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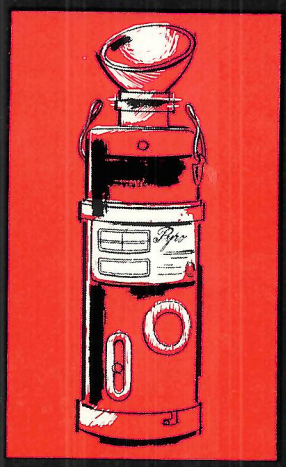
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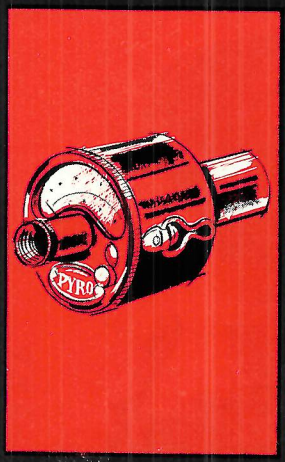
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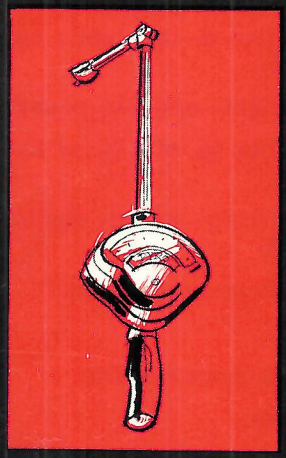
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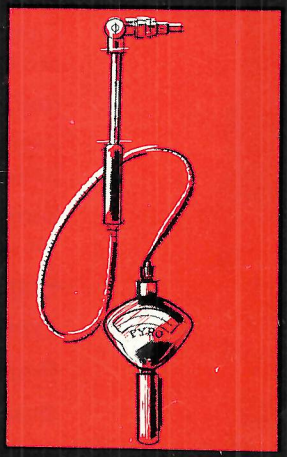
PYRO PYROMETERS

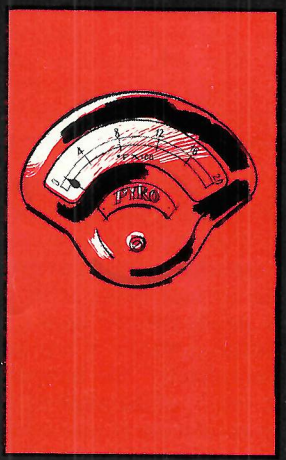












Specialists in the science of precision temperature measurements

- Optical
- Micro-Optical
- Radiation
- Immersion
- Surface
- Indicating

THE PYROMETER INSTRUMENT CO., INC.

PRECISION PYRO PYROMETERS

PLANT AND LABORATORY
BERGENFIELD, NEW JERSEY

PRECISION PYRO PYROMETERS

the simplified

PYRO OPTICAL



A precision-engineered instrument for accurate high temperature measurements in laboratories, steel plants, foundries, rolling mills, ceramic and glass plants – many other applications.

EXCLUSIVE ADVANTAGES:

- **Completely self-contained—no clumsy outside batteries or attachments.**
- **Remarkably light-weight—only 3½ pounds.**
- **High accuracy—within ½ of 1% of temperature being measured.**
- **Direct heat-reading scale—entirely eliminates need for correction charts.**
- **Fast, easy to use—fingertip controlled.**
- **Extremely rugged.**
- **Practically no maintenance expense.**
- **Dust-proof, fool-proof.**

The accurate measurement of high temperatures has become one of the most important phases in laboratory and plant processes where the application or production of heat is involved. The only rapid, reliable method by which this can be done is with the unique PYRO Optical Pyrometer. This highly compact, accurate instrument's optical arrangements differ widely from the common wire filament type.

The PYRO Optical Pyrometer matches brightness – not color!—by passing the light emitted by the hot body through prisms and an optical photoscreenic wedge of varying density. This is important since the eye is much more sensitive to a difference in brightness than in a difference in color. The wedge is slowly rotated until the luminous, concentrated test mark, which appears in the field of vision, disappears and blends completely. The temperature is then read directly on the scale—without the need of any correction charts. Furthermore, no re-zeroing is necessary after each sighting.

