Tel-Tru® Manufacturing Company

World-Class Thermometers

We manufacture thermometers - but we sell service, reliability, product quality and performance.

➤ QUALITY AND PERFORMANCE FEATURES:

★ CASE AND BEZEL

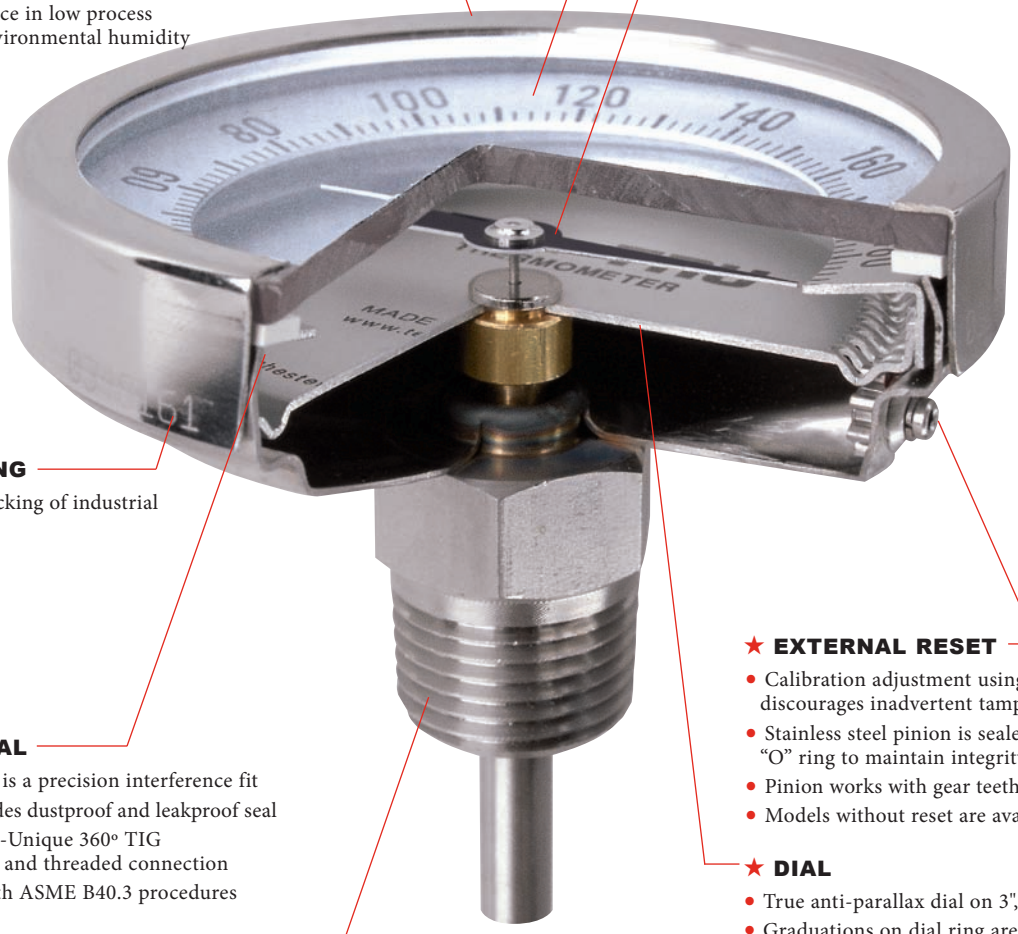
- 304 stainless steel standard
- 316 stainless steel optional
- All external parts corrosion resistant to most chemicals
- Parts designed for maximum strength to meet requirements of heavy duty industrial applications
- Manufactured with precision tooling on modern OSHA approved stamping equipment
- Statistical Process Control QA methods used to assure component quality and process consistency
- Polished finish identifies Tel-Tru quality
- Cases may be silicone filled for additional dampening of extreme vibration, or to assure consistent performance in low process temperature/high environmental humidity applications

★ LENS

- Extra heavy duty instrument glass standard
- Shatterproof glass, tempered glass, and plastics optional

★ POINTER

- Black painted aluminum
- Balanced and precisely assembled to bimetal coil stem
- Direct transfer of coil movement to temperature displayed on dial



★ DATE STAMPING

- Available for QA tracking of industrial thermometers

★ HERMETIC SEAL

- Case/Bezel assembly is a precision interference fit
- Silicone gasket provides dustproof and leakproof seal
- Welded construction-Unique 360° TIG weld joins case, stem and threaded connection
- Testing conforms with ASME B40.3 procedures

