

ThermoEst

THE WORLD OF TEMPERATURE

TEMPERATURE SENSORS

METROLOGY

ELECTRONICS

HEATING CABLES

PYROMETRIC ACCESSORIES

EDITION
2024

CATALOGUE

IN STOCK AND CUSTOM-MADE PRODUCTS

Thermo Est : the world of temperature



Temperature sensors

- Customized for industrial or tertiary environment, in simple or ATEX version
- In standardized stock version Pt100Ω / Thermocouples...
- Various pyrometric components available in stock:
 - Connection, compensation or extension cables
 - Connectors, adjustable fittings...

Heating cables

Mineral insulated heating cables

- With integrated cold ends for a constant diameter
- Heating cables with laser or solder brazed junction
 - Heating cables with reduced tip and integrated cold ends
 - Bi-conductor heating cables



Range of electronic products

- Pressure / humidity sensors
- Electronic boxes / enclosures
- Hart 4-20 mA converter signal processing
- Data acquisition and communication
- Analog or digital temperature regulators
- Panel indicators
- Free programming software

> **Technical data sheets available on our website**



Emergency services

A plant shutdown can be a significant cost. With our emergency service, Thermo Est accompanies you to avoid any inconvenience with our dedicated workshop and team.

- Products available in stock
- Emergency manufacturing



Design / Research department

- 3D dimensional measurements
- Follow-up on qualification tests
- Production of technical drawings
- Production of technical files
- Research and development
- Aeronautics & Nuclear specialization



OUR TAILOR-MADE SOLUTIONS TO YOUR MEASUREMENTS

Metrology laboratory

- COFRAC metrology laboratory No.2-7273 & No.1-7272 scope accreditation available on www.cofrac.fr
- On-site metrology services
- Dematerialized calibration reports



Non-standard (custom-made) sensors

Thermo Est designs high-tech sensors dedicated to extreme applications.

- "Ex ia / Ex d" ATEX sensors
- Aeronautical expertise
- Nuclear expertise



Mechanical workshop

Specialist of the pyromandric sheath of simple or custom construction, realization from solid/plain bars drilled in the mass.

- Fittings, adjustable fittings...
- Screw-on thermowell
- Thermowell with welded-on flange



ThermoEst

Find the entire brochure on: www.thermoest.com

In order to constantly improve our services, Thermo Est reserves the right to modify its models without notice. - © Copyright Thermo Est

Summary



Temperature Sensors

- Pt100 / Pt1000 Ω Resistance Probes
- Mineral insulated Resistance Probes
- Thermocouples
- Mineral insulated Thermocouples
- Connectors
- Cables

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ATEX ATmosphere Explosive Temperature Sensors

- Ex "I", Ex"d" sensors"
- Pt100 Ω / Thermocouple
- Process sensors with thermowell
- Multi-point sensors

20 - 21



Our aeronautical expertise

- Pt100 Ω / thermocouple sensors
- Intrusive meter measures engine parameters (combs and rakes)
- Brake temperature sensors
- Ambient temperature
- Battery temperature
- Heat exchanger
- Measurement of heat flows

22 - 25



Our expertise in extreme applications: nuclear field

- Pt100 Ω / thermocouple sensors
- Remotely manipulable
- Motor bearing temperature, pump housing
- Water, steam temperature
- Sodium level detection
- Melting pot (duct thermocouple and cocoon)
- Heating collar

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Mineral insulated heating cables

- Heating cables with integrated cold ends
- Heating cables with junction
- Heating cables with reduced tip and integrated cold ends
- Bi-conductor heating cables

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Pressure sensors, humidity transmitters, level sensors, temperature converters

- Pressure transmitters
- Relative Humidity transmitters
- Measurement converters 4-20 mA
- Non-intrusive level sensor

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Data Acquisition and Communication

Data loggers, data acquisition devices, wireless devices, I / O module and data communication and connectivity gateways.

38 - 45



Regulators and indicators

Process regulators, temperature regulators, process indicators, electronic thermostats and HMIs.

46 - 55



Software Interface

Software and applications for smartphones for the devices configuration , the acquisition, download and collection of data, as well as SCADA software and data management in the cloud.

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Metrology Services

THERMO EST is a COFRAC accredited laboratory

- n° 1-7272
- n° 2-7273 Scope

accreditation available on www.cofrac.fr

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Pt100Ω temperature probe

Screw-on version with DIN B connection head Interchangeable element

- 316 L Ø9 x 1 mm stainless steel protection sheath
- Fixing by 1/2" G threaded stainless steel connection
- Epoxy-coated aluminum alloy B connection head
- Cable entry by PeM20
- Interchangeable measuring element
- 1xPt100 Ohms at 0 ° C class B (F0.3) in Ø6 mm stainless steel sheath according to IEC 60751
- 3-wire mounting
- Operating temperature: -50 ° C/ +400 ° C



Type	LU mm	Mounting	Dia	Lenght of the middle pipe	Measuring element	Article
SI 6-100	100	3 wires	Ø9	NA	1xPt100 Ω	TE01001
SI 6-150	150					TE01002
SI 6-200	200					TE01003
SI 6-250	250					TE01004
SI 6-300	300					TE01005
SI 6-400	400					TE01006
SI 6-450	450					TE01007
SI 6-500	500					TE01008

SI D6-100	100	2x3 wires	Ø9	NA	2xPt100 Ω	TE01009
SI D6-250	250					TE01010

Screw-on version with DIN B connection head Without interchangeable element

- Ø6 mm stainless steel protection sheath
- Fixing by 1/2" G threaded stainless steel connection
- Epoxy-coated aluminum alloy B connection head
- Cable entry by PeM20
- Measuring element
- 1xPt100 Ohms at 0 ° C class B (F0.3) according to IEC 60751
- 3-wire mounting
- Operating temperature: -50 ° C/ +400 ° C



Type	LU mm	Mounting	Dia	Lenght of the middle pipe	Measuring element	Article
SI7D6-50	50	3 wires	Ø6	NA	1xPt100 Ω	TE02001
SI7D6-100	100					TE02002
SI7D6-150	150					TE02003
SI7D6-200	200					TE02004
SI7D6-300	300					TE02005
SI7D6-350	350					TE02006
SI7D6-400	400					TE02007
SI7D6-450	450					TE02008
SI7D6-500	500					TE02009

Screw-on version with DIN 43650 connection head

- 316 L Ø6 mm stainless steel protection sheath
- Fixing by 1/2" G threaded stainless steel connection
- Output by plug connector according to DIN 4365
- Cable entry by Pe9
- Measuring element
- 1xPt100 Ohms at 0 ° C class A (F0.15) according to IEC 60751
- 3-wire mounting
- Operating temperature: -50 ° C/ +200 ° C



Type	LU mm	Mounting	Dia	Lenght of the middle pipe	Measuring element	Article
SI7D6-100, DIN	100	3 wires	Ø6	DIN 43650	1xPt100 Ω	TE03001
SI7D6-160, DIN	160					TE03002
SI7D6-300, DIN	300					TE03003
Contre broche DIN						TE03004

Option possible with :
 Pt100 Ω / Pt1000 Ω
 Output 4-20 mA
 Display 4/20 mA Loop Mount DIN Connector

Screw-on version with M12 connector head

- 316 L Ø6 mm stainless steel protection sheath
- Fixing by 1/2" G threaded stainless-steel connection
- Output by 4-contact IP67 M12 connector

- Measuring element**
- 1xPt100 Ohms at 0 ° C class A (F0.15) according to IEC 60751
 - 3-wire assembly
 - Operating temperature: -50 ° C/ +200 ° C



Type	LU mm	Mounting	Dia	Lenght of the middle pipe	Measuring element	Article
SI 7D6-50, CON M12	50	3 wires	Ø6	M12 4cts	1xPt100 Ω	TE04001
SI 7D6-100, CON M12	100					TE04002
SI 7D6-150, CON M12	150					TE04003

Option possible with:
 Integrated converter in the 4-20 mA output body
 Supply voltage: 8.5 to 32 V DC

**PRODUCTS IN STOCK
READY TO SHIP**

Pt100Ω temperature probe

With DIN B connection head - Smooth version

- Ø6 mm stainless steel protection sheath
- Without fitting connection
- Epoxy-coated aluminum alloy B connection head
- Cable entry by PeM20
- Measuring element
- 1xPt100 Ohms at 0 ° C class B (F0.3) according to IEC 60751
- 3-wire mounting
- Operating temperature: -50 ° C/ +400 ° CC



Type	LU mm	Mounting	Dia	Lenght of the middle pipe	Measuring element	Article
SI7D6 L-100	100	3 wires	Ø6	Smooth	1xPt100 Ω	TE05001
SI7D6 L-200	200					TE05002
SI7D6 L-300	300					TE05003
SI7D6 L-400	400					TE05004
SI7D6 L-500	500					TE05005

With connection cable - smooth version

- Stainless steel protection sheath Ø 5 or 6 mm
- Smooth version
- Output by 2500 mm of Teflon®/silicone insulated connection cable, or Teflon®/braided/Teflon®
- Teflon® bending or randractable spring-protected cable outland
- Measuring element
- 1xPt100 Ohms at 0 ° C class A (F0.15) according to IEC 60751
- 3-wire mounting
- Operating temperature: -50 ° C/ +200 ° C or -50 ° C/ +260 ° C



Type	LU mm	Dia	Cable	L cable (mm)	Measuring range	Measuring element	Article
SI1108, D6-50, TS3-2500	50	Ø6	Teflon® - Silicone	2500	-50°C/200°C	1xPt100 Ω	TE06001
SI1108, D6-100, TS3-2500	100						TE06002
SI1108, D6-150, TS3-2500	150						TE06003
SI1108, D6-50, TDT3-2500	50	Ø5	Teflon® - Braided - Teflon®	2500	-50°C/260°C	1xPt100 Ω	TE06004
SI1108, D6-100, TDT3-2500	100						TE06005
SI1108, D6-150, TDT3-2500	150						TE06006

Mechanically adjustable fittings :

Type	Dia	Article
RCI 1/2" G-6	Ø6	TE20001
RCI 1/2" NPT-6		TE20002
RCI 1/4"G-6		TE20003
RCI 1/4" NPT-6		TE20004

RCI 1/2" G-5	Ø5	TE20005
RCI 1/2" NPT-5		TE20006
RCI 1/4" G-5		TE20007
RCI 1/4" NPT-5		TE20008



**PRODUCTS IN STOCK
READY TO SHIP**

Mechanically welded thermowell

Screw-on version 1/2" G connection – HEXAGONAL HEAD

- Stainless steel protection sheath Ø9x1 mm
- 1/2" G threaded probe connection
- 1/2" threaded process connection
- Max. pressure 70 bars at 400 ° C
- Operating temperature: -50 ° C/ +600 ° C in peak



Type	L use probe (mm)	L under Thread (mm)	Dia	Article
DGIM-50	150	50	Ø8	TE20011
DGIM-100	200	100		TE20012
DGIM-50	300	200		TE20013
DGIM-50	400	300		TE20014
DGIM-50	500	400		TE20015

On-demand realization from solid bar

Customized products

Whether it is for a simple construction or a more complex project, all our know-how is concentrated in the minor details, often hidden in customized parts.

Thermo Est factories pieces "in the solid bar" within all materials steel, stainless steel 304/304L, 316/316L, nickel, Inconel alloy 600/625/800HT, Monel, 400, Hastelloy C276 ...

Our flagship products are :

- Threaded sheaths
- Welded flanged sheaths
- Flanged sheaths machined in the solid bar



Pt100Ω temperature probe

With slot bayonet caps Ø12.0 mm

- 6 mm stainless steel protection sheath
- Ø12.1 mm bayonet fixing mounted on Ø6 mm stainless steel spring
- Adjustable slot bayonet caps from 30 to 180 mm
- Output by 2500 mm of insulated glass silk/glass silk/ braid connection cable
- Measuring element
- 1xPt100 Ohms at 0 ° C class A (F0.15) according to IEC 60751
- 3-wire mounting
- Operating temperature: -50 ° C/ +300 ° C



Type	LU mm	Dia	Cable	L cable (mm)	Measuring range	Measuring element	Article
SI1112-6-30, SDV3-2500	30	Ø6	Glass silk	2500	-50°C/+300°C	1xPt100Ω	TE07001

Option: Stainless steel bayonet support with hexagonal head 2 lugs

Type	Dia	L (mm)	Article
SUP M10x1	Ø8,5	23	TE30001
SUP M12x1		30	TE30002



Surface measurement prism for piping

- Prism protection sheath, reduced thermal mass
- Dimensions: 8 x 8 mm for piping
- Fixing by stainless steel tangent screw collar for Ø30 to 100 mm
- Output by 2500 mm of Teflon®/braid/Teflon® insulated connection cable
- Measuring element
- 1xPt100 Ohms at 0 ° C class A (F0.15) according to IEC 60751
- 3-wire mounting
- Operating temperature: -30 ° C/ +260 ° C



Type	Cable	L cable (mm)	Measuring range	Measuring element	Article
SP1247-10 PR, TDT3-2500	Teflon®-tresse -Teflon®	2500	-50°C/+260°C	1xPt100 Ω	TE08001

Surface measurement prism for piping

- White connection box
- Dimensions: 64x58x25 mm
- Fixing by stainless steel tangent screw collar for Ø30 to 100 mm
- Pe9 cable outland
- Measuring element
- 1xPt100 Ohms at 0 ° C class A (F0.15) according to IEC 60751
- 3-wire mounting
- Operating temperature: -30 ° C/ +110 ° C



Type	Box	Measuring element	Article
SP1248, BOI, Pe9, COL	PVC	1xPt100Ω	TE08002

**PRODUCTS IN STOCK
READY TO SHIP**

For temperature measurement: indoor atmosphere

- White and black connection box
- Dimensions: 75 x 75 mm thickness 25 mm
- Rear cable entry
- Wall fixing
- Measuring support
- 1xPt100 Ohms at 0 ° C class A (F0.15) according to IEC 60751
- 3-wire mounting
- Operating temperature: -30 ° C / +70 ° C



Type	Box	Measuring element	Article
SP 1249	PVC	1xPt100 Ω	TE08003

For temperature measurement: outdoor atmosphere

- White connection box – dimensions 64 x 58 x 25 mm (IP65)
- Cable entry by Pe9
- Wall fixing
- Measuring support
- 1xPt100 Ohms at 0 ° C class A (F0.15) according to IEC 60751
- 3-wire assembly
- With or without Ø6x 35 mm stainless steel plunger
- Operating temperature: -50 ° C/ +90 ° C



Type	Box	Plunger	Measuring element	Article
SP1250	PVC	NA	1xPt100 Ω	TE08004
SP1250 L-35	PVC	Ø6 x 35 mm	1xPt100 Ω	TE08005

For temperature measurement: ventilation sheath

- White connection box – dimensions 64 x 58 x 25 mm
- Cable entry by Pe9
- PVC Ø55 mm flange fixing with 3 Ø4 mm holes between axes 47 mm
- Ø6 mm L = 100 to 400 mm stainless steel plunger
- Measuring element
- 1xPt100 Ohms at 0 ° C class A (F0.15) according to IEC 60751
- 3-wire assembly
- Operating temperature: -30 ° C/ +150 ° C



Type	Box	Plunger	Measuring element	Article
SP1251, 100	PVC	Ø6 x 100 mm	1xPt100 Ω	TE08006
SP1251, 200	PVC	Ø6 x 200 mm	1xPt100 Ω	TE08007

Option possible with:

Integrated converter in the 4-20 mA output body
Supply voltage: 8.5 to 32 V DC

Pt100Ω temperature probe

For temperature measurement: surface

- Flat insulated under silicone elastomer probes with short response time
- Dimensions 23 x 10 mm, thickness approx. 1 to 2 mm according to winding
- Radius of curvature greater than or equal to 25 mm
- Output by connection cable under Teflon® insulation section 0.035 mm
- Allowing mounting, 2, 3 or 4 wires
- Measuring element
- 1xPt100 Ohms at 0 ° C class A (F0.15) according to IEC 60751
- Operating temperature: -70 ° C/ +200 ° C

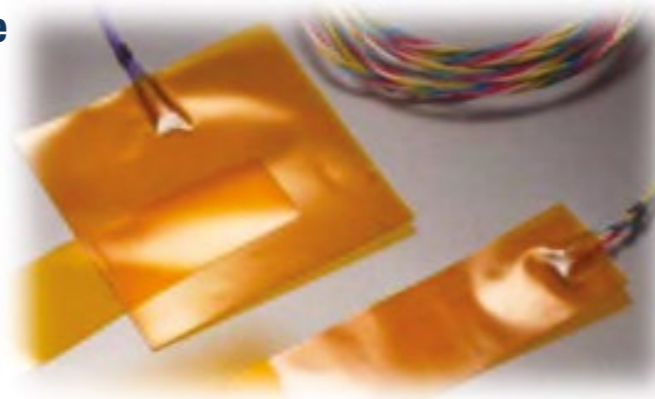


Type	Cable	L (mm)	Measuring element	Article
SP 1252	4*Teflon® 0,035 mm²	2500	1xPt100 Ω	TE09001