The unique construction of the PYRO Optical Pyrometer permits the operator to measure quickly and accurately temperatures of minute spots, fast moving objects or the smallest

PYROMETER *the best in sight!*

of streams. The accuracy of this unique instrument is ½ % of the temperature measured, i.e., at 2000°F accuracy is better than 10 degrees. It is compact, has no clumsy, heavy outside batteries and attachments–like telescope, harness or delicate accessories–and there is practically no maintenance expense connected with its operation. Due to this simplified design, non-technical personnel can achieve complete mastery of the instrument in mere minutes!

Another exclusive and important feature is that the two Service Lamps furnished with each instrument can be checked at any time for accuracy–even recalibrated on the spot!–against a Master Lamp that is also furnished. No return of the instrument is required.

The PYRO Optical Pyrometer is available in various temperature ranges from 1400°F to meet all plant and laboratory requirements.

Supplemental equipment–such as auxiliary eyeshields, additional magnification lenses, instrument holders, tripods and high temperature filters – are available for specialized applications.

Send for a free copy of Catalog No. 85 which contains more detailed information about the PYRO Optical Pyrometers, their theory of operation, applications, operating procedures, accessory equipment, etc. Catalog is available – free – upon request.

MODELS, SPECIFICATIONS AND PRICES

All PYRO Optical Pyrometers are furnished complete with one Master Lamp, two Service Lamps, carrying case, leather carrying straps for instrument and case, battery and operating instructions at the prices shown.

Model No.†	Type	Temperature Range	Temperature Scales*	Price
81	SINGLE RANGE	1400°F to 2500°F	1400°F to 2500°F	$315.00
82	SINGLE RANGE	1800°F to 3400°F	1800°F to 3400°F	315.00
83	DOUBLE RANGE	1400°F to 3400°F	1400°F to 2200°F 1800°F to 3400°F	375.00
84	FOUNDRY TYPE With Red Scale	1800°F to 3700°F	1800°F to 3400°F 2200°F to 3700°F *	340.00
85	TRIPLE RANGE With Red Scale	1400°F to 3700°F	1400°F to 2200°F 1800°F to 3400°F 2200°F to 3700°F *	395.00
87	TRIPLE RANGE BLACK BODY	1400°F to 5200°F	1400°F to 2200°F 1800°F to 3400°F 3200°F to 5200°F	430.00

†Add the letter "C" to Model Number if calibration in equivalent Centrigrade scales is desired at no extra cost.
*Instruments with RED SCALE are corrected for an emissivity of 0.4 and are direct reading for measuring the true spout and pouring temperature of molten iron and steel when measured in the open or for any other material having an emissivity of 0.4.

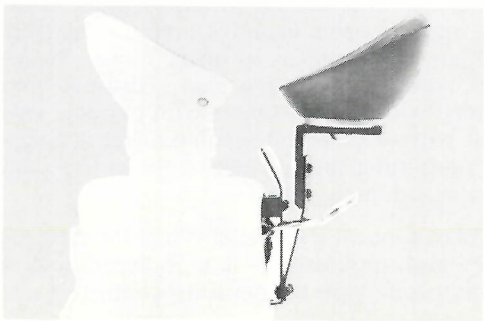
PYRO OPTICAL PYROMETER ACCESSORIES



MODEL "X" EYESHIELD is large enough to easily fit over operator's eyeglasses and safety glasses without requiring their removal. Furnished at no extra cost, on request, with new instruments. Fits older PYRO Optical Pyrometer models also and may be installed in minutes. Price: $3.50 each.

AUXILIARY EYESHIELD A dummy or auxiliary eyeshield is available for use where continuous temperature readings are being taken, or when operator prefers to have his non-sighting eye shielded from the glare of objects being sighted. Helps keep the instrument steady while sighting. Easily adjusted to the eyes, it is snapped firmly on the instrument by simply sliding the lower portion into either of the instrument strap hangers. No tools are required for installing or detaching. May be also furnished with the Model "X" Eyeshield. Price: $17.50.

Additional PYRO Accessories that are available include an adjustable instrument holder with vernier vertical adjustment, high temperature filters for temperature ranges to 7700°F, supplementary magnifying lenses, and adjustable aluminum or iron base floor tripods. Detailed descriptions, data and literature are also available upon request.



