	0...95% r.h.
Storage temperature	-20...+60°C	-20...+60°C
Storage humidity	20...80% r.h.	20...80% r.h.
Airflow:		
Measurement range	0...2 m/s	0...20 m/s
Accuracy	20°C, 45% r.h.; 1013 hPa: ±(0.04 m/s +1% of measured value)	
Resolution	0.01 m/s	
Principle	Hot film aneometer	
Temperature:		
Measurement range	-20...+70°C	
Accuracy	±0.7°C in the range 0...50°C and v > 0.5 m/s	
Resolution	0.1°C	
Principle	NTC	