Dimensions and length on request

For temperature measurement: surface

- Flat probes insulated under Kapton® tape
- Dimensions 50 x 20 mm, thickness approx. 0.13 mm
- Radius of curvature greater than or equal to 110 mm
- Output by connection cable under Teflon® insulation section 0.035 mm
- Allowing mounting, 2, 3 or 4 wires
- Measuring element
- 1xPt100 Ohms at 0 ° C class A (F0.15) according to IEC 60751
- Operating temperature: -80 ° C/ +200 ° C



Type	Cable	L (mm)	Measuring element	Article
SP 1253	4*Teflon 0,035 mm²	2500	1xPt100 Ω	TE09002

Dimensions and length on request

On request Pt100 for laboratory

- Glass RTDs
- Laboratory Glass RTDs
- Wire wound ceramic RTDs
- Platinum thin film RTDs



**PRODUCTS IN STOCK
READY TO SHIP**

Thermocouple J or K

Screw-on version with Din B connection head

- Ø6 mm stainless steel protection sheath
- Fixing by 1/2" G threaded stainless-steel connection
- Epoxy-coated aluminum alloy CL connection head
- Cable entry by PeM9
- Measuring element
- 1x Fe CuNi (J) or 1 x NiCr Nia (K)
- Operating temperature: -200 ° C/ +400 ° C



Type	LU mm	Mounting	Dia	Lenght of middle pipe	Measuring element	Article
TI 2-100 J	100	Ceramic	Ø6	NA	1 x FE CO "J"	TE10001
TI 2-300 J	300					TE10002
TI 2-100 K	100				1 x NiCr-Nia "K"	TE10003
TI 2-500 K	500					TE10004

With slot bayonet caps Ø12.0 mm

- 6 mm stainless steel protection sheath
- Ø12.1 mm bayonet fixing mounted on Ø6 mm stainless steel spring
- Adjustable slot bayonet caps from 30 to 180 mm
- Output by 2500 mm of insulated glass silk/glass silk/ braid connection cable
- Measuring element
- 1xFeCuNi " J" or NiCr-Nia "K"
- Ceramic measuring element
- Operating temperature: 0 ° C/ +400 ° C



Type	LU mm	Dia	Cable	L cable (mm)	Measuring element	Article
TI 811 J, GGD-2500	30	Ø6	Glass silk	2500	1 x FE CO " J"	TE11001
TI 811 K, GGD-2500					1 x NiCr-Nia "K"	TE11002

Option: Stainless steel bayonet support hexagonal head 2 lugs

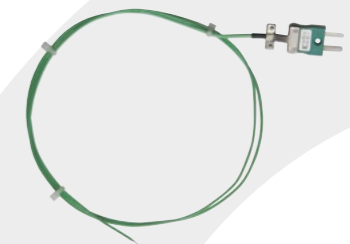
Type	LU mm	Dia	Article
SUP M10x1	Ø8,5	23	TE30001
SUP M12x1		30	TE30002



Thermocouple K

Under Kapton insulation

- 1 x K "NiCr-Nia" class 1 thermocouple
- Hot spot carried out
- Ø 0.25 m wires
- Output by miniature male size compensated connector according to IEC standard
- Cable holding by insert
- Operating temperature: 0 ° C/ +260 ° C



Type	Dia	Cable	L cable (mm)	Measuring element	Article
KK025, L1000, SCR, C1, M6m, 200°C	Ø0,25	Kapton®	1000	1 x NiCr-Nia "K"	TE12001

Thermocouple K

Smooth version with DIN A connection head

- AISI 446 refractory steel protection sheath (werk. 1.4749) Ø21.3 x 2.6 mm
- Fixing by BC 021 steel sliding flange connection between 70 mm axis or 3/4" G cycl threaded steel sliding connection. RC 42
- Epoxy-coated aluminum alloy A connection head
- Cable entry by PeM20
- Ceramic measuring element
- 1 x NiCr Nia (K) class 1
- Operating temperature: -200 ° C / +1200 ° C



Type	LU mm	Mounting	Dia	Lenght of the middle pipe	Measuring element	Article
TAR3-500 K3	500	NA	Ø21,3	NA	1 x NiCr-Nia "K"	TE13001
TAR3-710 K3	710				1 x NiCr-Nia "K"	TE13002
TAR3-1000 K3	1000				1 x NiCr-Nia "K"	TE13003

Thermocouple S

Smooth version with DIN A connection head

- Alsint 99.7% Al₂O₃ Ø 15x10 mm pure alumina ceramic protection sheath
- Steel support tube Ø22 mm L = 150 mm
- Fixing by BC 021 steel sliding flange connection between 70 mm axis or 3/4" G threaded sliding connection. RC 42
- Epoxy-coated aluminum alloy A connection head
- Cable entry by PeM20
- Ceramic measuring element
- 1x PtRh10% - Pt (S) class 1 Ø0,5mm wires
- Operating temperature: +1400 ° C



Type	LU mm	Mounting	Dia	Lenght of the middle pipe	Measuring element	Article
TA 470 S-500	500	NA	Ø15	150 mm	1 x PtRh10%-Pt "S"	TE14001
TA 471 S-710	710				1 x PtRh10%-Pt "S"	TE14002

Steel sliding connection or steel sliding flange

Type	Fixing	Thread	Dia	Article
BC 021	Flange	NA	Ø21,3	521023
RC 426	Sliding connector	3/4" Gcyl.		518003
Adapter	Connector female - male	3/4"Gcyl / 1" Gc		513010



Lined thermocouple

Mineral insulated cable with miniature connector

- 1 x K "NiCr-Nia" class 1 thermocouple
- Ungrounded hot junction
- Inconel 600 Ø1.0 mm sheath
- Output by miniature male connector according to IEC standard
- Operating temperature: -200 ° C / +1200 ° C



Type	LU mm	Mounting	Dia	Measuring element	Article
KINC10, L150, SCI, C1, M6m	150	SCI	Ø1,0	1 x NiCr-Nia "K"	TE15001
KINC10, L260, SCI, C1, M6m	260				TE15002
KINC10, L500, SCI, C1, M6m	500				TE15003
KINC10, L1000, SCI, C1, M6m	1000				TE15004
KINC10, L2000, SCI, C1, M6m	2000				TE15005
KINC10, L3000, SCI, C1, M6m	3000				TE15006

Mineral insulated cable with miniature connector

- Thermocouple 1 x K "NiCr-Nia" classe 1
- Ungrounded hot junction
- Inconel 600 Ø1.5 mm sheath
- Output by miniature male connector according to IEC standard
- Operating temperature: -200 ° C / +1200 ° C



Type	LU mm	Mounting	Dia	Measuring element	Article
KINC1,5, L500, SCI, C1, M6m	500	SCI	Ø1,5	1 x NiCr-Nia "K"	TE16001
KINC1,5, L1000, SCI, C1, M6m	1000				TE16002

Mineral insulated cable with standard connector

- 1 x K "NiCr-Nia" class 1 thermocouple
- Ungrounded hot junction
- Inconel 600 Ø3.0 mm sheath
- Output by standard male connector according to IEC standard
- Operating temperature: -200 ° C / +1200 ° C

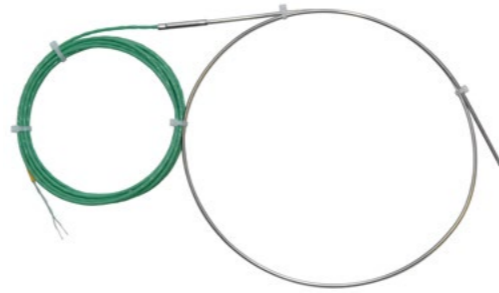


Type	LU mm	Mounting	Dia	Measuring element	Article
KINC30, L500, SCI, C1, M3	500	SCI	Ø3,0	1 x NiCr-Nia "K"	TE17001
KINC30, L1000, SCI, C1, M3	1000				TE17002

Lined thermocouple

Mineral insulated cable with junction and miniature connector

- 1 x K "NiCr-Nia" class 1 thermocouple
- Ungrounded hot junction
- Inconel 600 Ø2.0 mm sheath
- Output by non-removable junction with 3 manders of extension cable according to IEC standard and miniature male connector
- Operating temperature: -200 ° C/ +1200 ° C











Type	LU mm	Mounting	Dia	Measuring element	Article
KINC20, L300, SCI, C1, JI, TDT=3000, M6m	300	SCI	Ø2,0	1 x NiCr-Nia "K"	TE18001

Stainless steel sliding connection for lined thermocouple:

Type	Dia	Article
RCI 1/4"G-3	Ø3,0	TE20009
RCI 1/4"NPT-3		TE20010



For lined thermocouples all outputs versions are available with:
Any other length of cable on request

Stripped wires, Resin sealing	M6m compensated miniature size	M3m compensated miniature size	Connector LEMO FFA
 CODE Mo	 CODE M6m	 CODE M3	 CODE L
Connector JAEGER	Non-removable connection with Teflon® cable	Small connection head	Connection head
 CODE J	 CODE JI-TDT	 CODE CL	 CODE B

On request: shrinkage, lamination, calibration, radiography, insulation test, dielectric test



Accessories for Connectors

Miniature series compensated connectors

- Mechanical foolproof compensated connectors
- Miniature size
- Male or female version
- Operating temperature: +220 ° C

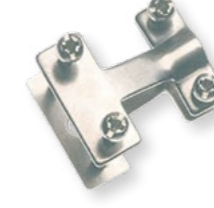
Type	Colour	Identification	Article Male	Article Female
Copper	Grey	Plug	334121	335121
T	Brown	Plug	334122	335122
J	Black	Plug	334123	335123
K	Green	Plug	334124	335124
R/S	Orange	Plug	334125	335125
N	Pink	Plug	334126	335126
-	-	Cable clamp	334007	



- Thermoplastic**
- Miniature male with flat pins
 - Type M3m-K



- Thermoplastic**
- Miniature female
 - Type M3mF-K



- Inox**
- Mini cable clamp



- Thermoplastic**
- Mini rectangular fascia Socket

Standard Series Compensated Connectors

- Mechanical foolproof compensated connectors
- Standard size
- Male or female version
- Operating temperature: +220 ° C

Type	Colour	Identification	Article Male	Article Female
Copper	Grey	Plug	334421	335421
T	Brown	Plug	334422	335422
J	Black	Plug	334423	335423
K	Green	Plug	334424	335424
R/S	Orange	Plug	334425	335425
N	Pink	Plug	334426	335426
-	-	Cable clamp	334008	



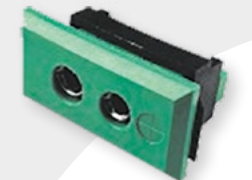
- Thermoplastic**
- Standard connector
 - Solid round pin
 - Type M3-K



- Thermoplastic**
- Standard socket
 - Type M3F-K



- Inox**
- Standard cable clamp
 - Type SC



- Thermoplastic**
- Mini rectangular fascia Socket

Cable accessories

Compensation cable & extension cable

- Compensation cable & extension cable according IEC 584-3
- For thermocouple T, J, K ou S
- Insulation
- PVC +105°C
- PVC / BRAID / PVC +105°C
- TEFLON® /BRAID / TEFLON® +250°C
- SILICONE / GLASS SILK / BRAID +200°C

Type	Thermocouple	Norm	Diameter (mm)	Insulation	Section (mm²)	Article
L2KT	T	TX	Ø4	PVC +105°C	0,22	451201
L2KF	J	JX1				452201
L2KN	K	KCB				453201
L2KP	R/S	SCB				455201
L2KDKT	T	TX	Ø4,2	PVC /BRAID/PVC +105°C	0,22	451212
L2KDKF	J	JX				452212
L2KDKN	K	KX				453213
L2KDKNc	N	NX				457212
L2KDKP	R/S	SCB				455212
L2TDTT	T	TX	Ø3,5	TEFLON®/BRAID/TEFLON® +260°C	0,22	451272
L2TDTF	J	JX				452272
L2TDTN	K	KX				453272
L2TDTNc	N	NX				457270
L2TDTP	R/S	SCB				455272
L2GDF	J	JX	Ø4	GLASS SILK / GLASS SILK / BRAID +400°C	0,5	452331
L2GDN	K	KCB				453331
L2GDP	R/S	SCB				455432
L2SGDF	J	KCB	6x8,5	SILICONE / GLASS SILK / BRAID +200°C	1,34	452641
L2SGDN	K					453641
L2SGDNc	N					457540
L2SGDP	R/S					SCB

Connecting cable for RTD 2, 3 or 4 wires

- Connection cable with 2, 3 ou 4 conductors for Pt100 Ω
- Insulation
- PVC +105°C
- PVC / BRAID / PVC +105°C
- TEFLON® / SILICONE +200°C
- TEFLON® /BRAID / TEFLON® +250°C
- GLASS SILK / GLASS SILK / BRAID +400°C

Type	Nb of cond.	Dia (mm)	Insulation	Section (mm²)	Article
PV2	2	3,5	PVC/PVC	0,22	242210
PVT2		5	PVC/BRAID/PVC	0,22	242220
TDT2		3,4	TEFLON®/BRAID/TEFLON®	0,22	242270
GGD2		GLASS SILK / GLASS SILK / BRAID	0,22	242390	
TS2		3,8	TEFLON® / SILICONE	0,22	242250
PV3	3	3,7	PVC/PVC	0,22	243210
PVT3		5,1	PVC/BRAID/PVC	0,22	243220
TT3		TEFLON®/TEFLON®	0,22	243265	
TDT3		3,6	TEFLON®/BRAID/TEFLON®	0,22	243270
GGD3		4	GLASS SILK / GLASS SILK / BRAID	0,5	243390
TS3		3,7	TEFLON® / SILICONE	0,22	243250
PV4	4	5,1	PVC/PVC	0,22	244210
PVT4		4,5	PVC/BRAID/PVC	0,22	244120
TT4		TEFLON®/TEFLON®	0,22	244260	
TDT4		3,9	TEFLON®/BRAID/TEFLON®	0,22	244270
GGD4		4	GLASS SILK / GLASS SILK / BRAID	0,5	244390
TS4		4,3	TEFLON® / SILICONE	0,22	244250

For compensation and extension cables

COLOUR-CODED SYMBOLS

Couple	Conductors of compensation		SYMBOLS	IEC 584-3	DIN 43714	ANSI MC 96.1	BS 1843
	Positive +	Negative -					
CONDUCTORS	Positive +	Negative -					
Nickel Chromium / Nickel alloy	Chromel Nickel / Chrome	Alumel Nickel / Aluminium	KX				
	Copper	Constantan Copper / Nickel / KCB	KCB				
	Iron	Cupronickel Copper / Nickel / KCA	KCA				
Iron / Constantan	Iron	Constantan Copper / Nickel / J	JX				
Copper / Constantan	Copper	Constantan Copper / Nickel / T	TX				
10 or 13% Platinum rhodium / Platinum	Copper	Cupronickel Copper / Nickel / S	SCA				
30% rhodium platinum / 6% rhodium platinum	Cupronickel Copper / Alloy	Copper	BC				
Chromel/Constantan	Chromel Nickel / Chrome	Constantan Copper / Nickel / E	EX				
Nickel Chromium Silicon / Nickel Silicon	Nicrosil Nickel / Chrome	Nisil Nickel / Silicium	NX				

Extension and compensation cables - tolerances and identification system according to standard NF EN 60584-3

The compensation cables are made with wires of different compositions from the thermocouple wires.

The extension cables are made with wires of the same composition.

A cable comprising two copper conductors can be used with type B thermoelectric couples.

The expected additional maximum deviation in the temperature range of 0 °C to + 100 °C is 40 µV. The temperature equivalent is 3.5 °C when the measuring junction of the thermoelectric couple is 1,400 °C.

ATEX Range

Our temperature solutions include customer-specific sensors designed for specific applications. For example, we are developing multi-point sensors, skin-point sensors for pipe surface measurement, Pt 100 Ω version or thermocouples.

Process conditions characterized by aggressive temperatures, flow velocity or in aggressive and corrosive products require a special design for this type of sensor. With such solutions, it is possible to measure the temperature with the reliability and precision required for various applications such as hydrodesulfurization, hydrocracking, reactors, storage tanks, process tanks and boilers.