PRECISION PYRO PYROMETERS

the PYRO MICRO -



Table-Top Tripod

- Versatile
- Accurate
- Portable
- Direct Reading
- Fool Proof
- Dependable

PYRO is proud to announce the development of the new PYRO Micro-Optical Pyrometer—an entirely new type of Optical Pyrometer—designed particularly for precision temperature measurements in the laboratory, yet sufficiently portable to permit use in general plant applications.

It is capable of measuring temperatures of targets smaller than .001″ in diameter and can be adjusted for focal distances varying from 5 inches to infinity. Sturdy table and floor type tripods are available and the vernier worm gears permit extremely sensitive vertical and horizontal adjustments of the telescope. The fine optical system includes a microscope-type ocular giving a 20 power magnification of the object. A disappearing filament type lamp offers a sharp, distinct apex which can be blended with the hot object with extreme ease and sensitivity. The wide-scale direct reading meter is a suppressed zero type permitting the full use of the entire scale length and is unsurpassed in accuracy.

The new PYRO Micro-Optical Pyrometer offers the ultimate in design, accuracy and application – it is indispensable in critical research and production temperature control.

OUTSTANDING FEATURES

ACCURACY: Accuracy has been the "key" word throughout the design and production of the new PYRO Micro-Optical Pyrometer. Temperature measurements are reproducible within two or three degrees Centigrade, and every instrument is calibrated individually against standards provided by the National Bureau of Standards.

EASE OF OPERATION: Operating procedure for using the PYRO Micro-Optical Pyrometer is extremely simple and requires no previous experience. Complete instructions are furnished with each instrument, and the entire unit can be assembled and ready for use within minutes.

DEPENDABILITY: Extensive and severe tests have proven that this instrument can be expected to give many years of durable and dependable service. The long direct reading scale assures easy and dependable temperature readings. Every instrument is manufactured under the highest degree of craftsmanship and is fully guaranteed.

VERSATILITY: The PYRO Micro-Optical Pyrometer is the one instrument ideally suited to solving the most precise temperature measurement problems in exacting research laboratories, yet is extremely practical for plant applications. It is truly the only multi-purpose Optical Pyrometer.

OPTICAL PYROMETER

Unsurpassed accuracy

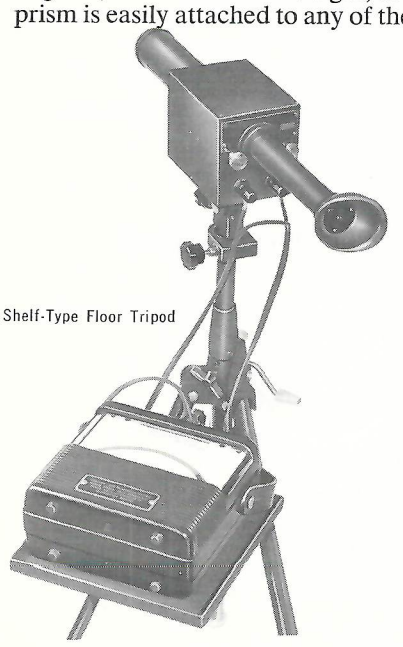
ACCESSORIES AND TECHNICAL DATA

SUPPLEMENTARY LENSES: A complete set of six interchangeable magnifying lenses is available for the measurement of targets at focal distances from 5″ to infinity. Each lens is furnished in appropriately engraved mountings and, listed below, are found the focal lengths of each lens as well as data on the respective target sizes which may be measured at given distances. The set of six lenses is furnished in a separate plush-lined case.

Lens Code	Focal Distance	Object Size at Focal Distance
A	5 feet to Infinity	.015″ at 5 Ft. or .025″ at 10 Ft.
B	26″ to 54″	.010″ at 36″
C	17″ to 26″	.006″ at 24″
D	13½″ to 17½″	.004″ at 15″
E	8″ to 9″	.002″ at 8″
F	5″ to 5.6″	.001″ at 5½″

SPECIAL LENSES: For the measurement of a target size of .0005″ at a focal distance of 2.3″ to 2.5″ a special "G" lens is available. Other special lenses with intermediate focal distances are available on special request.