★ THREADED CONNECTION

- 304 stainless steel standard
- 316 stainless steel optional
- Precision manufactured on Tel-Tru CNC machines
- Statistical Process Control QA methods used to assure component quality and process consistency

★ EXTERNAL RESET

- Calibration adjustment using an Allen wrench discourages inadvertent tampering
- Stainless steel pinion is sealed with a silicone "O" ring to maintain integrity of hermetic seal
- Pinion works with gear teeth cut and formed in dial
- Models without reset are available

★ DIAL

- True anti-parallax dial on 3", 4"' 5" models
- Graduations on dial ring are on the same plane as the pointer tip minimizing reading error
- Concave design of dial ring enhances readability
- White appearing .032" anodized aluminum
- Graduations for each temperature range are calculated to match deflection data of bimetallic material
- Large easy to read black numerals and graduations are printed on precision pad printing equipment in our factory

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★ BIMETAL COIL

- Super sensitive bimetallic helix coil
- Fabricated to tight tolerances
- Heat treated for stress relief
- Silicone coated to minimize pointer vibration and maximize heat transfer and response time
- Angular deflection of each coil is tested for perfect match with dial graduation layouts in precision calibration baths designed and built by Tel-Tru with accuracy to ±1/8°F

★ ACCURACY

- Per ASME B40.3 Grade A ±1% full span is guaranteed
- Calibration is to standards traceable to National Institute of Standards and Testing (NIST)
- Tel-Tru methods:
  - Most careful and precise in the industry
  - Produces typical accuracy better than ASME B40.3 Grade AA (1%-1/2%-1%) full span

★ BIMETAL BUSHING

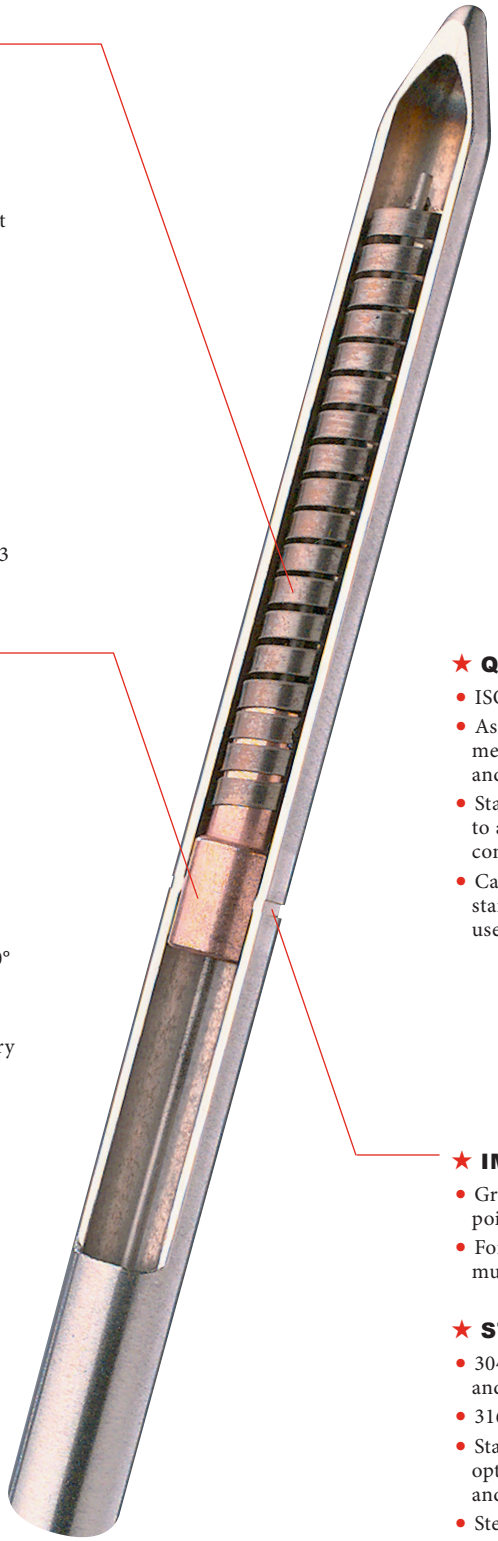
- Pressed into groove on stem
- Centers coil in stem
- 302 stainless steel stem wire goes through center of bushing connecting bimetal element to pointer, minimizes coil touching tube wall
- Centering bearings are used at regular intervals on long stem thermometers

