

T11 - T12 - T13

Ø 100 - Ø 150 - Ø 160 mm

Derived from the TXA thermometers of nominal diameter 100, 150 and 160, of which they possess all the characteristics, the T11, T12, T13 are instruments equipped with electrical contact blocks enabling all contact combinations.

The contact block is fastened to the dial. A reset knob with indicator is provided to set the trip points.

- Contacts specifications are described on following pages.
- Explosion-proof case version.
- For the T13 series and for use in explosive areas, the thermometer, with one or 2 inductive contacts, should be used with the amplifying relay RSI 1 or RSI 2. The complete assembly is intrinsically safe, conforming to standards : NF EN 50014 - NF EN 50020



Specifications (20°C)

Range:

from -200°C to +600°C
Possible overload of +30%.

Accuracy:

Contact : ± 2% of full scale.
Pointer : ± 1.6% of full scale.
1.6 class accuracy according to DIN 16085

Degree of protection:

IP65 according to NF EN 60529

Sensing element :

Low volume spiral having undergone a heat treatment.

Ambient temperature of the indicator:

-10°C to +50°C
Other ambient temperatures : consult us.

Case and bezelng:

304 stainless steel.
Bayonet type fastening.

Window:

Transparent polycarbonate convex cap with sealed index setting button.

Window gasket:

In PVC nitril elastomer. Ensures tightness between window and case.

Movement:

Stainless steel.



Dial:

Aluminium alloy.
Black graduations and figures on white background.
Graduation conforms to DIN 16 203 standard.

Pointer:

Aluminium alloy, balanced, black painted.

Mounting :

	Type	
		
Direct	D	F
Surface mounting by means of 3 back lugs fixing	A	E
Flush mounting with front flange welded on to case	C	B

Blow out disc:

In elastomer. It is positioned at the top of thermometer and vents the inside of the case to the atmosphere.

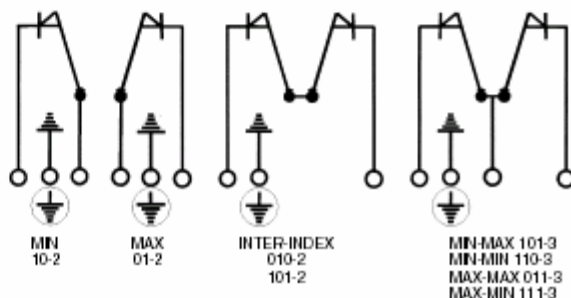
Zero setting:

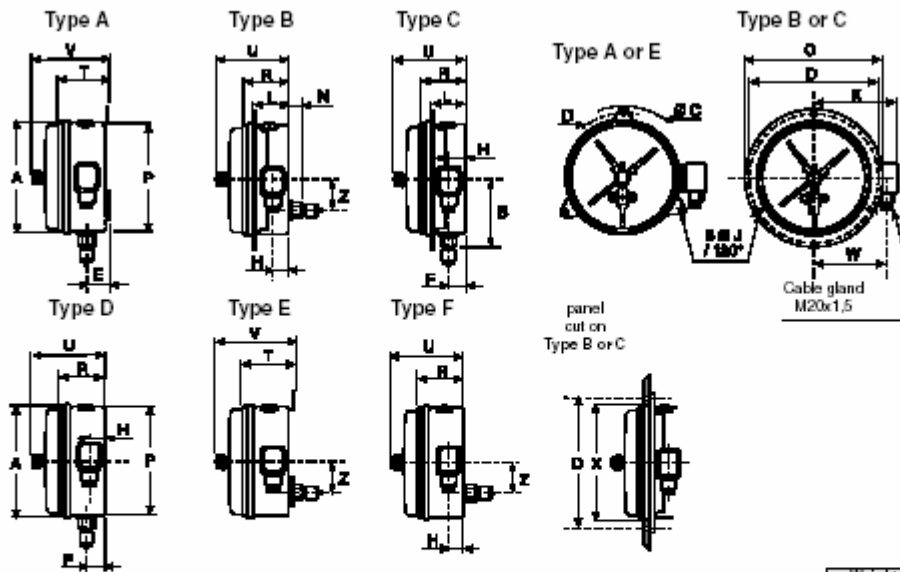
After removing an elastomer plug, the zero setting screw enables to adjust the instrument.