Process sensors with or without thermowell:

These sensors consist of a thermowell solid drilled or mechanically welded. Fastening is ensured by a flange or boss to your piping. Usually equipped with an interchangeable measuring element to facilitate interchangeability and stoppage of the process.



Connection head: The Ex i, Ex d, Ex e head is mounted on the thermowell or on the extension tube of the temperature sensor.

Advantages:

- Protection and possibility of fitting one or two terminal blocks or one or two transmitters in the head version Std, Ex, SIL2, programmable, programmable Hart, Profibus
- Cable entry with certified cable gland
- Display (optional)

The extension tube with or without union or sleeve is the connecting piece between the connection head and the process connection/ thermowell.

Advantages :

- Protects the head transmitter against the risk of overheating
- Ensures access and orientation of the connection head in the case of use on insulated pipe

The process connection is the connection between the process and the temperature sensor.

Thermo Est offers various connections according to your process:

- Custom made threaded screw fittings
- ASME/ANSI flanges, full penetration weld
- Welding fittings
- Sliding fittings

The thermowell is the component of the sensor directly in contact with the process.

Advantages :

- Increasing the life of the measuring element by protecting it against the effects of the process
- Interchangeability of the sensor without interruption of the process
- Mechanical stability against pressure and flowing

The thermowells are available in solid drilled or welded version, straight or conical version, the design depends on your process, material: 304 L, 316 L, 321, 316 Ti, Inconel®, Hastelloy, Teflon®...

The measuring element or insert

The measuring inserts consist of a 316 L stainless steel tube, Inconel® for example or a jacketed cable with MgO mineral insulation.

The elements are of the type Pt100 Ω according to IEC 60751 class B, A or others assembly 2, 3 or 4 wires or version thermocouple according to your temperature range. Single or double version for redundant measurements.

To ensure thermal contact with the process, the element is mounted with 2 compression springs 10 mm stroke ensuring contact at the bottom of the well.

Aeronautics

A partner who can help you get your projects off the ground...

For over 50 years, **Thermo Est** has been designing sensors with high engineering requirements for the aerospace industry.

They are designed and manufactured in France and are being used in several aeronautics developments.

We are not just suppliers, but partners for your projects! Our requirements are focussed on your concerns.

We are committed to finding the best solutions that are fully suited to your requirements. Our company has a human dimension, with the agility to adapt its compandencies. **Thermo Est** develops staff across the world, and every employee studies and offers our most suitable products and services for controlling temperature in each of your areas of work.



Premium range

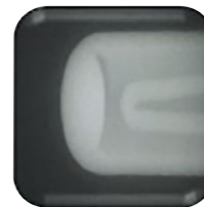
For your tests and thermal treatments

Thanks to the synergy put in place within the group, **Thermo Est** offers jacketed cables to specifications, which comply with the requirements of AMS 2750 aerospace standards. The cables are available in different diameters and will give your sensors guaranteed high performance and traceability for tests or specific thermal treatment processes.

Our thermocouples play an indispensable role in compliance with the requirements of standards, in types T, J, K, E, N, R, S, B, C or D, and are available in different lengths, materials and diameters.



AMS 2750 calibrated thermocouples

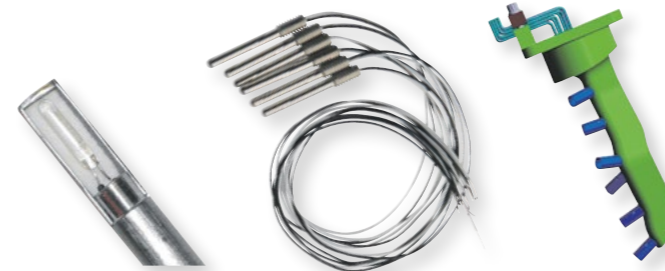


"Exclusive" Range



Instrumentation by :

- Pressure tube
- Resistance probes of small sizes
- Thermocouples jacketed version with mineral insulation or flexible Teflon® / Kapton® cable
- With or without reduced tip



Resistance probes

Rakes or combs for test benches

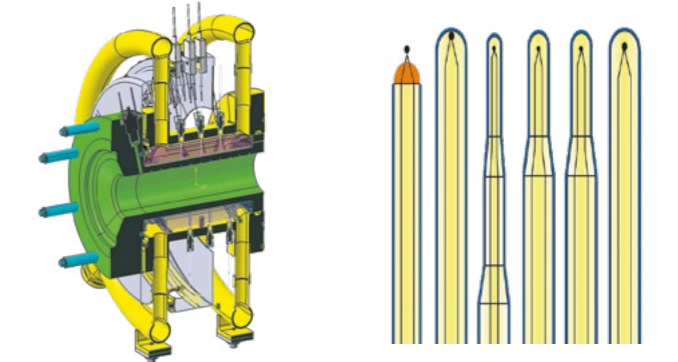
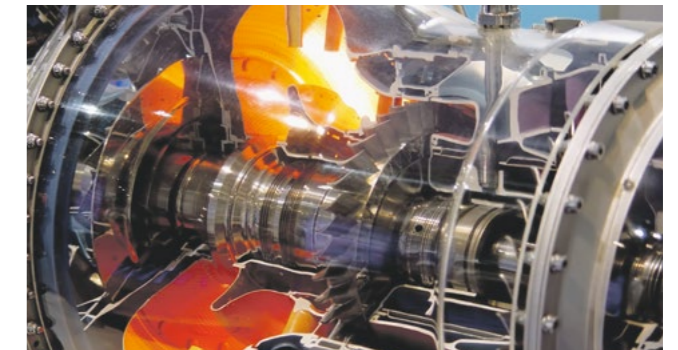
• Mechanical equipment:

Thanks to our leading edge manufacturing plant, **Thermo Est** can carry out all the engineering work for making armatures, fittings, nozzles, solid-bored thermowells, etc.



For ground tests...

The continual improvement of propulsion performance and the reduction of its environmental impact have been essential factors in the development of air transport. The continuation of that success is the main focus of the technological efforts of **Thermo Est**.



Instrumented rakes are intrusive measuring devices designed to acquire the pressure and temperature parameters of aircraft engines. When placed on the engine during development test phases, they make it possible to characterise the performance of the different stages.

As a manufacturer of rakes, **Thermo Est** takes part in designing them and takes charge of all the operations for making them, including thermal treatment, machining, special vacuum brazing, instrumentation and calibration.

The know-how developed with the inspection resources dedicated to this activity enables us to particularly guarantee accurate positioning of the instrumentation in each nozzle.

To serve the aerospace industry, **Thermo Est** offers thermocouples for measuring thermal flows or cooling circuits for motor testing.

Holding is provided by a metal assembly, thanks to the development of +1050 °C high-temperature brazing for Ø 0.5 mm thermocouples.

Aeronautics

For on board control...

Brake temperature sensors

Braking is one of the vital functions of an aircraft, it is necessary in case of emergency to be able to stop the aircraft. Our sensor gives permission to retract the landing gear and can operate at extreme temperatures above +1000 °C..



Aerospace applications

Ambient temperature sensor

The ambient temperature inside commercial aircraft ranges from 18 °C to 25 °C, whereas the outside temperature at the cruising altitude is about -50 °C.

Thermo Est offers accurate resistance probes that make it possible to measure and regulate the ambient temperature so as to keep passengers comfortable.

- Sensor for heat exchangers
- Battery temperature
- Gas or fluid
- Harness
- Resistance probes
- Thermocouples



For your heating applications...

Shielded heating cables with mineral insulation are characterised by their sturdiness, long life and adaptability to extreme conditions.

Thermo Est is making its own jacketed cables, and can supply heating cables according to your specifications..



General specifications:

- With integrated cold terminations for a constant diameter
- With or without reduced tip
- Multizone
- Heating cable diameters from 0.50 to 5.0 mm
- Various sheath alloys such as stainless steel or Inconel®
- Variable power voltage: 28 V, 115 or 220 VAC
- High insulation resistance
- Dielectric testing at 1500 V

Exemple d'applications :

- Heating tools
- Heating panels
- Radiant heating
- Heating collar...



For testing and qualification...

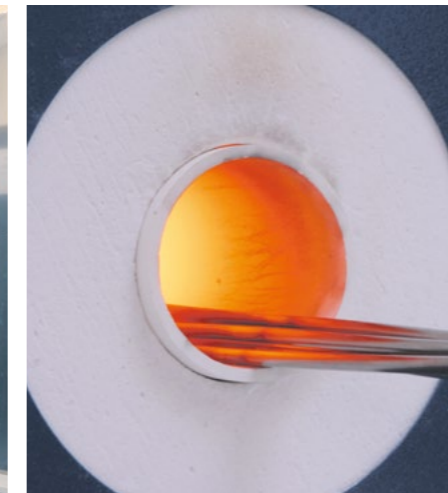
Thermo Est has a very complete laboratory that allows it to carry out the most stringent inspections according to customers' requirements.

Non-destructive or destructive testing with:

- Integrity of the sheath of the thermocouple or resistance probe
- Radiography
- Helium leak test
- Steam pressure test
- Electrical and dielectric testing
- Calibration
- Response time
- Welds UV penetrant testing
- Breakdown voltage
- Metallographic section
- Vibration tests etc.

Thermo Est manufactures and inspects its products in absolute compliance with applicable international standards.

For your calibration needs...



Laboratory metrology:

Leading manufacturer with a COFRAC accredited laboratory, which is a guarantee of good workmanship, **Thermo Est** has the best calibration methods and uses reference instruments.

- For contact thermometers
- For optical pyrometers

On-site metrology services:

To better satisfy our customers, our on-site metrologists travel to your premises to provide a variety of services such as calibrating installations, characterising and verifying climatic enclosures etc., with or without COFRAC accreditation.

Inspection services:

Thermo Est provides you with the combined expertise of a metrology laboratory and a temperature sensor manufacturer, in the form of advice, training and assistance. That dual competency enables us to propose concrete and suitable training.



Nuclear field

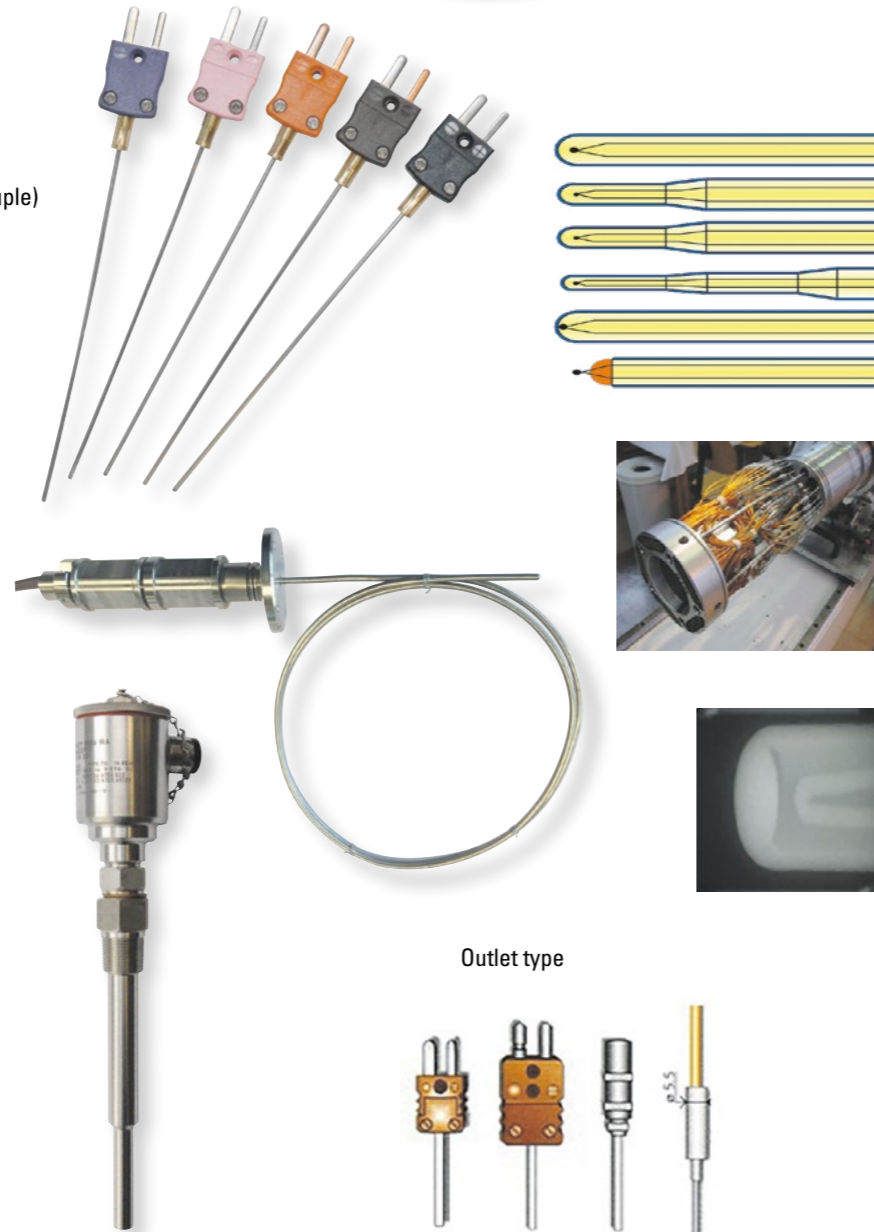
Our expertise in extreme applications...

A partner at the heart of the extreme...

Thermo Est has developed know-how recognized by researchers and manufacturers in the field of temperature measurement. Listening to its partners, Thermo Est participates in the development and improvement of knowledge in all fields of metallurgy, fluids, gases, where the best measurement of temperature is essential.

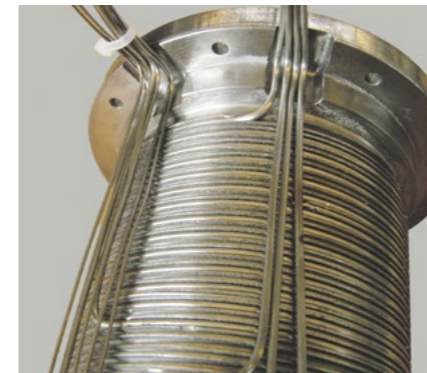
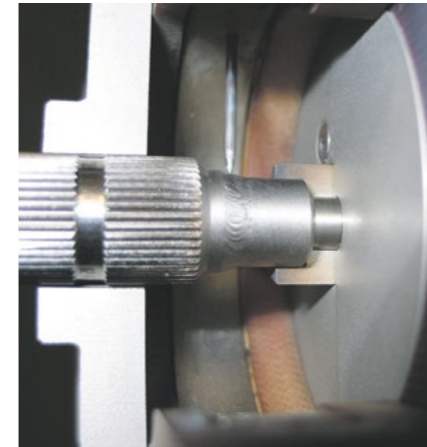
Thanks to their experience, Thermo Est's engineers have mastered all the welding and soldering processes that are the pillars of the manufacturing quality of the temperature sensors. The rigor in the choice of materials and their transformation as well as a rigorous control are the factors of the international notoriety of **Thermo Est**.

- Teleoperable in irradiated zone
- Motor bearing, pump housing temperature
- Water, steam temperature
- Sodium level detection
- Pool temperature
- Mapping probe
- Melting pot sensor (duct and cocoon thermocouple)
- Heating collars
- Mineral insulated heating cables



Outlet type

Type S, R, B, C or D high-temperature thermocouples



Known for their versatility as temperature sensors, thermocouples are manufactured in a variety of styles. Thermo Est thermocouples in high-temperature metal sheaths are used in applications where standard thermocouples are not suitable because of the excessively high temperature.

These thermocouples are made from highly pure materials, assembled by micro-welding in a neutral atmosphere, and their design has evolved over the years.

The couples used are of the S, R, B, C or D type and are made with platinum wires with varying rhodium percentages or tungsten/rhenium wires.

Standard insulation is of the MgO (magnesium oxide) type, also available with BeO (beryllium oxide), HfO₂ (hafnium oxide), and Al₂O₃ (aluminium oxide).

A flexible or rigid metal sheath protects the thermocouple, sheath of molybdenum, tantalum, tungsten and rhodium-plated platinum type.



Qualified to resist with extreme conditions:

- (Nuclear safety: irradiation, earthquake, steam, high temperature)
- Respect of strict and complex standards
 - Performance and technicality in extreme conditions
 - Rigorous constitution of qualification files "RFF"
 - Permanent attention to the safety of people and installations

Verification means:

- Calibrations - fixed points
- Stress calculations according to ASME PTC 19.3
- Insulation
- Line resistance
- Dielectric test
- Response time
- COFREND LT helium test
- Penetrant testing
- PMI material testing
- Leak test
- Pressure test
- Tensile testing
- Vibrations, shocks, earthquakes
- Cobalt radiation
- Icing

Heating cables

Our expertise in heated cables...