90 DEGREE SIGHTING PRISM: A special prism is available when the measurement requires a change in direction of 90 degrees, either from left to right, or from above or below. This prism is easily attached to any of the standard or special lenses without the use of tools.



Shelf-Type Floor Tripod

TRIPODS: A sturdy-table-top tripod, shown on page 4, is furnished as standard equipment and permits adjustment of the telescope from 14″ to 17″ above the table. It collapses and fits into a special compartment in the carrying case provided for the instrument. The Shelf-Type Floor Tripod, illustrated, is designed especially for use with the PYRO Micro-Optical Pyrometer. It is collapsible, chrome-plated, and adjustable between 3 feet and 6 feet. The meter of the instrument is placed on the shelf and the battery is accommodated by means of a strap beneath the shelf.

Collapsible aluminum and iron base floor tripods without a shelf are available also and can be adjusted for heights from 3 feet to 6 feet.

SPECIAL TEMPERATURE RANGES: Instruments with special temperature ranges to 4,000°, 4,500°, and 5,000°C are available upon special request. External filters and comparative charts will permit extended temperature ranges to 6000° C and 10,000° C.

For additional information ask for Catalog No. 96

SPECIFICATIONS AND PRICE

PYRO Micro-Optical Pyrometers are available in complete sets with all accessories, or may be purchased as individual parts with selected accessories. For complete details, including itemized prices, please request Catalog No. 96. Specifications for the complete set are as follows:

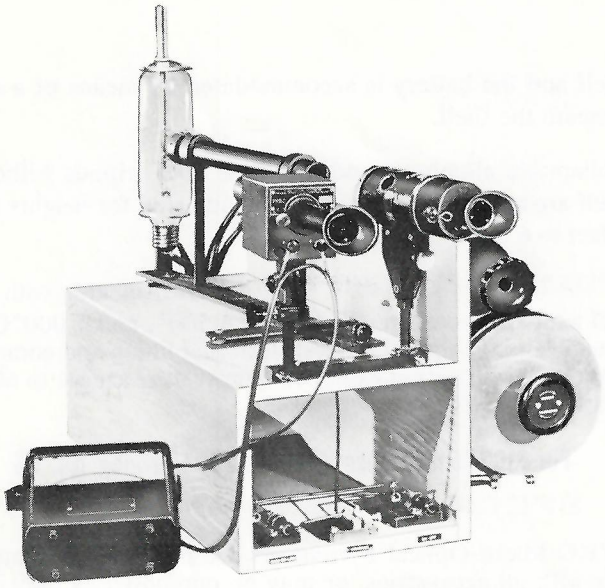
MODEL NO. 95: PYRO Micro-Optical Pyrometer Set, Triple Range, complete with Telescopic Type Disappearing Filament Pyrometer with vernier horizontal and vertical adjusting gears, direct reading milliameter with overlapping black-body scales from 700-1400°C, 1300-1900°C and 1800°-3200°C (or equivalent Fahrenheit scales), table-top tripod, complete set of six mounted auxiliary objective lenses, compartment case for lenses, battery, spare fuses, instruction manual and plush lined carrying case for the instrument and all accessories itemized.

Price:
$895.00



PRECISION PYRO PYROMETERS

the new precision-type OPTICAL PYROMETER TEST SET



- **A completely packaged unit**
- **Ready to use**
- **Adaptable to all types of Optical Pyrometers**
- **Certified strip lamp calibration**

The ever-increasing use of Optical Pyrometers and the demands for accuracy in high temperature measurements has focused the need for a precision-type test set with which to calibrate these instruments in the field. This is particularly true when several Optical Pyrometers are in regular use, as it is of primary importance that they be calibrated identically and read alike.

The calibration of any Optical Pyrometer is dependent upon a reliable temperature source being available. The PYRO Test Set uses a wide filament strip lamp which may be readily adjusted to the desired temperature almost instantaneously.

The Model 107 Calibrating Set has been designed as a versatile and precise device which will permit the accurate and simultaneous calibration of any two Optical Pyrometers irrespective of manufacture. It is a completely packaged unit, ready for use with a certificate of calibration so that the strip lamp may be set for desired temperature values.