Electrical connection:

Terminal block. Cable gland M20x1.5. Cable 7 to 13mm

Blocks wiring diagram:





Dimensions Ø mm	mm																Weight in kg type D			
	A	B	C	D	E	F	H	J	K	L	N	P	R	T	U	V	W	X	Z	Dry (BH)
100	106.2	63	130	118	25.5	23	19	5.5	89	39.3	17	98	54.5	57	105	110	74	107	31.5	0.605 kg
150	150.2	85	180	168	25.5	23	19	5.5	111	39.3	17	142	54.5	57	105	110	96	151	31.5	0.930 kg
160	160.2	99	196	178	23.7	21.7	19.5	5.5	116	38	19	152	55.5	57.5	106	110.5	101	161	54	0.990 kg

Standard versions of **DIRECT THERMOMETERS** Ⓞ - Ø 8 mm dia bulb

						T11 - T12 - T13 (Ø 100 - Ø 150 - Ø 160)				
Graduations						S	P			
Coding	°C		Coding	°F			150	250	400	600
03	-200	+ 50	03	-300	+ 100	100	⊗	⊗	⊗	⊗
08	-120	+ 40	06	-200	+ 100	50				
11	-70	+ 40	10	-100	+ 100	50				
13	-40	+ 60	15	-40	+ 160	50				
22	-30	+ 50	32	-20	+ 100	50				
25	-20	+ 40	40	0	+ 100	50				
19	-30	+ 170	21	-30	+ 320	50				
16	-30	+ 270	26	-30	+ 520	100	⊗	⊗	⊗	⊗
47	0	+ 60	49	+20	+ 140	50				
51	0	+ 100	52	+20	+ 220	50				
53	0	+ 120	56	+20	+ 270	50				
57	0	+ 160	60	+20	+ 320	50				
61	0	+ 200	65	+20	+ 420	100	⊗	⊗	⊗	⊗
66	0	+ 250	70	+20	+ 520	100		⊗	⊗	⊗
71	0	+ 300	80	+30	+ 580	100		⊗	⊗	⊗
81	0	+ 400	90	+30	+ 730	100		⊗	⊗	⊗
99	0	+ 600	99	+30	+ 1130	100		⊗	⊗	⊗

□ Standard ⊗ Optional bulb S = 50 ■ Not possible

For P > 600, consult us

Options

Uncoded options

(have to be listed after the code number)

- 316 L stainless steel case and bezel ring
- Special scales
- Index setting by inviolable system

Coded options

- BH version (BH3 filling) for T12 and T13
- Explosion-proof housing version EEx d II C T6 (150 dia. only) conforming to standards : NF EN 50014 - NF EN 50018



Electrical contacts

CES - CESA - CEI - CEI+RSI

GENERAL

Electrical contacts can be fitted to our instruments with nominal diameters 100, 150, 160 mm.

They are adjustable over the whole scale (270° arc maximum).

The overall dimensions, mounting and switching arrangements, operating limits (pressure and temperature) are all given in the corresponding documentation for each series of equipment.

Various contact models :

- dry contact : **CES**
- dry contact with magnet : **CES A**
- inductive contact : **CEI**
- inductive contact + amplifier relay : **CEI+RSI**

Specifications

Contact material :

During their use, electrical contacts are subjected to a varying degree of wear, depending on their operating conditions, under the effect of mechanical stresses, the effect of electrical arc and heating.

The choice of material for contacts must allow for the specific operating conditions.





Standard material is a Ag 80-Ni 20 alloy. It has a high resistance to the electric arc effect (sparking).

Oil filled version :





When a gauge is to be oil filled, CESA contacts must be used. The gauge must be filled with silicon oil (BH3). The power breaking capacity is significantly reduced (< 1 mA). It is then necessary to use a relay : AYRA (RSI) or AREB (MSR).

CAUTION :

For use with OXYGEN, use filling fluid BH5.

NF standard coding Standard nomenclature NF E 15-100		Contact block control function CES-CESA
Two wire supply	1 contact	 Contact open above the set point
	Max 01.2	 Contact closed above the set point
2 contacts	Inter Index Closed 010.2	 Contact closed inside area determined by the 2 set points open outside
	Inter Index Opened 101.2	 Contact open inside area determined by the 2 set points closed outside

The last figure correspond to the number of terminal output
Example : 10-2 (2 terminal outputs)

NF standard coding Standard nomenclature NF E 15-100		Contact block control function CES-CESA
Three wire supply	Min Max 101.3	 First contact open second contact closed above the set point
	Min Min 110.3	 First and second contacts open above the set point
	Max Max 011.3	 First and second contacts closed above the set point
	Max Min 111.3	 First contact closed second contact open above the set point

very thick black sector : closed contact
very fine sector : open contact



Dry electrical contacts **CES**

APPLICATIONS :

These contacts are used when normal service conditions require a low switching power.
This type of contacts requires **vibration-free installation** and cannot be used with liquid filled gauges.
In aggressive environments and in areas where there is a risk of explosion, use CEI inductive contacts + RSI amplifier relay or explosion-proof enclosure versions.