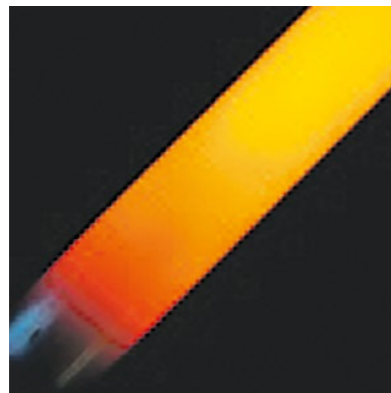
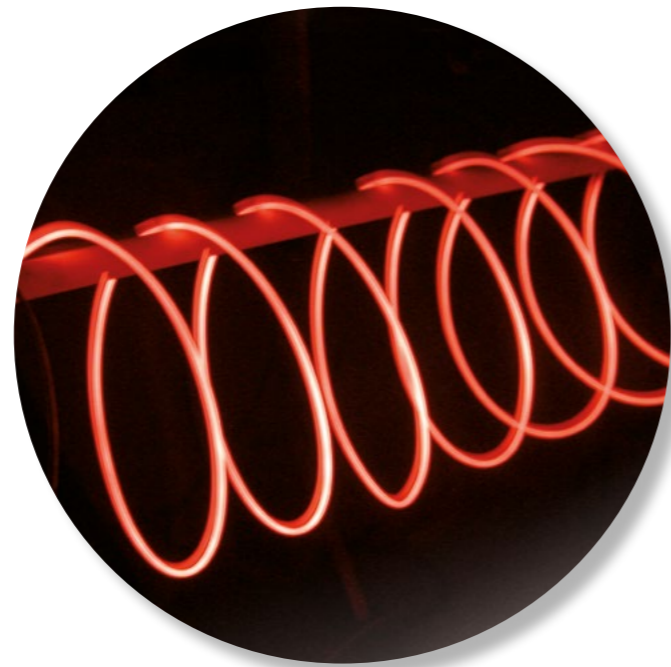
At the heart of the extreme, your heating solutions...

It is with the desire to always better satisfy you that **Thermo Est** develops heating solutions.

The solution is shielded heating cables with mineral insulation.

Shielded heating cables with mineral insulation are characterised by their sturdiness, long life and adaptability to extreme conditions.

Thermo Est is making its own jacketed cables, and can supply heating cables according to your specifications.



Exclusiv range:

Construction of heating cables with mineral insulation:

Conductor for the hot section:

- 80/20 NiCr core, pure Ni or Balco
- Ø of the core according to the desired linear resistance
- Double NiCr core 80/20, N

Conductor for the cold section:

Copper conductor

Insulation :

"MgO" magnesia mineral insulation highly compacted

Outer sheath:

- Diameter from 0.5 mm to 5.0 mm
- Variable power voltage: 28 V, 115 V, 220 V or 400 VAC for example
- High insulation resistance
- Dielectric testing at 1500 V

For temperatures up to +600 °C: stainless steel AISI 321, 316 L...

This type of sheath is resistant to corrosion in steam and gas environments. Use for a continuous temperature max of +800 °C for applications in the chemical industry, food, automotive, research and development as well as nuclear energy.

For temperatures up to +1000 °C: Inconel 600®

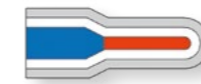
This type of sheath has a good resistance to corrosion in an oxidizing atmosphere up to +1000 °C.

Resistant to corrosion and low electrochemical corrosion. In the oxidizing atmosphere usable up to 1150 °C. Not recommended in a sulphurous atmosphere above 500 °C for high temperature applications in the chemical industry, food, automotive, research and development and for nuclear energy..



3 types of implementation

Construction at the hot part:



Raw version (sold by the meter)

Single or dual wire conductor cable

Reduced tip version

On single-wire or two-wire cable, depending on the shrink diameter, can increase the power by a factor of 2 to 4.

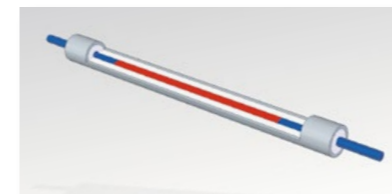
Length according to your specifications.

Version reduced at the middle

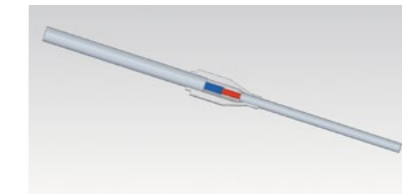
This type of cable is available with a reduced section on the hot cable or reduced section on the hot cable with integrated cold terminations. Depending on the reduction Diameter, can increase the power by a factor of 2.

Length according to your specifications.

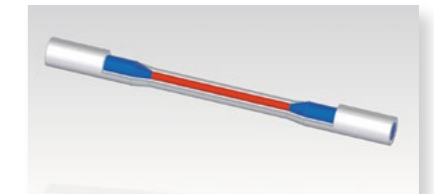
Heating cables with cold ends:



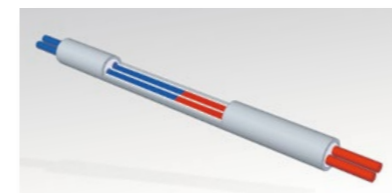
- Heating cables with cold ends for a constant Diameter



- Heating cables with laser or solder brazed junction



- Heating cables with reduced tip and integrated cold ends



- Bi-conductor heating cables with cold ends



TERMS OF USE :

Shielded mineral insulated heating cables can be used in many environments due to their robustness and adaptability to extreme conditions. They can for example be used under vacuum.

Heating cables

Examples of applications for your heating tools...

From complex application to industrial production, Thermo Est designs the heating solution adapted to your needs.

From a few milliwatts to a few kilowatts and for temperatures up to +1000 °C with shielded heating cables with mineral insulation, small diameter, very flexible and robust.

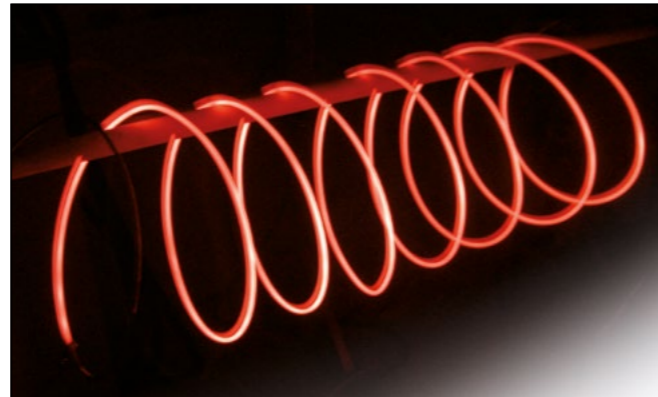
Our assembly means of jacketed cables are variable depending on the desired heating power. The higher the temperature, the better the heat transfer should be. All our Thermo Est cables can be wound, built-in or brazed depending on their nature to adapt to all types of mounting.

Coding example for Thermo Est requests:

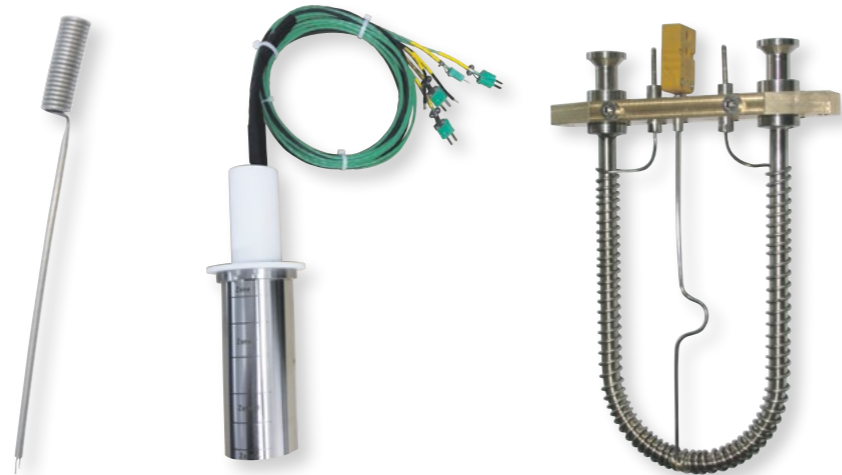
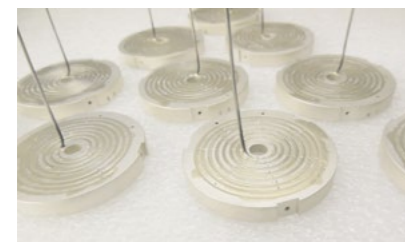
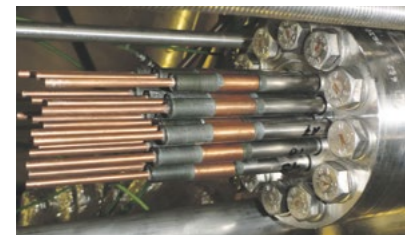
1 - I - NC - 0,63 - 4.3 - 5000 - 2x - DL - 1 - I - Cu - 0,007 - 4.9 - 2000 - 2x - D - T - 2.5 mm² - 1 m

Example: single wire heating cable

- Sheath: "I" (Inconel 600®)
- Core: NiCr 80/20, line resistance: 0,63 Ω/m
- Sheath Diameter 4.3 mm, hot part length LC = 5000 mm Two laser welded junctions 2x DL
- Cold parts sheath "I" (Inconel600®), copper conductor, line resistance 0.007 Ω/m
- Sheath diameter 4.9 mm, cold part length LF = 2000 mm
- Electrical termination: 2x D by non-removable junctions with insulated copper wire Teflon® L cable = 1 mander - s = 2.5 mm²
- P=3840W +/- 10% under 110 V

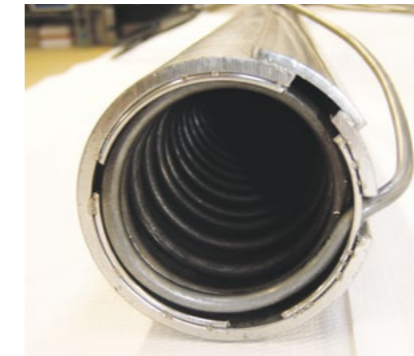
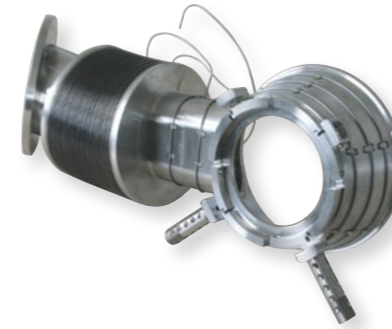


Heating cables with integrated cold ends for a constant Diameter



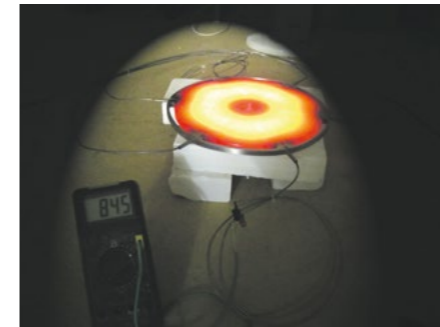
Heating power <100 W/m or up to 3 W/cm²

No direct contact with the jacketed cable is required for low temperatures, so it is sufficient to secure the jacketed cable with spot-welded metal strips.



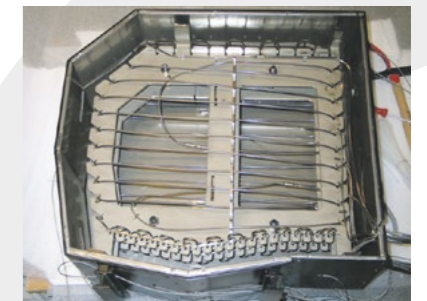
Heating power <300 W/m or up to 6 W/cm²

For higher temperatures up to +600 °C, it is important that the jacketed cable is applied over the entire length with a very good thermal contact between two plates, brazed or placed in grooves.



Heating power from 300 W/m up to 1 KW/m or > 6 W/cm²

For very high temperatures, optimal heat transfer must be done over the entire length and surface. It is ideal if the jacketed cable is placed in grooves then brazed under vacuum or sealed directly into a mechanical part.



Relative Humidity and Temperature Transmitters

Wireless Relative Humidity and Temperature Transmitter

RHT Air is a wireless relative humidity and temperature transmitter which operates over long distances and allows configuration and parameters reading over a wireless network within 500 m distance.

It has a long operating battery life combined with the convenience of a wireless sensor that avoids electrical noise susceptibility ensuring a robust and secure solution. Operation without cables or wires simplifies installation and relocation of devices. **RHT Air** operates on its own wireless network and works independently from the company's IT infrastructure.

- Relative humidity and temperature measurement over long distances
- Independent industrial wireless network
- Long operating battery life
- Easy network scalability
- Noise immunity



RHT Air

High Accuracy Relative Humidity and Temperature Transmitter

RHT Climate relative humidity and temperature transmitter provides highly accurate and stable measurements and transmits both signals via two independent analog outputs and the RS485 Modbus RTU communication. The RHT Climate is fully USB configurable through its free SigNow software which also performs diagnostics and input/output simulation, installation and commissioning tasks.

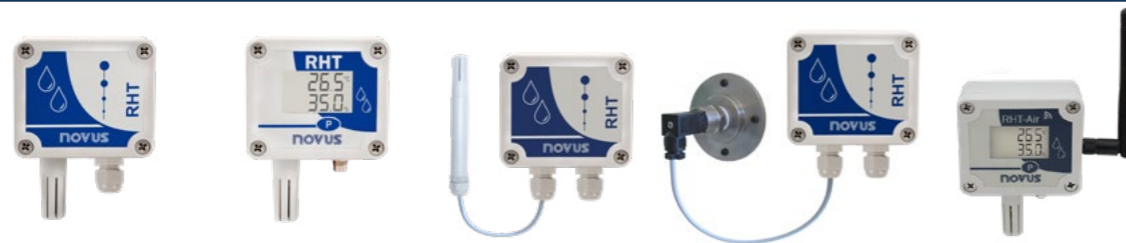
RHT Climate is available with or without LCD display for duct or wall mounting with different probe lengths.

- High accuracy measurement
- Large display with backlight
- Configurable analog outputs
- Configuration via USB or front keys
- Alarm outputs and buzzer



RHT Climate

Wall mounting



Duct Mounting



	RHT WM	RHT WM 485 LCD	RHT XS	RHT P10	RHT Air	RHT Climate WM	RHT Climate WM LCD	RHT DM	RHT-DM 485 LCD	RHT Climate DM	RHT Climate DM LCD
Input type	Integrated RHT probe		Extended RHT probe (3 m cable)	Extended RHT probe (flange mounting) (3 m cable)	Integrated RHT probe	Integrated RHT probe		Integrated RHT probe (options: 150, 250, and 400 mm)			
Measurement Range	Temperature : -10 to 60 °C Humidity : 0 to 100 % HR	Temperature : -40 to 100 °C Humidity : 0 to 100 % HR	Temperature : -40 to 120 °C Humidity : 0 to 100 % HR		Temperature : -10 to 100 °C Humidity : 0 to 100 % HR	Temperature : -40 to 60 °C Humidity : 0 to 100 % HR		Temperature : -40 to 120 °C Humidity : 0 to 100 % HR	Temperature : -40 to 100 °C Humidity : 0 to 100 % HR		
Accuracy	Temperature: ±4 °C @ 25°C Humidity : ±3 % @ 25°C and 20 - 80 % HR					Temperature : ± 0,4 °C (0 - 60 °C) Humidity : ± 1,8 % HR @ 0 - 60 °C and 0 - 90 % HR		Temperature : ± 0,4 °C @ 25 °C Humidity : ± 3 % HR @ 25 °C and 20 - 80 % HR		Temperature : ± 0,4 °C (0 - 60 °C) Humidity : ± 1,8 % HR @ 0 - 60 °C and 0 - 90 % HR	
Analog Output Type	4-20 mA (20-4 mA)	-	4-20 mA		-	4-20 mA (20-4 mA) ou 0-10 V (10-0 V)		4-20 mA (20-4 mA)	-	4-20 mA (20-4 mA) ou 0-10 V (10-0 V)	
Advanced Functions	Dew point retransmission	Dew point indication	Dew point retransmission		Battery level dew point indication	Psychrometric properties, alarm buzzer, 2 digital outputs, maximum and minimum values, simulation of inputs, simulation of outputs, custom calibration and front keys (LCD version only)		-	Dew point retransmission	Psychrometric properties, alarm buzzer, 2 digital outputs, maximum and minimum values, simulation of inputs, simulation of outputs, custom calibration and front keys (LCD version only)	
Communication	Through TxConfig adapter	RS485 Modbus RTU	Through TxConfig adapter		USB mini-B type NOVUS Air (IEEE 802.15.4)	USB type micro-B and RS485 Modbus RTU		Through the TxConfig adapter	RS485 Modbus RTU	USB type micro-B and RS485 Modbus RTU	
Approvals	CE				Anatel (0172-13-7089) FCC and CE	CE		CE			
Operating Conditions (Housing)	-10 to 65 °C 0 to 95 % HR	-40 to 70 °C 0 to 95 % HR	-40 to 70 °C 0 to 95 % HR		-10 to 70 °C 0 to 95 % HR	-40 to 60 °C 0 to 95 % HR		-10 to 65 °C 0 to 95 % HR	-40 to 100 °C 0 to 95 % HR	-40 to 60 °C 0 to 95 % HR	
Power Supply	12-30 Vcc	12-30 Vcc	12-30 Vcc		12-30 Vdc or Replaceable 3.6 V Lithium battery	12-30 Vcc		12-30 Vcc			
Ingress Protection	Housing IP65 Probe IP40		IP40		IP40	Housing IP65 Probe IP30 or IP40		Housing IP65 Probe IP40		Housing IP65 Probe IP 30 or IP40	

Temperature Transmitters

Head Mounted Temperature Transmitter

TxBLOCK-USB is an excellent and powerful high-accuracy loop-powered head mounted temperature transmitter. It accepts several types of sensors – thermocouples, Pt100, Pt1000, NTC and 0-50 mV signal – all-in-one model, with linearized 4-20 mA output and configurable measurement range.