The user may put aside one of his Optical Pyrometers as a standard and set the temperture of the lamp to the value determined by that standard instrument. All other instruments may then be calibrated against the standard. If he does not desire to keep one instrument out of service as a standard, he may use the certificate of calibration provided with the lamp to obtain the temperature desired. However, it will then be necessary to have a laboratory ammeter or potentiometer available with a range of 0 to 20 amperes in order to measure the electrical current applied to the lamp.

To place the Test Set in operation it is necessary only for the user to provide heavy duty wet cell storage batteries. One 12 volt battery will suffice for temperatures to 3400°F (1900°C) whereas two 12 volt batteries connected in series are necessary for temperatures to 4200°F (2300°C).

Bulletin No. 107 gives further details

ORDERING SPECIFICATIONS

The Optical Pyrometer Calibrating Set is furnished complete as itemized below. It is emphasized, however, that the user must provide the necessary wet cell storage batteries as indicated above and the ammeter or potentiometer with which to measure the lamp current (range: 0-20 amperes) or be willing to set aside an optical pyrometer with a certified calibration to be used as a comparison standard. When ordering please specify the following:

1) Whether Fahrenheit or Centrigrade Calbriation for the strip lamp Certificate of Calibration is desired.
2) Range of Strip Lamp Calibration.
   a: 1400°F-3400°F (800°C-1900°C)....No extra charge
   b: 1400°F-4200°F (800°C-2300°C)....Add $25.00 for this extra high range.
3) Is a Battery Charger desired.
4) Types and quantities of additional instrument holders desired.

MODEL #107 OPTICAL PYROMETER CALIBRATING SET:

Wide Filament Pyrometer Calibrating Strip Lamp
Certificate of Calibration for Strip Lamp (range: 1400°F-3400°F or 800°C-1900°C)
(Extra High Calibration: 1400°F-4200°F or 800°C-2300°C add $25.)
Lamp Shield
Swivel Mount for Lamp
Sighting Tube with mounted magnifying lens
Instrument Holder or PYRO Optical Pyrometer
Mounting Stem for PYRO Micro-Optical Pyrometer
Mounting Stem for Leeds & Northrup Optical Pyrometer
Continuous step type (105 points) rheostat
Vernier slide wire rheostat (infinite resolution)
Terminal Board and Switch Panel
On-Off and High-Low Temperature Range Switches
Ammeter Shunt Switch
Double Pole—Double Throw Switch for Battery Charger Connection
Wiring for Battery Charger
Complete installation and operating instructions

TOTAL PRICE FOR ENTIRE SET: $625.00

ACCESSORIES:

12 volt or 24 volt Battery Charger	$ 80.00
Extra Instrument Holder for PYRO Optical Pyrometer	35.00
Extra Stem for mounting PYRO Micro-Optical Pyrometer	1.50
Extra Stem for mounting L & N Optical Pyrometer	1.50

the

PYRO RADIATION PYROMETER

- Self-contained
- Automatic
- Rugged
- Accurate
- Direct Reading
- Dependable
- Economical
- Fool-proof

The new PYRO Radiation Pyrometer offers the easiest and quickest method for determining temperatures above 1000°F by thermo-electric principles and eliminates completely the possibility of human error. The instrument consists of an optical system, vacuum thermocouple and millivoltmeter—all contained in one compact housing—and requires no outside connections, lead wires or accessories.

PYRO Radiation Pyrometers are completely automatic; the instrument is simply sighted on the hot object and the temperature read directly on the wide visible scale. True temperature readings are obtained when ideal "black-body" conditions are observed and a minimum target size of at least two inches is available.

Ideally suited to such applications as heat treating furnaces, brick, tile and ceramic kilns, forgings, etc. For other applications, the PYRO Optical Pyrometer described on Pages 2 and 3 is recommended.