Technical characteristics

Contacts can switch continuous or alternating voltages of up to 250 volts with a maximum rating of 10 W or 18 VA.

Table of maximal for standard electrical contacts :

V	Resistive load		Inductive load Cosφ > 0,8
	DC	AC	
220	40 mA	45 mA	25 mA
110	80 mA	90 mA	45 mA
48	120 mA	170 mA	70 mA
24	200 mA	350 mA	100 mA

NOTA : with 24 Vcc, minimum current 10 mA.

Dry electrical contacts with magnets **CES A**

APPLICATIONS :

These contacts are used in practically all service conditions. They are, to a very great extent, insensitive to vibrations. They can be used with liquid filled instruments.
In areas where there is a risk of explosion, use CEI inductive contacts + RSI amplifier relay or explosion-proof enclosure versions.

Technical characteristics

Contacts can switch continuous or alternating current voltages of up to 250 volts with a maximum rating of 30W or 50 VA

Table of nominal values :

V	Resistive load		Inductive load Cosφ > 0,8
	DC	AC	
220	100 mA	120 mA	65 mA
110	200 mA	240 mA	130 mA
48	300 mA	450 mA	200 mA
24	400 mA	600 mA	250 mA

NOTA : values for non-liquid filled instruments.

Inductive electrical contacts **CEI**

APPLICATIONS :

CEI contacts are used in a highly vibrating environment. They are spark, overheating or wear proof. They must be used with an amplifier relay.



Inductive electrical contacts **CEI+RSI** amplifier relay

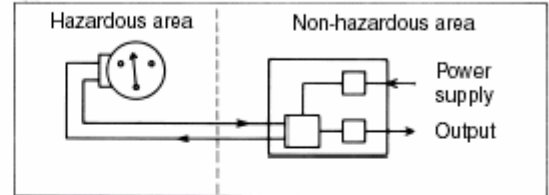
Officially approved, intrinsic safety :

- CEI sensor, EEX ia IIc T6
- RSI amplifier, EEX ia IIc

APPLICATIONS :

CEI contacts are used in explosive atmosphere and hazardous area. They are spark, overheating or wear proof.

They must be used with a RSI amplifier relay as follows :



Specifications

Case :

SE Noryl.
Overall dimensions - mounting : see below.
Weight : RSI 1 - 0.220 kg
 : RSI 2 - 0.420 kg

Power supply :

Standard : 220 Vac \pm 15%, 45-60 Hz
Options : 110 Vac \pm 15%, 40-60 Hz
 : 24 Vcc

Consumption : 1.5 VA.

Output :

Reversing contact relay; rupturing capacity 4A - 250 V - 500 VA

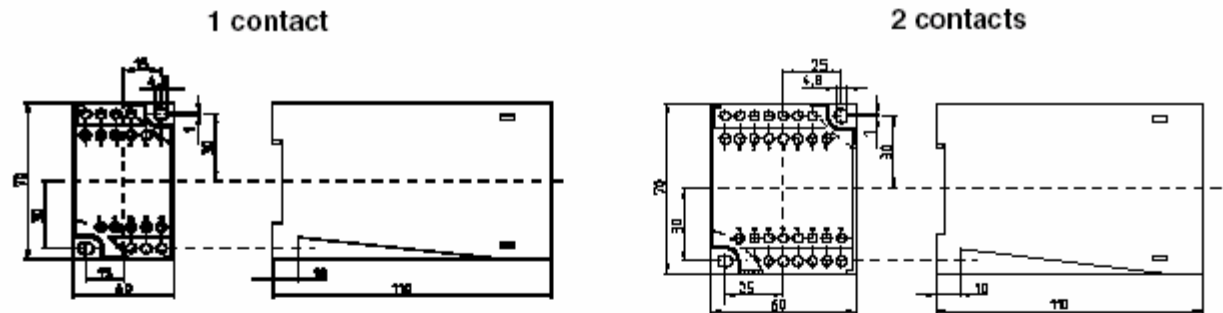
Operating temperature :

- 20° C to + 60° C
(- 4° F to + 140° F)

Protection : IP 30.