The innovative built-in USB port allows configuration, easy commissioning and fine tuning on periodic calibration reviews.



TxBlock-USB

HART® Temperature Transmitters

The **TxIsoRail-HRT** temperature transmitter combines the proven quality of HART® certification with the robustness of NOVUS devices. It is compatible with HART® certified devices and has electrical isolation between input and output, supporting voltage surges up to 1.5 kVrms.

Using a worldwide known protocol, with over 40 million field instruments supporting HART® technology, **NOVUS TxIsoRail-HRT** temperature transmitter enables the use of standard HART® configuration and supervision software that provides users with great flexibility in remote configuration and calibration capability through the two-wire 4-20 mA current loop without having to remove it from the plant.

TxIsoRail HRT and TxIsoBlock HRT, the **NOVUS HART®** temperature transmitters, are fully compatible with HART® certified devices from worldwide market. Full configuration can be done only with two-wire 4-20 mA current loop, providing more features for device configuration and monitoring and this is the big spotlight of the HART® devices. When a configuration change is needed, for example, remote interaction can be done with the device without removing it from the installation place.



TxIsoBlock HRT



TxConfig HRT Configurator



TxIsoRail HRT



	Sensor Probe Mounting			Wall Mounting	Head Mounting	DIN Rail Mounting				
	TxMini M12	TxMini M12 485	TxMini DIN43650	TEMP WM 4-20mA	TxBlock USB	TxIsoPack	TxIsoBlock HRT	TxRail USB	TxIsoRail	TxIsoRail HRT
Type	Capteur Pt100/Pt1000 Span programmable	Capteur Pt100 Span programmable	Capteur Pt100/Pt1000 Span programmable	Integrated probe	Universal programmable	Universal isolated programmable	Universal isolated HART programmable	Universal programmable	Universal isolated programmable	Universal isolated HART programmable
Accuracy		0,2 % of span		0,9 % of span	Pt100 / mV : 0,2 % span T/C : 0,15 % span ±1 °C CTN : 0,7 % span	Pt100 / mV : 0,2 % span T/C : 0,7 % span	Pt100 / mV : 0,15 % span T/C : 0,15 % span ±1 °C CTN : 0,45 % span	Pt100 / mV : 0,2 % span T/C : 0,15 % span ±1 °C CTN : 0,7 % span	Pt100, mV and mA : 0,2 % span T/C : 0,2 % span ±1 °C	Pt100 / mV : 0,15 % span T/C : 0,15 % span ±1 °C CTN : 0,45 % span
Input Type	Pt100 and Pt1000	Pt100	Pt100 and Pt1000	Capteur de Temperature intégré	J, K, T, N, R, S, B, E, Pt100, Pt1000, Pt1000, CTN and 0-50 mV	J, K, T, N, R, S, B, E, Pt100 and 0-50 mV	J, K, T, N, R, S, B, E, Pt100, Pt1000, CTN and 0-50 mV	J, K, T, N, R, S, B, E, Pt100, Pt1000, CTN and 0-50 mV	J, K, T, N, R, S, B, E, Pt100, 0-50 mV, 0-10 V, 0-20 mA and 4-20 mA	J, K, T, N, R, S, B, E, Pt100, Pt1000, CTN and 0-50 mV
Output Type		4-20 mA 20-4 mA		4-20 mA 20-4 mA	4-20 mA 20-4 mA	4-20 mA 20-4 mA	4-20 mA	4-20 mA (20-4 mA) 0-10 V (10-0 V)	4-20 mA 20-4 mA	4-20 mA
Range	-200 to 650 °C	-200 to 600 °C	-200 to 650 °C	-50 to 120 °C	See manual	See manual		See manual		
Configuration interface	TxConfig-M12 Interface		TxConfig-DIN43650 Interface	TxConfig-USB Interface	Type micro-B	Type mini-B	Through TxConfig-HRT interface or HART® certified handheld	USB Type micro-B	TxConfig-USB Interface	Through TxConfig-HRT interface or HART® certified handheld
Software	SigNow	SigNow	SigNow	SigNow	SigNow	SigNow	SigNow	SigNow	SigNow	SigNow
Operating Conditions		-40 to 85 °C 0 to 90 % HR		-20 to 65 °C 0 to 90 % HR	-40 to 85 °C 0 to 90 % HR	-20 to 75 °C 0 to 90 % HR	-40 to 85 °C 0 to 90 % HR		-40 to 85 °C 0 to 90 % HR	
Power Supply	Loop powered 4-20 mA (8 - 35 Vcc)	7 - 40 Vcc	Loop powered 4-20 mA (8 - 35 Vcc)	12 - 30 Vcc	Loop powered 4-20 mA (12 - 35 Vcc)	Loop powered 4-20 mA (12 - 35 Vcc)	Loop powered 4-20 mA (8,5 - 36 Vcc)	Loop powered 4-20 mA (12 - 35 Vcc)		Loop powered 4-20 mA (8,5 - 36 Vcc)
Dimensions	51,2 mm x 20 mm	59,7 mm x 20 mm	28,5 mm x 28,5 mm	70 mm x 60 mm	34 mm x 18 mm	44 mm x 24 mm	43,5 mm x 20,5 mm	114 mm x 99,5 mm	77 mm x 72 mm	114 mm x 99,5 mm
Housing	Polyamide		ABS UL94-HB	Polycarbonate	ABS UL94-HB	ABS	ABS UL94-HB	ABS UL94-HB	-	ABS UL94-HB
Format / Mounting	M12 Connector Thread PG9 to Probe		DIN43650 Connector M24x2 Screw	Wall	Head	Head		DIN 35 mm Rail		

Pressure transmitters

Current Loop Indicator

LoopView is a two-wire 4-20 mA loop-powered indicator. Its excellent accuracy allows to indicate several variables like temperature, pressure, differential pressure, flow, pH, acceleration and others.

LoopView is powered by the current loop itself and it is meant to be inserted into sensors already installed in industrial facilities.

This device has a 4-digit display and 2 keys, which allow for quick and easy adjustment of indication range, decimal point position, digital signal filter and user calibration.

Parameter configuration is password protected and can be done directly via the front panel keys of the loop indicator.

- No extra power supply required
- DIN43650 standard sandwich assembly
- Legacy installation compatibility
- Push-button easy configuration



LoopView

Pressure Transmitters

The rangeability of NP640 pressure transmitter brings versatility, allowing its transmission ranges to be turned down to up to 1/3 of its nominal range. Featuring high accuracy coupled with temperature stability, the NP640 performs well in the most challenging applications and in harsh environments.

- Configuration up to 1/3 of the nominal range
- Protection against harsh environments IP65
- All Stainless steel 316
- High accuracy 0.25% of full scale
- Configuration by SigNow software and TxConfig USB interface



NP640

Through the TxConfig DIN43650 interface and the free SigNow software the NP6xx pressure transmitters series can be fully configured according to customer's preferred range and unit needs (bar, mbar, Mpa, kPa, kgf / m², kgf / cm², atm, mH₂O, psi).

In addition, output status can be set up for upscale or downscale alarm in case of error and zeroing function is also available. The SigNow software brings great versatility to the end user by allowing range configuration right in the process.



Configuration via the TxConfig DIN43650 interface and the free SigNow software

Ultra Low Differential Pressure Transmitter

Ideal for HVAC, clean-room and flow measurement applications, the NP785 is an ultra low differential pressure transmitter for measuring very small over-pressure, under-pressure and differential pressure in neutral, non-corrosive gaseous media. It provides a pressure proportional linear signal output with configurable measuring range via USB using the configuration software.

NP785 can operate bi-directionally, providing the ability to measure differential pressure ranges from vacuum to positive pressure. It is housed in a DIN rail mountable ABS/PC enclosure and its nickel plated brass fittings accept pneumatic hoses with 4 or 6 mm internal diameter. The analog output can be set to either 0-10 V or 4-20 mA while having an RS485 port with Modbus RTU communication protocol. Designed for HVAC and industrial environment, the NP785 ensures temperature compensation for long-term stability and complies with EMC standards, providing robustness and reliability for a wide range of applications.

- Available nominal ranges: ± 50 Pa (± 0.2 inH₂O) to ± 68 mbar (± 1 Psi)
- Ranges fully configurable by software within rated range
- Temperature compensated for higher stability at low pressures
- Output signal DC 0 to 10 V or 4 to 20 mA and slave Modbus RTU, in one-only-model
- Resistant to overpressure
- Auto-zero Key
- Diagnostic LEDc



NP785



	NP400	NP640
Pressure Sensor	Piezoresistive (ceramic)	Polyisilicon piezoresistive (oil filled)
Software Configuration	-	SigNow (Through TxConfig DIN 43650 Interface)
Transmission Rangeability	-	3:1
Pressure Range (bar)	0-2 / 0-5 / 0-10 / 0-16 / 0-25 / 0-40 / 0-60 / 0-100 / 0-160 / 0-250 / 0-400 bar	0-1 / 0-4 / 0-10 / 0-16 / 0-25 / 0-40 / 0-60 / 0-100 / 0-160 / 0-250 / 0-400 bar
Material in Contact with the Medium	Stainless steel 316 / FKM / ceramic (Al 203 96%) ³	All Stainless steel 316
Housing Material	Stainless steel 316	
Power Supply	11-33 Vcc	
Output Signal	4-20 mA	
Accuracy (Including Hysteresis, Linearity and Repeatability)	≤ 50 bar ± 0.5 % P.É. 100 bar ± 1.0 % P.É.	± 0.25 % P.É.
Process Connection	¼ NPT / ½ NPT / ½ BSP / ¼ G	
Electrical Connection	DIN 43650 Connector	
Operating Temperature	- 30 to 100 °C	- 20 to 70 °C
Thermal Drift	< ± 0.06 % P.É.	< ± 0.05 % P.É.
Dynamic Response	< 30 ms	
Overpressure	2 x P.É.	

Date Loggers

Wireless Multichannel Data Loggers - LogBox Connect

LogBox Connect provides data acquisition and connectivity for any type of application. With all its wireless options, it is the gateway to the connected IoT world.

Bluetooth Data Logger

- Suitable for battery operated applications
- Configuration and downloading data via USB (Nxperience) or Bluetooth (NXperience Mobile)
- Powered by 4 AA alkaline batteries or external DC power supply
- Data communication via Bluetooth through **NXperience Mobile**

APPLICATIONS



Laboratory



Cold Chain



Data Centers



LogBox BLE

Wi-Fi Data Logger

- Suitable for distributed environments with existing Wi-Fi infrastructure
- Configuration and downloading data via USB or Wi-Fi
- E-mail alarm notification
- Data communication via Wi-Fi, through NXperience, Cloud based platforms, SCADA, **NOVUS Cloud** through **NXperience Mobile**

APPLICATIONS



Distribution Centers



Cold Chain



Commercial Refrigeration



LogBox Wi-Fi

Data Logger LTE

- Suitable for mobile applications in long distance locations
- Configuration and data download via USB or NOVUS Cloud
- SMS alarm notification
- Built-in rechargeable backup battery
- Data communication via LTE network through NXperience and SCADA softwares.

APPLICATIONS



Utility Services



Transportation of Temperature Sensitive Products



Agricultural Greenhouse



LogBox LTE

Software

Configuration and Download Software

NXperience makes it possible to adjust the device parameters and functionalities, allowing secure data downloading. Download and complete analysis, graphical viewing, mathematical formulas, and reporting.

With extensive connectivity, powerful data analysis and visualization capabilities, users can access different NOVUS devices via USB, Modbus RS485, Ethernet/Wi-Fi (Modbus TCP/IP) and cloud data from **NOVUS Cloud**.



NXperience



Flexibility of Configuration



Device Diagnostics



Analytical Reports

Validation software for Configuration and Download

NXperience Trust has GMP (Good Manufacturing Practice) compliance, meeting with the technical requirements of **FDA 21 CFR Part 11** for validation of computer systems. The user has an electronic record of encrypted data, a strong authentication mechanism with password validity, and an application event log for traceability and audit trail. Protocols and execution of validation are optional and offered separately, to complement the solution.



HARDKEY
Pour plus de fiabilité dans l'enregistrement des données

NXperience Trust



Inviolable Information



Data Security



Complies with FDA 21 CFR Part 11

Configuration and Download Mobile App

NXperience Mobile is a smartphone application (Android and iOS) for configuring and downloading data wirelessly from **LogBox BLE** and **LogBox Wi-Fi** devices. Besides, it is possible to run device diagnostics and export registered data.



NXperience Mobile



Setting Parameters



Data Export



Alarm Notification

Data Loggers

**PRODUCTS IN STOCK
READY TO SHIP**

Micro Data Logger for Temperature and Humidity

LogBox-RHT-LCD is a data logger with integrated sensors for temperature and humidity. It uses high-quality sensor, for accurate and reliable transportation applications, storage of perishables, audit processes, among others.

You can quickly check the minimum and maximum values that occurred during acquisitions on **LogBox-RHT-LCD** display. This logger has a 32,000 registers memory, 16,000 for each channel. The estimated life battery life is up to 200 days with one weekly download and 5 minutes measuring interval.

NXperience software enables configuring, collecting, plotting, analysis, and export records.



LogBox-RHT-LCD

Rugged Data Loggers

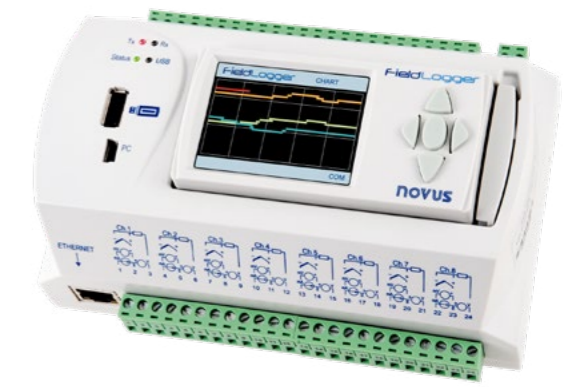


	LogBox AA	LogBox DA	LogBox RHT
Input Signals	2 analog Inputs	1 digital Input 1 analog Input	Temperature and relative humidity sensors
Analog Signal Type	Thermocouples J,K,T,N,R,S,B, Pt100, 0-50 mV, 0-10 V, 0-20 mA, 4-20 mA	(0-50 mV, 0-10 V, 0-20 mA, 4-20 mA)	-
Digital Outputs	1 electronic switch		
Resolution	14 bits		Temperature 14 bits Humidity 12 bits
Memory Capacity	32 000 records or 64 000 records		64 000 records (32 000 Temperature and 32 000 Humidity)
Logging Interval	1 s to 18 h		
Logging Mode	Instantaneous, average, minimum or maximum		
Logging Trigger	Date/time, start button or digital input	Date/time	Date/time, start button or setpoint
Alarms	2 alarms (one per channel) minimum and maximum values		
Communication Interface	Infrared through IR Link-3		
Configuration Software	LogChart II (PC)		
Power Supply	3.6 V replaceable lithium battery (½ AA)		
Battery Life	Typically 1 year		
Housing Protection	IP65 or IP67		IP40

Industrial Multichannel Data Logger - FieldLogger

FieldLogger is a high-performance instrument for reading and recording variables. It has high inputs/outputs density and several options for displaying, logging and processing information.