★ TEMPERATURE RANGES

- 20 Standard Fahrenheit ranges from -100° to 1000°
- 20 Standard Celsius ranges from -75° to 550°
- 13 Standard Dual scale ranges
- Availability of over 120 ranges developed, may vary by dial size

★ OVER TEMPERATURE LIMITS

• Up to 250°F	100%
• 250° F to 550°F	50%
• 550° F to 1000°F	800°F for continuous use, intermittent use over 800°F



MADE IN USA

★ QUALITY SYSTEM

- ISO 9000 comparable
- Assures that all materials, methods and processes meet Tel-Tru's highest standards for form, fit, and function
- Statistical Process Control QA methods used to assure component quality and process consistency
- Calibration lab for NIST traceable verification of all standard thermometers and measuring instruments used in manufacturing process

★ IMMERSION:

- Groove around stem shows minimum immersion point on each thermometer
- For most accurate reading sensitive portion of stem must be completely immersed

★ STEM

- 304 Stainless steel tubing is welded/drawn and fabricated to exacting tolerances
- 316 stainless steel optional
- Standard stem diameter is .250" (6.35mm) – options include .375" (9.52mm), .236" (6mm) and .315" (8mm)
- Stem lengths available from 2½" to 120"
- Tip is welded and finished for hermetic seal and unique look

How to Order

HOW TO ORDER:

EXAMPLE

MODEL CODE	STEM LENGTH	RANGE
3410	04	59

1) Model Code
2) Connection Size and Thread Type
3) Stem Length
4) Temperature Range
5) *State Options and Accessories When Required – See Standard Features and Options Table*

MODEL CODES, CONNECTIONS SIZE AND THREAD TYPE

.250" Diameter Stems– Industrial

Dial Size	Model	NPT	Lens	Con. Loc.	CODE
2" (51mm)	LN250	1/4"	Glass	Back	3110
	LN250R	1/4"	Glass	Back	3210
3" (80mm)	GT300	1/2"	Glass	Back	3310
	GT300R	1/2"	Glass	Back	3410
	MX325R	1/2"	Glass	Back	3610
	MM325R	1/2"	Glass	Back	5010
	BC350R	1/2"	Glass	Bottom	3910
	AA375R	1/2"	Glass	Adjustable	4110
4" (100mm)	GT400	1/2"	Glass	Back	4510
	GT400R	1/2"	Glass	Back	4810
	BC450R	1/2"	Glass	Bottom	4610
	AA475R	1/2"	Glass	Adjustable	4710
5" (128mm)	GT500	1/2"	Glass	Back	3710
	GT500R	1/2"	Glass	Back	3810
	MX525R	1/2"	Glass	Back	5310
	MM525R	1/2"	Glass	Back	5410
	BC550R	1/2"	Glass	Bottom	4010
	AA575R	1/2"	Glass	Adjustable	4210

.150" Diameter Stems– Industrial

Dial Size	Model	NPT	Lens	Con. Loc.	CODE
1 3/4" (44mm)	GT200	1/8"	Glass	Back	1910
	GT200	1/4"	Glass	Back	2010
2" (51mm)	GT225	1/8"	Glass	Back	4910
	GT225	1/4"	Glass	Back	491A

.150" Diameter Stems– Pocket/Laboratory

Dial Size	Model	NPT	Lens	Con. Loc.	CODE
1" (25mm)	PT50R	N/A	Plycrb.	Back	1210
	PT50	N/A	Plycrb.	Back	1110
	AD10R	N/A	Plycrb.	Back	1219
1 3/8" (36mm)	AD44R	N/A	Plycrb.	Back	4419
1 3/4" (44mm)	MT39	N/A	Glass	Back	1310
	MT39R	N/A	Glass	Back	1410
	GT100R	N/A	Glass	Back	1610
2" (51mm)	LT225R	N/A	Glass	Back	2310
	LT225	N/A	Glass	Back	2210
3" (80mm)	LT330R	N/A	Plycrb.	Back	2819

STEM LENGTHS

Stem Lengths	Code
-2 1/2" (63mm)	02
4" (100mm)	04
* 5" (128mm)	05
6" (152mm)	06
* 8" (203mm)	08
9" (229mm)	09
12" (305mm)	12
15" (381mm)	15
18" (457mm)	18
24" (610mm)	24