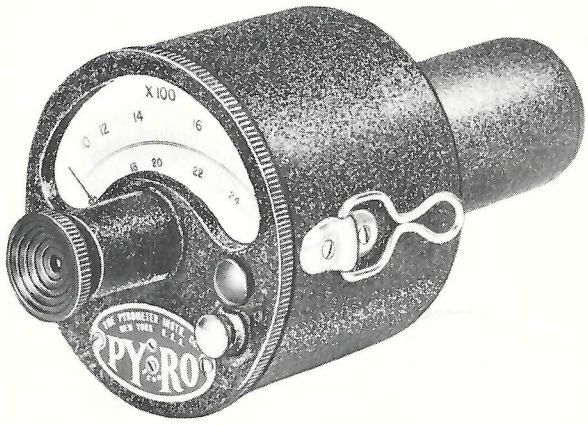
SPECIAL FEATURES

SELF-CONTAINED: The PYRO Radiation Pyrometer is entirely self-contained in one small compact housing weighing less than two pounds. A remarkable feature of this unit is that the entire optical system, thermocouple and millivoltmeter are designed into a single unit and thus provides great simplicity in handling and extreme ease of operation. It is conveniently carried by the operator by means of the leather strap furnished and has proven its great value as an "inspector's" pyrometer for checking temperatures throughout industrial plants.

RUGGED: The instrument is constructed in a shielded steel housing making it not only immune to external electrical and magnetic influences, but also extremely rugged and durable. The hardwood carrying case furnished with the unit provides maximum protection against dust and damage. Since no manipulations are required by the operator and all working parts are securely sealed, it is impossible for even the most inexperienced workman to damage the instrument. Many years of severe service are assured by the PYRO.

AUTOMATIC: All operations in obtaining temperatures with the PYRO Radiation Pyrometer are completely automatic and the operator is not required to make any manipulations, adjustments or comparisons. The unit is handled as easily as binoculars and can be used by any person without previous instruction or experience. It is only necessary for the operator to sight the instrument at the object under measurement, press the button on the housing and the indicating needle will instantly point to the true temperature.



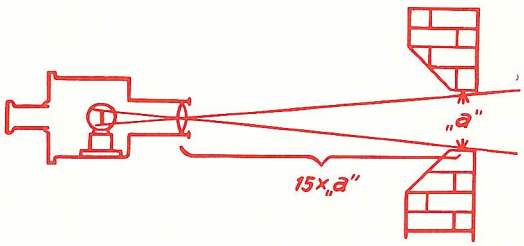


DIRECT READING: The clearly visible scale of the instrument and its location directly above the eyepiece can be seen in the above illustration. All scales are direct reading in Fahrenheit or Centigrade, and the wide, clearly defined scale divisions make it an easy matter to determine temperatures with the greatest of ease. Because of its light weight, handy shape, extreme simplicity, ease of operation and automatic action, PYRO is the ideal portable pyrometer for checking furnaces, kiln and forging temperatures.

PRINCIPLES OF OPERATION

PYRO Radiation Pyrometers gather the radiant energy emitted by a hot object and concentrate them on an extremely fine vacuum thermocouple by means of the optical system. This energy produces an electrical potential which can be measured in terms of temperature on the direct reading scale. In order to remain within the correct "cone" effect of the radiation, the instrument should be sighted at a distance not greater than 15 times the diameter of the furnace sight-hole or object (as illustrated) and the target size or opening should be at least 2″ in diameter to insure correct readings.

Catalog No. 105 provides additional details



SPECIFICATIONS AND PRICES

Each PYRO Radiation Pyrometer is furnished complete with hardwood carrying case and leather straps for instrument and case as illustrated.

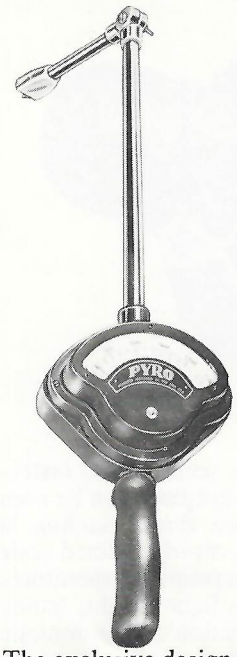
Model No.	Temperature Range	Temperature Scales	Price
1	1000-2600°F	1000-1840°F 1800-2600°F	$195.00
2	1400-3400°F	1400-2400°F 2400-3400°F	$195.00

Equivalent Centigrade scales also available at no extra charge. Kindly add the suffix "C" to the Model Number when ordering if Centigrade Calibration is desired.