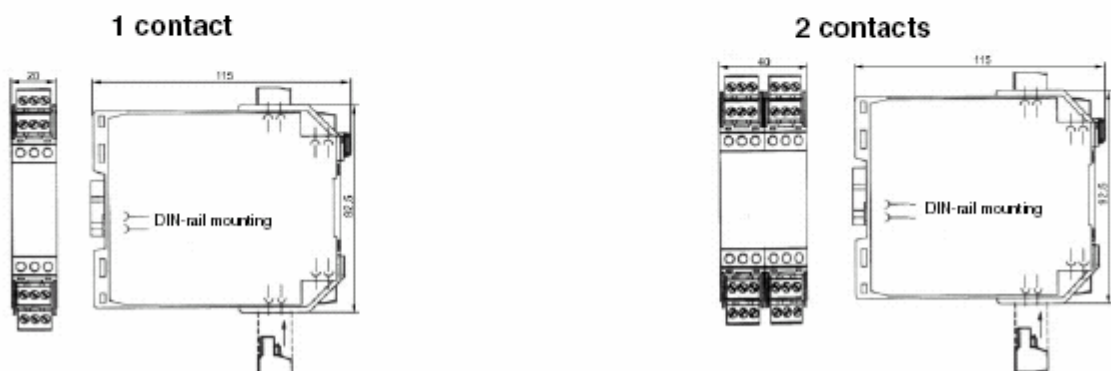
Max. RSI pressure gauge distance : 3000 m.
(Max. R in line 100 Ω).

Relay dimensions RSI (220 Vac-110 Vac)



Attachment : on rail DIN 50022 or by 2 screws

Relay dimensions RSI (24 Vcc)



Attachment : on rail DIN 50022

Codification

Thermometer **T 1** | | | | | | | | | |

Family : Thermometers **T**

Type : Previous commercial reference

TIX/CES	11
TIX/CES A	12
TIX/CEI (1)	13

Dial diameter:

Ø 100 mm	5
Ø 150 mm	7
Ø 160 mm	8
Ø 150 mm (boîtier ADF)	E

Control function:

Min	1	A
Max	2	B
Inter-index : opened between set points	3	C
Min-max	4	D
Min-min	5	E
Max-max	6	F
Max-min	7	
Inter-index : closed between set points	8	

Code

Graduations : see coding columns in table part
Dimensions

Measurement unit:
5 °C
6 °F

Type of liquid filling:
0 without
3 BH3 filling (- 40° to + 100°C)

Type of mounting:
bottom connection, 3 back lugs fixing
back connection, front flange
bottom connection, front flange
bottom connection
back connection, 3 back lugs fixing
back connection

(1) In an explosive environment, must be used with an intrinsically safe electrical installation.

Transmission | | | | | | | | | | *****

Type of transmission :

TD1	1	00	without	Stem length (mm)*:	A00	00	without
TD2	2	01	1 m	TD1 standard	150	02	G 1/4
TD3	3	02	2 m	150 mm	250	03	G 1/2 (2)
TD4	4	03	3 m	250 mm	400	05	1/4 NPT
TRDE 1	A	04	4 m	400 mm	600	06	1/2 NPT
TRDE 2	C	05	5 m	600 mm		0D	G 3/4
TRDE 3	E	06	6 m			0J	G 3/8
TRDE 4	F	07	7 m			0L	G 1/2 female
TRCE 1	G	08	8 m			A1	3/8 NPT
TRCE 2	H	09	9 m			XX	out of standard
TRCE 3		10	10 m				
TRCE 4							

Capillary length

Stem length (mm)*:

TD1 standard

Connection :

(2) TRCE, only G 1/2 - (3) Indicate value of E and α (TXA (TIX) data sheet).

For the choice of the type of transmission and capillary length, please refer to the TXA (TIX) separate data sheet.

(2) TRCE, only G 1/2 - (3) Indicate value of E and α (TXA (TIX) data sheet).

* Bulb with S = 50 or S = 100 mm. Indicate the choice of this option after the code number.

*** Uncoded options have to be listed after the code number**

Amplifier relay codification

A | | | | | **0 D** | **0** | **A**

Family : Accessories **A**

Relay: RSI (intrinsically safe) **YRA**
MSR **REB**

Power supply:
Standard 220 Vdc
Option 110 Vdc
Option 24 Vdc

Control functions:
1 1 threshold
2 2 thresholds

Attachment on rail DIN

Modifications reserved