* Laboratory and test thermometers .150" only

STANDARD TEMPERATURE RANGES

Fahrenheit	Code
-100/100	51
-50/120	52
-40/160	53
0/140	54
0/180	55
0/200	50
0/220	56
0/250	67
0/300	57
0/500	58
20/240	59
25/125	60
50/250	61
50/300	62
50/400	63
50/500	64
50/550	68
100/800	44
150/750	65
200/1000	66

Celsius	Code
-75/175	87
-70/70	EA
-50/100	71
-50/25	72
-50/50	73
-40/70	84
-20/120	86
-10/110	74
0/50	75
0/60	95
0/80	EI
0/100	76
0/150	77
0/200	78
0/250	79
0/300	80
0/400	81
0/450	90
100/400	82
100/550	83

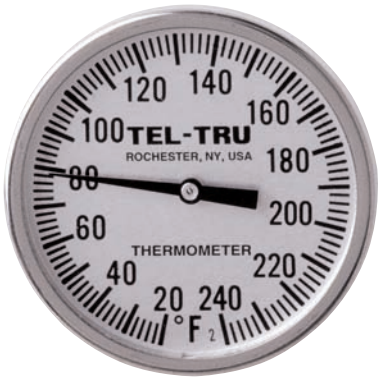
DUAL RANGES

Fahrenheit	Celsius	Code
-100/100	-75/40	01
-40/160	-40/70	02
0/140	-18/60	13
0/180	-18/82	03
0/220	-10/100	04
0/250	-20/120	14
20/240	-10/110	05
25/125	0/50	06
50/300	10/150	07
50/400	0/200	08
50/500	0/250	09
150/750	50/400	10
200/1000	100/550	11

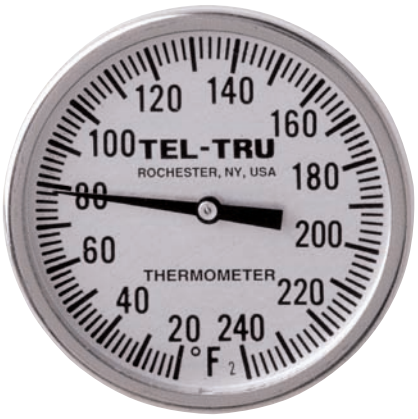
Availability of temperature ranges varies by model. Dial size must be 1-3/8" or larger.

1¾" and 2" Back Connected Industrial Thermometers

A smaller size, heavy duty, rear connected unit commonly used in OEM equipment and light industrial applications.



GT-200
(With 1¾" dial)



LN-250
(With 2" dial)

➤ MODEL CODES:

GT-200	1¾" diameter head
GT-225	2" diameter head
LN-250	2" diameter head
LN-250R	2" diameter head with calibration feature

➤ SPECIFICATIONS:

Stem Lengths:	GT Models 2½", 4", 6", 8", 12", and 18". LN Models 2½", 4", 6", 9", 12", 15", 18" and 24" (available up to 120").
Stem Diameter:	GT model .150" standard up to 18" stem. LN model .250" standard up to 42" stem. LN model .375" is standard over 42" stem.
Connection:	GT models ⅛", ¼", or ⅜" NPT is standard. LN models ¼" NPT is standard.
External Reset:	LN-250R is easy to calibrate by loosening the socket head screw (above hex connecting nut) with 5/64" Allen wrench.
Construction:	304 stainless steel external parts. Welded construction. Corrosion resistant to most chemicals.
Hermetic seal:	Per ASME B40.3 dustproof and leakproof.
Dial:	Anodized aluminum with large black numbers and graduations.
Lens:	Glass.
Bimetal Coil:	Helix coil is silicone coated on ranges below 500°F for vibration dampening and to maximize heat transfer and response time.
Accuracy:	±1% full span per ASME B40.3 Grade A.
Over Temperature Limits:	Up to 250°F 100%; 250°F to 550°F, 50%; 550°F to 1000°F, continuous use up to 800°F, intermittent use over 800°F.