It can also be used as an analog + digital I/O expansion for PLCs in monitoring and control applications.



FieldLogger

E/S

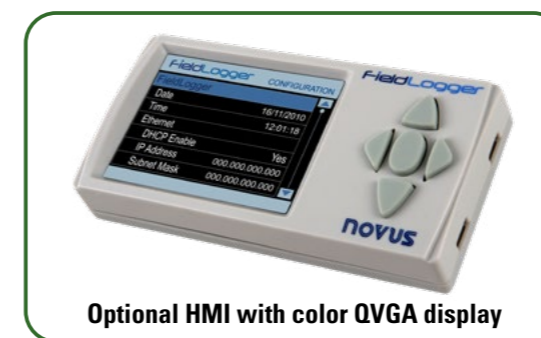
- 8 Universal analog inputs
 - Thermocouples (J, K, T, N, E, R, S, and B), 0-5V, 0-10V, mV, mA, Pt100, and Pt1000
 - Sampling rate up of to 1000 readings/second (24-bit A-D conversion)
- 8 Digital I/Os individually configurable as input or output
- 2 Relay outputs
- 128 virtual channels (refer to Mathematical Functions)

Recording

- Internal memory of up to 512,000 recordings
- Memory extension with SD or SDHC card
- Records up to 100 channels (local, remote or virtual variables)
- Recording rate of 1000 logs/second (max)
- Data download through configuration software (USB device, RS485, Ethernet or USB drive)

HMI

- 2.4" color QVGA screen and 96 x 48 mm format
- Screen menu with current channel value, history chart, and status information
- Allows to view and configure parameters
- Local or remote installation with RS485 communication



Optional HMI with color QVGA display

Communication Interfaces

- RS485
 - Protocole Modbus RTU
 - RS485 "Slave" for communicating with SCADA software or Host
 - RS485 "Master" for reading from up to 64 remote channels (Modbus protocol)
- USB (Two USB interfaces - mini USB type B and USB type A)
 - USB "Device" port for instrument configuration and data downloads
 - USB "Host" port for downloading recorded data into USB drive(s)
- Ethernet (10/100 Mbps) – Optional
 - Protocols DHCP, HTTP, FTP, SNMP, SMTP Client, and Modbus TCP
 - Custom webpage server in XML format
 - Operates as a gateway between a Modbus TCP network and a Modbus RTU network

Mathematical Functions

- Supports up to 128 virtual channels
- Each virtual channel is a mathematical or logical operation performed over any input channel
- The result of one virtual channel can be used as input to another, which allows one to create complex formulas

Alarms

- Up to 32 configurable alarms (with local, remote or virtual channels)
- The occurrence of an alarm allows:
 - Relay activation
 - Digital outputs activation
 - Sending emails to multiple recipients
 - Sending SNMP traps
 - Start and stop

I/O Modules

Ethernet I/O Module

- Mixed I/Os (analog and digital)
- Ethernet with Modbus TCP/IP protocol
- RS485 with Modbus RTU protocol
- Configurable via USB
- Advanced I/O functions

DigiRail Connect is a versatile DIN rail I/O module with Ethernet interface which can be easily integrated to any automation system. With a flexible mix of industry-standard inputs and outputs, it performs field analog and digital signal handling with outstanding accuracy. Specially designed to comply with international electromagnetic compatibility standards, it ensures robustness and reliability in the most demanding industrial applications.



APPLICATIONS



Industry



Energy



Steel Industry



Distribution Center

Programmable I/O Module

- Mixed I/Os (analog and digital)
- Rugged and reliable for industrial applications
- RS485 interface
- High-Level Programming with Arduino IDE

DigiRail NXprog is a programmable I/O module compatible with Arduino integrated development environment (IDE).

With a mix of both analog and digital I/Os, DigiRail NXprog can be used as a controller in custom applications for machine or process automation.

Flexible user programmability allows access to the local I/Os and the communication interface. The device can run complex algorithms and can connect with other devices via Modbus RTU protocol.

DigiRail NXprog can run Arduino library codes or custom ones, providing great versatility in a wide range of applications.



Programmable via Arduino IDE

APPLICATIONS



General Automation



Food and Beverage



Plastics and Packaging



Water and Wastewater

Communication

I/O Module for OEE/MES

DigiRail OEE is an I/O module designed for OEE (Overall Equipment Effectiveness) and MES (Manufacturing Execution System) industrial systems. It is the ideal tool to read the sensors that monitor the operation of machines, devices, or processes. Among its many applications, it allows to count operation time and downtime, the amount of approved and rejected parts, signal the need for preventive or corrective maintenance.

Provided with Modbus TCP and secure MQTT protocol, DigiRail OEE transmits data natively to Google Cloud, Microsoft Azure, Amazon AWS, NOVUS Cloud, or any other compatible IoT cloud platform.



Communication Interfaces	Ethernet or Wi-Fi, RS485 and USB
Inputs and Outputs	6 Digital Inputs, 2 Analog Inputs and 2 Digital Outputs
Digital Signals	NPN, PNP, and dry contact
Analog Signals	0-5 V, 0-10 V, 0-20 mA and 4-20 mA
Buffer Capacity	1800 logs with all inputs enabled 7000 logs with 1 input enabled
Clock Sync	Synchronize the clock through an NTP (Network Time Protocol) server
Maximum Pulse Count Frequency (square wave)	Dry contact: 10 Hz; PNP: 3 kHz; NPN: 3 kHz

Modbus I/O Modules

DigiRail signal conditioning modules can easily integrate different analog or digital signals into PLCs or supervisory systems in a cost-effective way being the right choice for input and output expansion with great flexibility.

- Communication and status LED indicators
- Universal and configurable inputs and outputs
- Configuration and calibration can be performed with the free DigiConfig software



DigiRail 2A, 2R e 4C

DigiRail 2A

Two universal analog inputs

- Analog inputs: type J, K, T, E, N, R, S and B T/Cs, Pt100, mV, V, mA
- Resolution: 17 bits
- Isolation: 1000 Vac between inputs and power or communication port

DigiRail 4C

Four digital I/Os

- Fast inputs allow up to 1000 Hz digital signals
- Resolution: 32-bit counting
- Isolation: 1000 Vdc between input

DigiRail 2R

Two relay outputs

- 8 A / 250 Vac SPDT relay, resistive load
- Configurable activation time
- Isolation: 2000 Vac between power and communication

Electrical Parameters Transmitter

DigiRail-VA is a cost effective electrical parameters signal conditioner and transmitter specifically designed for single phase AC power analysis and measurement applications.

- Measures voltage, current, active power, apparent power, reactive power, frequency, and power factor
- Features a USB interface for configuration and reading
- Easy-to-use DigiConfig configuration software (free of charge)



DigiRail VA

Communication

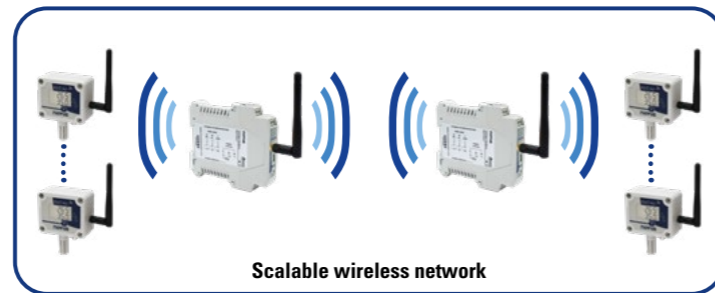
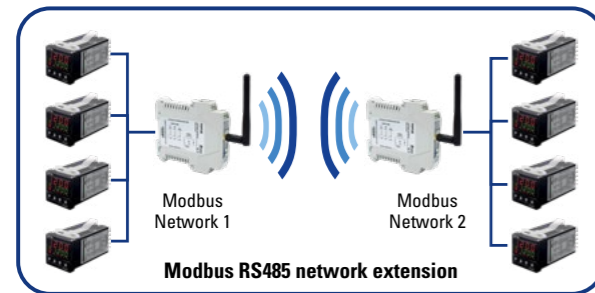
Wireless Modbus Gateway

AirGate Modbus is a multifunctional device that can be used as a wireless repeater, Modbus master multiplexer, Modbus network wireless segment or as an RS485 USB converter.

- Wireless branches for any wired RS485 network node
- Four operation modes
- Connects devices up to 1000 meters apart
- Easy-to-use configuration software



AirGate Modbus



USB to RS485 Converter

Fast and reliable solution for interfacing between PCs and RS485 or RS422 industrial communication buses.

- Plug and Play USB Interface
- Compatible with any serial communication application
- Compact and easy to use in the field
- 1500 Vdc galvanic isolation between the USB port and RS485/RS422



USB i485

Profibus to Modbus Gateway

DigiGate Profibus is a cost-effective gateway for communication between Profibus and Modbus RTU networks. The gateway takes care of all protocols specificities to forward Profibus DP commands to devices connected in a Modbus network.

- LED indicators for communication status
- Reliable interconnection between a Profibus and a Modbus network
- Profibus network acts as the master to Modbus devices
- Easy configuration via DigiConfig for Windows®



DigiGate Profibus

Software Interface

PRODUCTS IN STOCK
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SCADA – Supervisory Software

SuperView is an industrial process control and supervision software (SCADA) that presents a visual development model to the user for building applications. Besides the communication with Modbus RTU and Modbus TCP devices, it is also possible to use SuperView workstations as Client and Server to manage geographically distributed processes on TCP/IP networks.



SuperView



SuperView Mobile

Dashboard and IoT Cloud Platform

NOVUS Cloud is a platform focused on Internet of Things solution that expands the horizons of data viewing. Combined with NOVUS devices, this platform receives, stores, analyzes and displays on dashboards measurements of temperature, humidity, pressure, geolocation or any other variable of interest. Data access via the Internet is particularly necessary for several market segments, such as logistics, health, building, energy, sanitation, and agribusiness areas

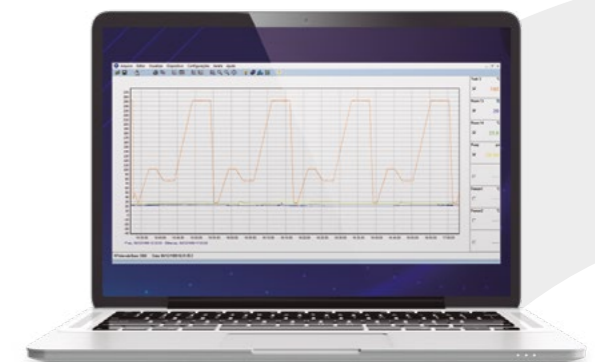


Data Acquisition Software

FieldChart is a data acquisition software, which allows the monitoring and recording of data from NOVUS devices in an easy, fast and intuitive way.

Suitable for use in any process, FieldChart also allows the configuration of alarms, as well as their acknowledgment, and the automatic saving of real-time data in a file.

The software is offered in two versions: **FieldChart-Lite** (limited to 8 monitoring channels) and **FieldChart-64C** (allows up to 64 monitoring channels). **FieldChart** makes the recorded data available in graph format or as a variable list.



FieldChart

Controllers

PID Controller with LCD Display

N1050 is a PID temperature controller with LCD that combines high performance and vivid design. It combines the proven robustness of NOVUS PID algorithm with a large and bright easy-to-read dual color 11-segment LCD display with alphanumeric mnemonics and crystal clear status signaling.

It also features 5 ramp-and-soak profile programs, soft start output and timer function which complement the advanced features of the controller.

- Wide and high contrast dual color LCD display
- Distinguished multi angle viewing
- Compact depth, suitable for restricted spaces
- Elegant design for machines
- Ramp and Soak programs and timer functions



N1050

Compact PID Controller

N1030 is a temperature controller that features a high performance PID algorithm in a very compact housing with only 35 mm depth.

Its innovative compact construction and the convenient detachable connector provide an easy set up on short profile panels, optimizing scarce space and reducing installation cost. It has two outputs always available which can be configured both as a control or an alarm.

- Compact profile, only 35 mm depth
- Detachable connector simplifies device installation, commissioning and maintainance
- IP 65 protection rate ensures resistance to water jets
- Protection and safety according to UL94 V-2 anti-flame housing
- Timer and two relay options to suit different processes