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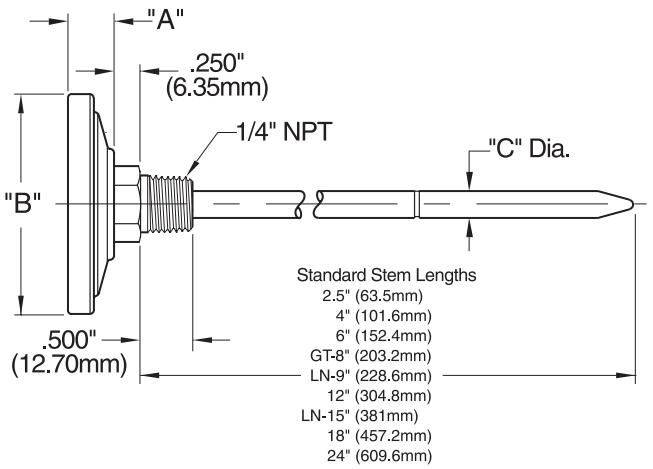
STANDARD RANGES:

Fahrenheit	°/Div.	Celsius	°/Div.	Dual Fahrenheit	Dual Celsius
-100/100	2°	-75/175	5°	-100/100	-75/40
-50/120	2°	-50/100	1°	-40/160	-40/70
-40/160	2°	-50/25	1°	0/140	-18/60
0/140	2°	-50/50	1°	0/180	-18/82
0/180	2°	-40/70	1°	0/220	-10/100
0/200	2°	-20/120	1°	0/250	-20/120
0/220	2°	-10/110	1°	20/240	-10/110
0/250	2°	0/50	1/2°	25/125	0/50
20/240	2°	0/100	1°	50/300	10/150
25/125	1°	0/150	1°	50/400	0/200
50/250	2°	0/200	2°	50/500	0/250
50/300	2°	0/250	2°	150/750	50/400
50/400	5°	0/300	5°	* 200/1000	*100/550
50/500	5°	0/400	5°		
50/550	5°	100/400	5°		
150/750	10°	*100/550	5°		
* 200/1000	10°				

(Additional Ranges Available – Consult factory)
* Thermometers with temperature ranges 200/1000°F and 100/550°C are NOT RECOMMENDED FOR CONTINUOUS USE ABOVE 800°F/425°C (FOR INTERMITTENT USE ONLY).

GT-200, GT-225, AND LN-250



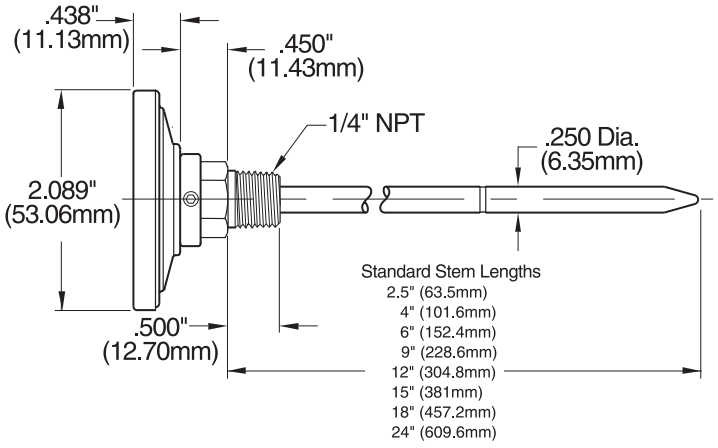
MODEL	"A"	"B"	"C"
GT-200	.350" (8.89mm)	1.750" (44.45mm)	.150" (3.81mm)
GT-225	.438" (11.13mm)	2.089" (53.06mm)	.150" (3.81mm)
LN-250	.438" (11.13mm)	2.089" (53.06mm)	.250" (6.35mm)

OPTIONS:

- Other threaded or plain connections.
- Silicone filled.
- Other lenses are acrylic, polycarbonate or tempered glass.
- Other stem diameters GT-200/GT225 .140" (3.6mm) models. LN-250 .236" (6mm) and .375" (9.5mm).
- Other configuration combinations available upon request.

Estimated Shipping Weights		
MODEL	DRY	SILICONE FILLED
GT-200	3 oz.	N/A
GT-225	3 oz.	5 oz.
LN-250 and LN-250R	5 oz.	9 oz.

LN-250R



FOR HOW TO ORDER, SEE PAGE 6

IMPORTANT NOTES:

1) Thermowells are recommended for pressure, corrosive fluid or high velocity applications.
2) ASME B40.3— Bimetal thermometers manufactured by Tel-Tru and offered in this brochure are designed to meet or exceed this Standard issued by the American Society of Mechanical Engineers.