N1030

Temperature PID Controllers

Process PID Controllers



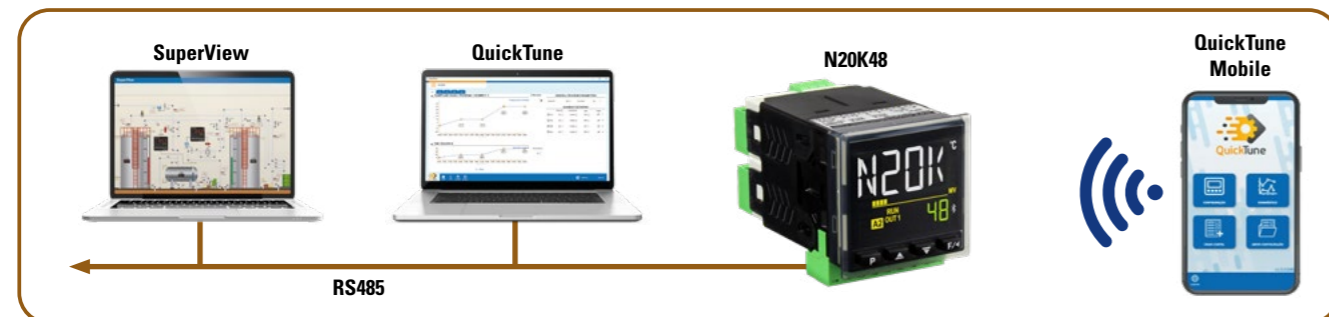
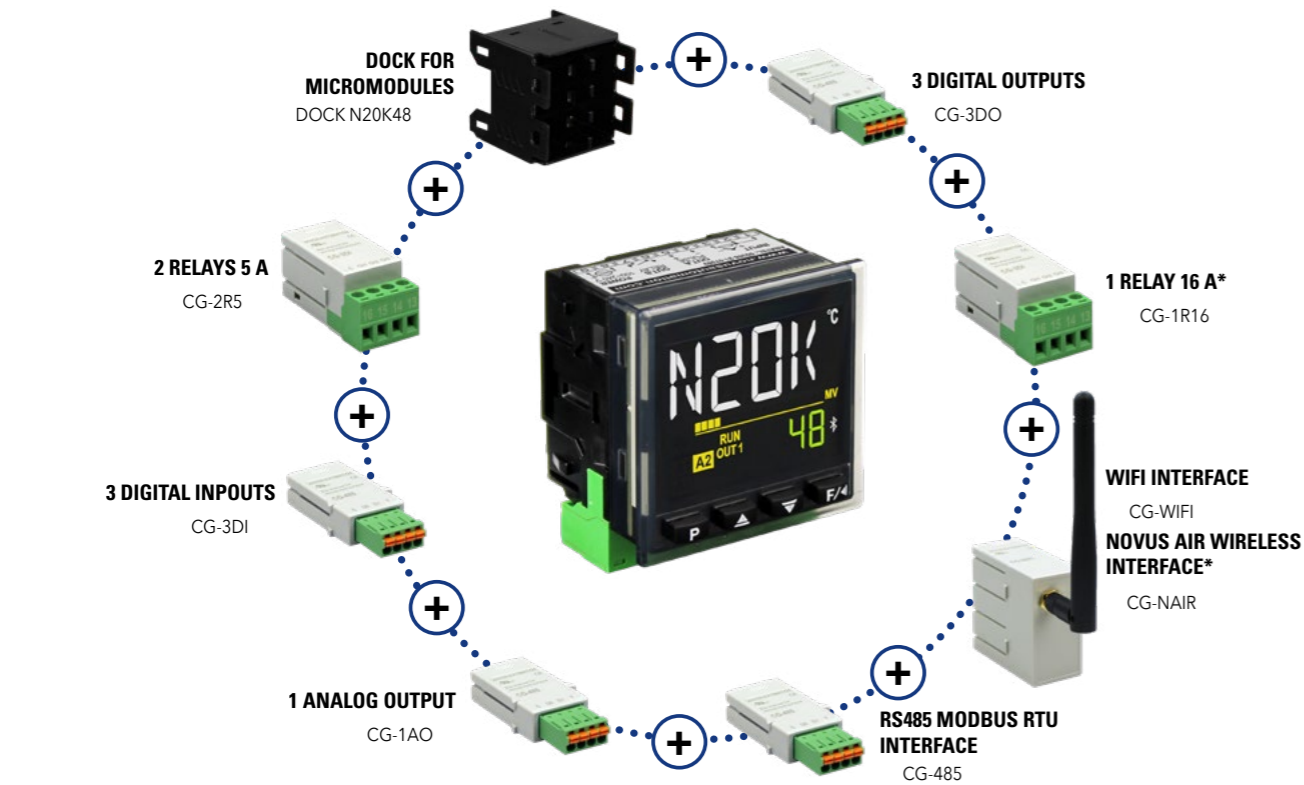
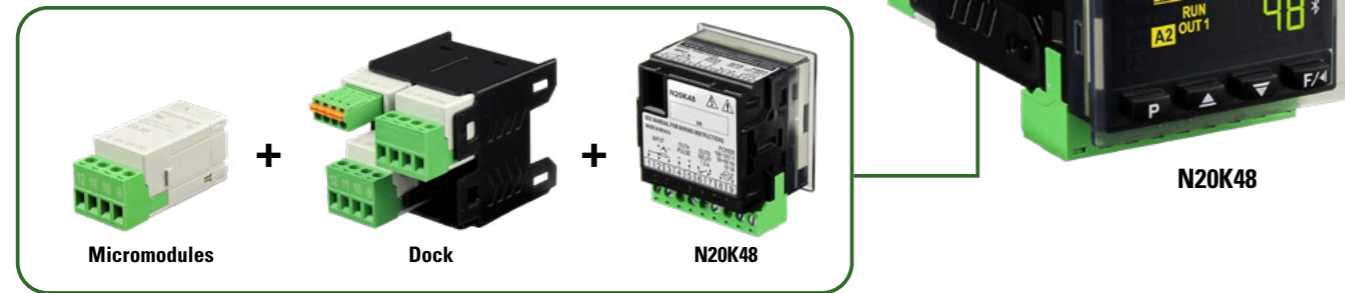
	N1030	N1030T	N1040	N1040T	N1020	N1050	N480D	N960	N120	N1200	N1200 HC	N20K48	N2000	N2000 S	N3000	
Input Sensor	J, K, T and Pt100				J, K, T, R, S, E, N, Pt100 and 0-50mV	J, K, T, S and Pt100	J, K, T, R, S, E, N and Pt100	J, K, T, R, S, E, N and Pt100	J, K, T, R, S, E, B, N, Pt100, 4-20 mA, 0-50 mV, 0-5 V and 0-10 V	J, K, T, R, S, E, B, N, Pt100, 4-20 mA, 0-50 mV, 0-5 V and 0-10 V	J, K, T, R, S, E, B, N, Pt100, 4-20 mA, 0-50 mV, 0-5 V and 0-10 V	J, K, T, R, S, E, B, N, Pt100, 4-20 mA, 0-50 mV, 0-5 V and 0-10 V	J, K, T, R, S, E, B, N, Pt100, 4-20 mA, 0-50 mV and 0-5 V	J, K, T, R, S, N, Pt100, 4-20 mA, 0-50 mV and 0-5 V	J, K, T, R, S, E, B, N, Pt100, 4-20 mA, 0-50 mV and 0-5 V	
PID Control Features	MLI Auto tune				MLI Auto tune Self adaptive	MLI Auto tune	MLI Analog (optional) Auto tune	MLI Analog (option) Auto tune	MLI Auto tune	MLI & analog Auto tune Auto-adaptive			MLI & analog Auto tune		MLI Analog (optional) Auto tune	
Control Action	1 Loop powered (Heating or cooling)						1 Loop powered (Heating or cooling)	1 Loop powered (Heating & cooling)	2 Loop powered (Heating & cooling with overlap)		2 Loop powered (Heating & cooling with overlap)	1 Loop powered (Heating & cooling)		1 Loop powered (Servo)	1 Loop powered (Heating & cooling)	
Control Output	1 pulse Up to 2 relays		1 pulse Up to 3 relays Analog (optional)	1 pulse Up to 3 relays	1 pulse 1 relay	1 pulse Up to 3 relays Analog (optional)		1 pulse 2 relays 1 analog	1 pulse 2 relays	1 pulse Up to 3 relays 1 analog		Up to 25 pulse* Up to 9 relays* Up to 9 analog*	1 pulse Up to 4 relays 1 analog			
Ramp and Soak	-	-	-	-	1 rampe	5 programs 4 segments	1 program 9 segments	1 program 9 segments	20 programs 9 segments	20 programs 9 segments			7 programs 7 segments			
Special Functions	1 alarm (6 types)		Soft-start PID Loop Break 2 alarms (6 types)			2 alarms (7 types)	2 alarms (8 types)	2 alarms (8 types)	Soft-Start Bumpless Manuel/auto PID Loop Break 2 alarms (7 types)	Soft-Start Bumpless Manuel/auto PID Loop Break 4 alarms (8 types)			Soft-Start Bumpless Manuel/auto 4 alarms (7 types)	Soft-Start Bumpless Manuel/auto 2 alarms (9 types)	Soft-Start Bumpless Manuel/auto 4 alarms (7 types)	
Advanced Functions	-	Timer	-	Timer			-	-	Digital input	Digital Input Remote SP SP retransmission Square root		Digital input* Remote SP* Square root	Digital Input Remote SP SP retransmission Square root 24 Vdc output	Digital Input SP retransmission Square root 24 Vdc output	Digital Input Remote SP SP retransmission Square root 24 Vdc output	
Optional Resources	-	-	RS485 Modbus	-	RS485 Modbus		-	-	Data logger	RS485 Modbus Heater break 24 Vdc output + 2 E/S	RS485 Modbus 24 Vdc output + 2 E/S	RS485 Modbus*	RS485 Modbus			
Bluetooth	-															
USB Configuration	-	-	Quicktune				Quicktune	Quicktune	Quicktune	Quicktune	Quicktune	Quicktune	Quicktune and Quicktune Mobile	Quicktune	-	Quicktune
Certification	CE, UL	CE, UL	CE, UL	CE, UL	CE, UL	CE, UL	CE, UL	CE, UL	CE, UL	CE, UL	CE, UL	CE, Anatel and FCC	CE, UL	CE, UL	CE, UL	
Power Supply	100-240 Vca/cc or 12-24 Vcc (optional)							100-240 Vca/cc or 12-24 Vcc (optional)	100-240 Vac/dc	100-240 Vca/cc or 12-24 Vcc (optional)						
Housing	48x48 DIN 1/16		48x48 DIN 1/16		48x24 DIN 1/32	48x48 DIN 1/16	48x48 DIN 1/16	96x96 DIN 1/4	Open Board Dual display	48x48 DIN 1/16		48x48 DIN 1/16	96x48 DIN 1/8		96x96 DIN 1/4	

*Using micromodules

Controllers

Modular Process Controller

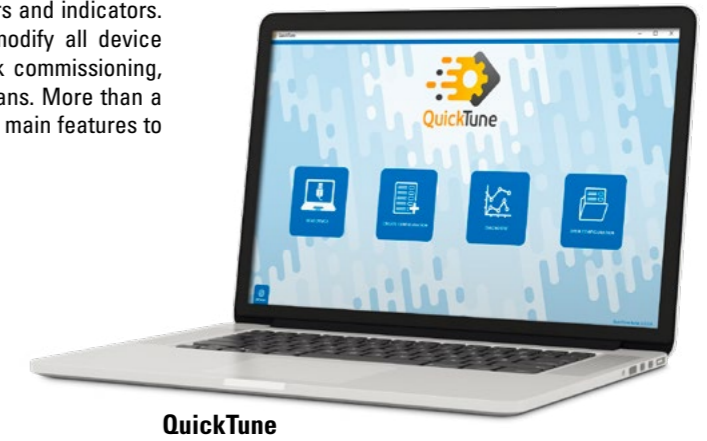
- Adaptable resources by adding micromodules
- Wireless diagnostics and easy field maintenance
- Lowest depth controller in the market
- Smartphone and PC friendly configuration



Software Interface

Configuration Software to Controllers and Indicators

QuickTune is a free software tool to configure NOVUS controllers and indicators. With its clean interface, any user can friendly access and modify all device functions for proper configuration. Designed to easy and quick commissioning, it provides diagnosis and monitoring resources to field technicians. More than a software, QuickTune is a tool. Furthermore, QuickTune offers the main features to meet most users and profile needs in the industry.



- Friendly and Clean Interface
- Allows Quick Commissioning
- Provides Device Configuration Management
- Unified tool for Controllers and Indicators
- Graphic Ramp and Soak Assistant



Batch configuration

Certain applications require annoying tasks, which is to replicate the configuration of many devices. The batch configuration offers the appropriate environment to set plug-and-play device configuration in sequence..



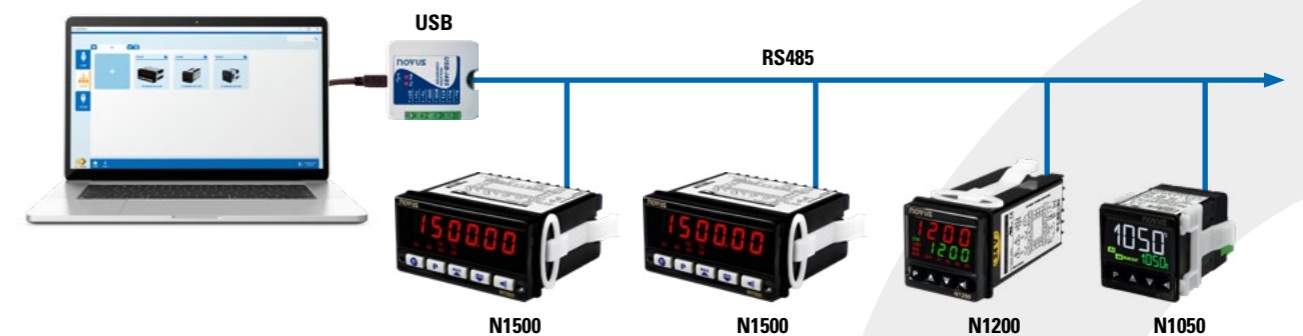
Graphic ramp and soak assistant

Temperature applications with complex profiles should be translated from process recipe requirements to ramp and soak parameters. The assistant tool provides a wide graphical perspective of the process with intuitive features such as sliders, drag-and-drop and clicks over the chart, transcribing all setting automatically to ramp and soak data table.

VIA USB AND BLUETOOTH



VIA RS485 (MODBUS RTU)



Electronic Thermostats

Refrigeration Thermostat with Defrost

- Refrigeration control with automatic defrost
- Defrost by compressor stop, resistance heating or reverse cycle
- Programmable defrost cycle intervals
- Keeps indication during defrosting cycle
- Programmable delay on power-up to prevent simultaneous loads
- Control relay can directly switch compressor up to 1 hp

Models:

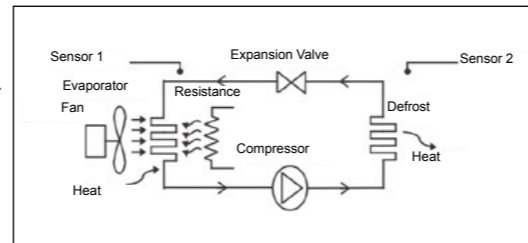
N321R: one output for compressor, accepts sensor type NTC, Pt100 or Pt1000 and optional voltage protection for compressor

N323R: three outputs (compressor, defrost and fan), monitors 2 NTC sensors (chamber and evaporator)

N323TR: similar to **N323R** plus real time clock for scheduling defrost events, with weekly timer,

Typical application:

Refrigeration cooling counters and air conditioning systems



Solar Heating Controller

- Ideal for solar panels applications
- Operates by the temperature difference between the solar collector and the storage tank
- Uses 2 NTC type sensors (included)
- Output control relay drives the water circulation pump
- Protection against pipeline overheating or freezing

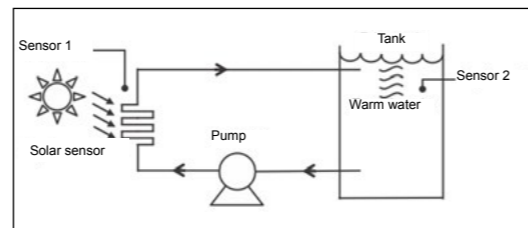
Models:

N321S: one output for circulation pump

N322S: two outputs for circulation pump and water heater booster

Typical application:

Thermal tank, pool heating, and boiler



Cooling/Heating Controller

- Control with alarm or multi-stage
- Direct drive of compressors or electric heaters
- Programmable delay on powerup to avoid simultaneous switching
- Low, high or differential alarm functions
- Sensor type: NTC, Pt100, Pt1000, and thermocouples J, K and T

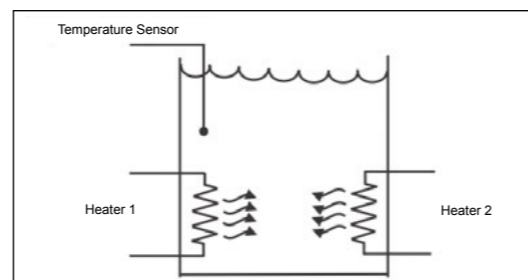
Models:

N321: one relay output control

N322: two outputs (control and alarm or second control) **N323:** three outputs (control and 2 alarms or 3 control stages)

Typical application:

Cold chambers, ovens, food industry, and commercial refrigerators



**PRODUCTS IN STOCK
READY TO SHIP**

Controller with Timer

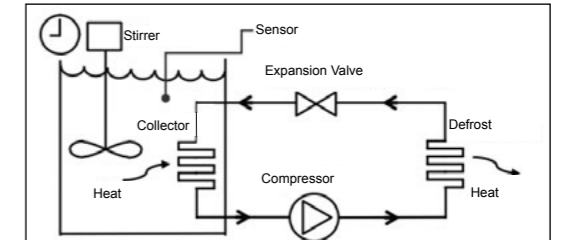
- Suitable for processes with cyclic operation requirement
- Timer for forced defrost cycle or stirring of liquids
- Accepts the following sensors: NTC, Pt100, Pt1000, and thermocouples J, K and T
- Programmable delay on powerup to avoid simultaneous switching
- Control relay can directly switch compressor up to 1 hp
- Optional: audible alert and voltage protection for compressor

Models:

N322T: two outputs (control and defrost or timer output)

Typical application:

Milk cooling and ice cream machines



Electronic Humidistat

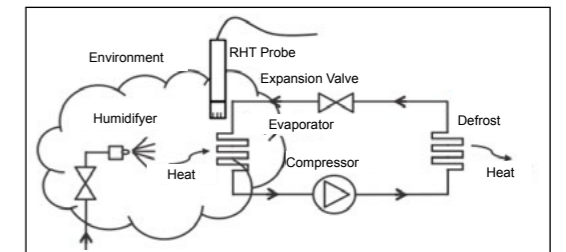
- Environment control, displays temperature and humidity
- Configurable interval between temperature and humidity indication
- Control relay can directly switch compressor up to 1 hp
- Heating or cooling temperature control
- Humidification or dehumidification control
- Uses integrated RHT probe (sold separately)

Models:

N322RHT: two relay outputs (either control or alarm) **N323RHT:** three relay outputs (control, alarm or timer function)

Typical application:

Climate chambers, textile processes, and environmental control



Egg Incubator Controller

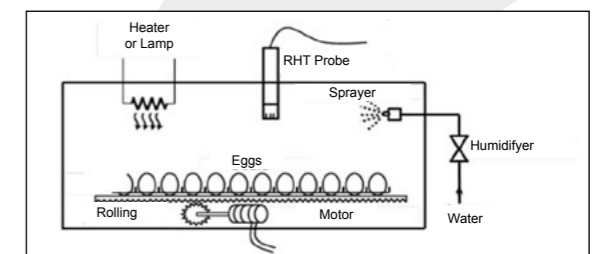
- Control of humidity and temperature in the incubator (heating and humidification or refrigeration and dehumidification)
- Cycle timing control for egg rolling
- Configurable interval between temperature and humidity indication
- Uses integrated RHT probe (sold separately)

Models:

N323RHT (EI): three outputs (humidifier, heating and egg roll motor)

Typical application:

Egg incubators



Indicators

Indicateur Universel

N1540 is a high technology process indicator designed for the best performance and reliability in most demanding applications. Based on an advanced and rugged hardware platform, the **N1540** can be fully configured from the frontal keyboard or USB port. The exclusive USB interface allows, for example, to configure several devices with the same parameters in an easy way, saving time in the setup. Compact, the device has a 34 mm depth and can be easily installed in panels where space is restricted.

**PRODUCTS IN STOCK
READY TO SHIP**



N1540

- Universal input: TCs J, K, T, E, N, R, S, B, Pt100, 0-50 mV, 0-5 V, 0-10 V, 0-20 mA, and 4-20 mA
- Sampling rate up to 50 samples per second
- Two relays SPST 1.5 A / 240 Vca
- Holds minimum and maximum values



	Cost Effective		Advanced Features			
	N1040i	N1540	N1500G	N1500	N1500 FT	N1500 LC
Indicator Type	Universal		Universal		Flow Rate	Load cell
Input Type	Thermocouples, Pt100, voltage and current		Thermocouples, Pt100, voltage and current		4-20mA, NPN, PNP, dry contact or magnetic	Voltage and current
Accuracy	J, K, T, E : 0,25 % ±1 °C N, R, S, B : 0,25 % ±3 °C Pt100 : 0,20 % Voltage/Current: 0,2 %		J, K, T, E : 0,25 % ±1 °C N, R, S, B : 0,25 % ±3 °C Pt100 : 0,20 % Voltage/Current: 0,2 %		4-20 mA : ±2 % de of span Pulse : ± 30 ppm @25 °C Magnetic : ±1% @25 °C	0,2 % span
Resolution	15 bits		>14 bits	17 bits	15 bits	17 bits
Programmable Range	-1 999 to 9 999	-2 000 to 30 000	-1 999 to 9 999	-31 000 to 31 000	Scale factor	-31 000 to 31 000
Sampling Rate	55 sps		5 sps	5 to 15 sps	-	15 sps
Alarms	2 Setpoints 7 alarm types 2 relay outputs		2 Setpoints 7 alarm types 4 timing modes 2 relay outputs	4 Setpoints 7 alarm types 4 timing modes 2 (up to 4) relay outputs	2 (up to 4) setpoints 4 alarm types 4 timing modes 2 (up to 4) relay outputs	4 Setpoints 7 alarm types 4 timing modes 2 (up to 4) relay outputs
Special Features	Optional 24Vcc output	Hold max./min. custom linearization 24Vcc Output	Hold max./min. custom linearization Square root Digital Input retransmission 24Vcc output		Hold maximum / minimum custom linearization Square root Digital Input Analog retransmission Pulse retransmission 24 Vdc output	Hold max./min. custom linearization Digital Input retransmission 10Vcc or 5Vcc output
Communication Interface	USB (mini-B type) optional RS485 Modbus		Optional RS485 Modbus			
Certification	CE	CE, UL	-	CE	-	CE
Frontal Protection Rate	IP65		IP30	IP65		
Power Supply	100-240 Vca/cc or 12-24 Vcc		100-240 Vca/cc or 12-24 Vcc			
Housing	48x48 DIN 1/16	96x48 DIN 1/8	Panel 310 x 110 x 37 mm		96x48 DIN 1/8	

SSR - Solid State Relay

Increased lifetime, due to the fact that there are no moving parts, and thus, no mechanical wear. Internal protection circuit (Snubber) of the Output. **Zero cross** switching, which implies lower electrical noise. Silent operation. Control INPUT signal **optically isolated** from the OUTPUT. Suitable for replacing the contactor in AC installation.



SSR

Power Supply

The **NOVUS EDA** Power Supplies have full range voltage input, high efficiency, DIN rail support and operation temperature up to 70 °C. Attending international standards and certifications they are a robust solution to provide 24 Vdc for any industrial application.



EDA

Power Supply

The **FTR power supply** is a switching mode power supply to be connected directly to the line providing an isolated output. It is suitable for powering instruments such as 4-20 mA field transmitters.

The **FTR power supply** is designed to DIN rail mounting, inside electrical panel. Avoid excessive vibration, humidity, temperature and electromagnetic interference.



FTR

USB Port (Mini-B type) Panel Extension

USB port (Mini-B type) panel extension so that the USB is accessible on the panel. With a 30 cm extension, it makes the USB connection of the controller / indicator providing a mini-B type USB to fix on the panel with rubber-cap protection.



Energy

Switchgear Temperature Monitoring

NOVUS has launched **Telik Gardo**, a wireless remote temperature monitoring system for assets such as switchgear in power distribution systems. This solution enables online information for maintenance or loss management.

With wireless temperature sensors, **Telik Gardo** is simple and easy to install and deploy. It can be integrated with any SCADA system directly or any Cloud platform using an IoT Gateway, like the **AirGate 4G**.



Telik Gardo

Wireless Electrical Transformer Monitoring

NOVUS is launching the **Telik Trafo**, a wireless smart device capable of remote monitoring of current, voltage and temperature of distribution transformers. It provides assertive information for asset, energetic balance or loss management, checkinf transformer performance and load characteristics, allowing operation and maintenance teams to react on time.

Its wireless communication allows electricity companies to widespread monitoring.



Telik Trafo

Wireless Temperature Transformer Monitoring

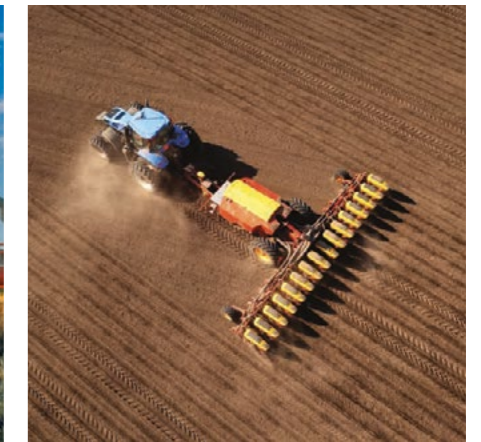
NOVUS is launching the cost effective **Telik Trafo Lite**, a wireless device capable of remote monitoring of distribution transformers temperature. It checks continously the transformer body temperature, providing undstanding of load characteristics and thus predicting any anomaly or degradation. This assertive information of the assets allows management to react on time, moving operation and maintenance teams to the field to the right location.

Telik Trafo Lite features long-range communication, battery operation and 5-year lifespan.



Telik Trafo Lite

Non Intrusive Level Sensor

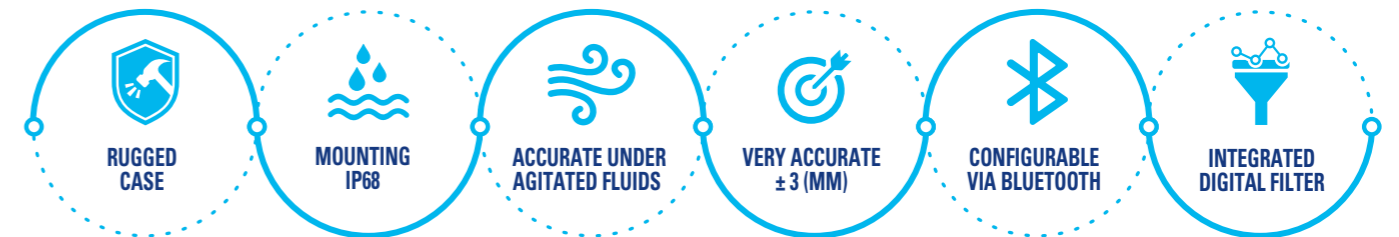


TL400-V

- TL400-V Rugged case
- Digital filter for agitated fluids
- Configuration and update via Bluetooth
- 5 wholes SAE



The **TL400-V** is a non-intrusive level and volume sensor ideal for detecting liquids, grains, fluids and bulk solids in static or mobile applications. Using a low-power laser beam, it takes multiple measurements per second, while an advanced algorithm not only calculates level but also converts to volume and distance in multiple units, and is configurable via Bluetooth. With this feature, even irregular tanks can be measured correctly, as it has tank customisation points.



Technical Specifications

Measuring range	Up to 4 meters
Accuracy	± 3 mm
Sampling rate	1 Hz
Tank geometry	Moreover standard sizes, permits to record up to 20 points of linearization
Output signal	0,5 to 4,5 V (other types on demand)
Connector	150 mm cable with SuperSeal male connector (other types on demand)
Communication Interface	Bluetooth
Software	SigNow mobile
Power Supply	8 to 33 Vdc Intern protection against polarity reverse

Consumption	< 70 mA @ 12 V or < 40 mA @ 24 V
Using Temperature	-20 to 80 °C
Dimensions	Ø66 x 31 mm
Housing	Polycarbonate with NBR seal
Mouting	IP68
Certifications	CE, Anatel (13883-22-07089), UKCA and LASER CLASS 1
Guarantee	3 years

Metrology laboratory

The choice of supplier guarantees the final quality of its products

Thermo Est offers a complete range of jacketed cables suitable for temperature measurements in heat treatment. The thermocouple coils are calibrated according to the American standard AMS 2750.

The calibration results are included in the verification report. The characteristics of the materials are bound to a certificate according to EN 10204-3.1 with for example the nature of the conductors, the purity of the MgO insulation.

Various documents are delivered by Thermo Est

- A declaration of conformity including compliance with the use of the sensors and the guaranty of their traceability.
- For the user: an individual monitoring sheet can be provided with the calibration values of the coils.
- An additional calibration adapted to your operating points is feasible; for this service, our technicians proceed with your own specifications in our laboratory
- Dematerialized calibration reports.



The first manufacturer with a **COFRAC** accredited laboratory, a guarantee of well-managed prerequisite, **Thermo Est** has the best of the calibration methods carried out with referenced instruments.

This ensures a quality of services that will accompany you throughout your quality approach. It is a vector for the production optimization with the aim of producing more and better, as well as a tool for controlling your energy costs.

Various services are offered by **THERMO EST** with :

- COFRAC accredited calibration temperature sensor thermometric couples or platinum resistance probes with or without converter, measurement chains program No. 2-7273. Methods by comparison and at fixed/static points.
- COFRAC calibration in electrical simulation with reading in Celsius degrees (indicators, generators, measurement units, recorders ...)

- **FACTORY** calibration (excluding COFRAC accreditation) in temperature by comparison, in contact measurement and in electrical simulation

Specificities of COFRAC calibration :

- Worldwide recognition (EA) of the calibration and the methods implemented as well as of the competence of the personnel
- Compliance with the requirements of the NF EN ISO/IEC 17025 standard
- Traceability to national standards is ensured by the issuance of a COFRAC certificate

" accreditation scope available on www.cofrac.fr."

Temperatures covered by COFRAC accreditation -80°C to +1310°C

Pyrometers are temperature measurement instruments operating according to the principle of the infrared measurement technique.

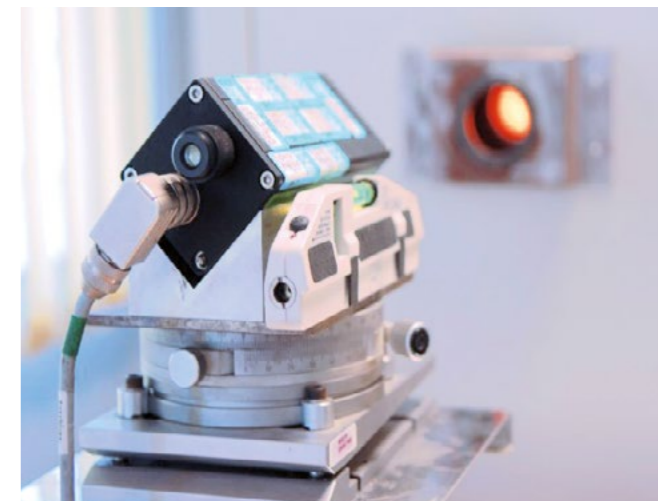
This exclusive Thermo Est service is fully managed either in our laboratory or on customer-site services.

This service consists of:

- Checking the functionality of the pyrometers (power supply, output signal).
- **FACTORY** calibration (excluding COFRAC accreditation) in the laboratory and on customer site.

Temperatures covered by the factory services in the laboratory -20°C to +1500°C

Temperatures covered by the factory services on customer site 50°C to +1200°C.



This measurement equipment is one of the key for the optimization of controlling means with the aim of increasing the production at a controlled cost.

To better satisfy our customers, our "on-site" metrologists are mobile and intervene at your premises for various services such as

- Calibrations of your installations with on-request maintenance.
- Characterization and verification services for climatic enclosures covered by COFRAC accreditation under No. 1-7272 (according to FDX 15 140).
- Verification of your heat treatment installations (according to L06450).
- Interventions are conducted on all types of installation (atmospheric ovens, vacuum ovens), freezers, fridge, autoclaves, ovens ...).
- **Characterization of enclosures covered by COFRAC accreditation No.1-7272 from -80°C to +250°C.**
- **Calibration and characterization in temperatures outside COFRAC accreditation from -80°C to +1300°C or directly on the process up to +1300°C.**



n°1-7272

Scope accreditation available on www.cofrac.fr



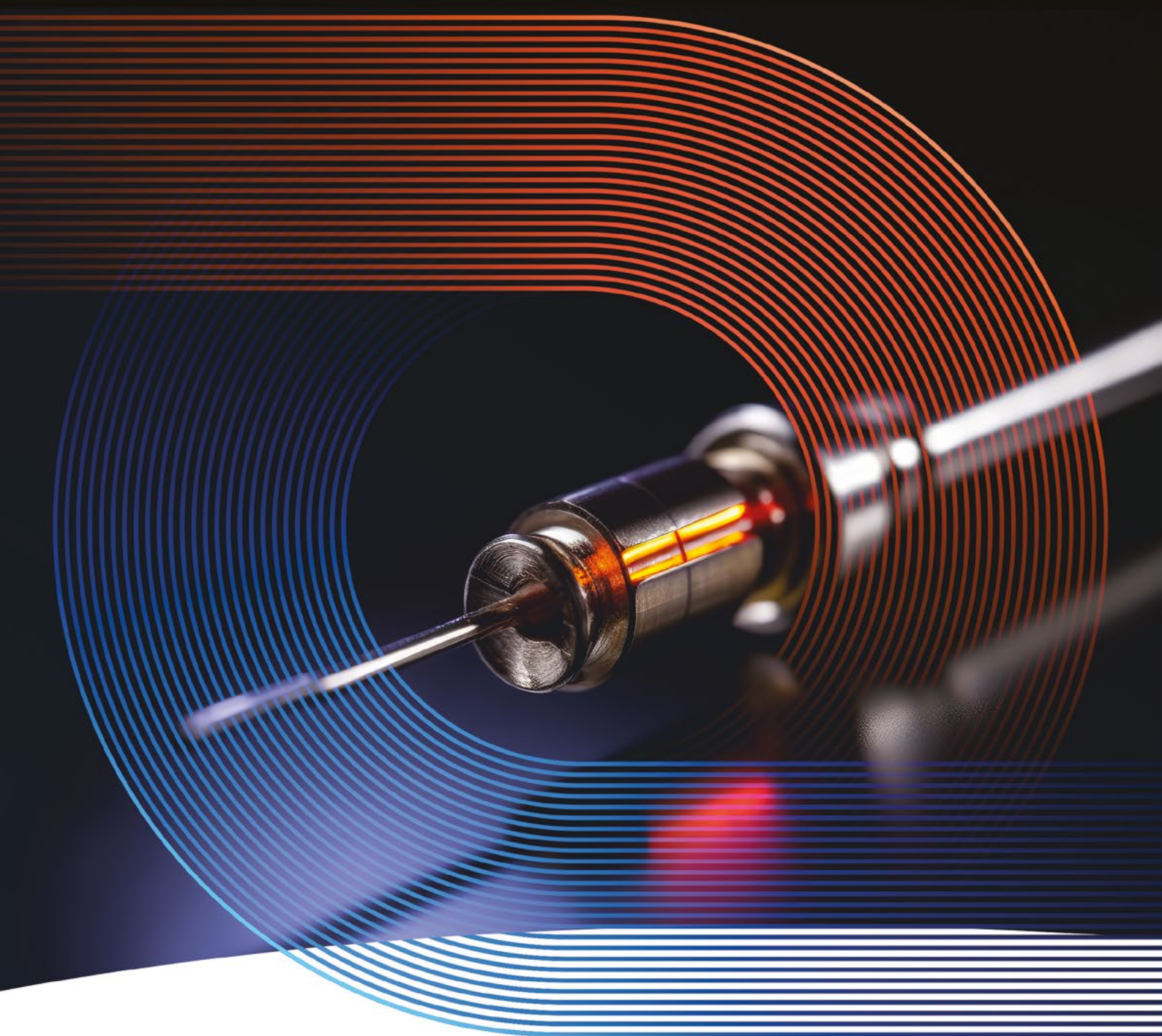
n°2-7273

Scope accreditation available on www.cofrac.fr

Notes



ThermoEst
THE WORLD OF TEMPERATURE



ThermoEst

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