PRECISION PYRO PYROMETERS

the PYRO IMMERSION PYROMETER

the best for molten non-ferrous metals



- Self-Contained
- Direct Reading
- Dependable
- Accurate
- Rugged
- Quick Acting
- 4¾" Indicator
- Durable

Temperature control in non-ferrous foundries can now reach new high levels with the improved PYRO Immersion Pyrometer. This instrument has been designed to combine the necessity for precision accuracy with industrial requirements for dependability, durability and ease of operation. It is completely self-contained, portable, compact and quick-acting; made as a rugged shop tool to be used by any operator without any previous experience. A large selection of "Bare Metal" and "Protected" Type Thermocouples are available, all instantly interchangeable without tools or adjustment.

The exclusive design of the PYRO "Lock-Swivel" permits the extension arm to be locked at any desired angle—it cannot come loose while the instrument is in use. PYRO's 4¾" indicator offers the largest direct reading scale of any instrument of its type—plus the greatest ease in reading temperatures quickly and accurately.

OUTSTANDING FEATURES

RUGGEDNESS: PYRO is constructed in a rubber-cushioned, dust, shock and moisture-resistant shielded steel housing, making it not only immune to external electrical influences but also extremely rugged and durable.

INTERCHANGEABLE THERMOCOUPLES: "Bare Metal" and "Protected" Type Thermocouples are instantly interchangeable. It is necessary only to place the desired thermocouple in the binding posts, finger-tighten two wing screws and immerse in the molten metal.

DEPENDABILITY: Every PYRO Immersion Pyrometer is equipped with an automatic internal cold end junction compensator. True temperature readings are assured at all times and under all conditions.

Ask for Catalog No. 155 for additional information.

MODELS AND SPECIFICATIONS

PYRO IMMERSION PYROMETERS are furnished complete with one set of "Bare Metal" closed end T-12 Thermocouple. The Series 20 Models have an overall length of 27" whereas the Series 40 Models are 43" in length. Additional and other types of thermocouples—all interchangeable without adjustment or recalibration—are available in the lengths and models tabulated at the bottom of this page.

Series 20 Model Nos.	Range*	Degrees per Division	Length to Swivel	Overall Length	Price
20	0-1500°F	20	19"	27"	$93.50
21	0-2500°F	50	19"	27"	93.50
22	0-1000°F	10	19"	27"	93.50
23	0-2000°F	20	19"	27"	93.50
24	600-1500°F	10	19"	27"	119.75
25	1000-2500°F	20	19"	27"	119.75

Series 40 Model Nos.	Range*	Degrees per Division	Length to Swivel	Overall Length	Price
40	0-1500°F	20	35"	43"	$93.50
41	0-2500°F	50	35"	43"	93.50
42	0-1000°F	10	35"	43"	93.50
43	0-2000°F	20	35"	43"	93.50
44	600-1500°F	10	35"	43"	119.75
45	1000-2500°F	20	35"	43"	119.75

*Equivalent Centigrade scales at no extra charge.
For Centigrade calibration add the suffix "C" to the Model Number.

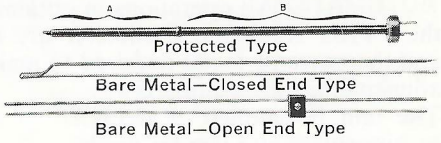
THERMOCOUPLES

Since Chromel-Alumel† Thermocouples combine the highest qualities of accuracy, durability and economy, they are used exclusively in PYRO Immersion Pyrometers. The various types of these thermocouples are illustrated and tabulated below, including dimensions.

BARE METAL TYPES: For measurements in molten metal having absolutely clean surfaces, free of dross or slag. The open-end type is suitable for copper base alloys, whereas closed-end "Bare Metal" types are necessary for white metals.

PROTECTED TYPES: Where dross, slag or other impurities exist on the surface, the "Protected" Type Thermocouples must be used since they are not affected by such conditions. Never immerse this type deeper than the distance "A" indicated in the illustration below.

SUPPORT FOR "PROTECTED" TYPE THERMOCOUPLES: To avoid damage to "Protected" Type Thermocouples, a thermocouple support is available for use with the PYRO Immersion Pyrometers. It consists of two clamps and a rigid support bar; one clamp tightens over the Pyrometer arm and the other over the thermocouple sheath. This offers utmost rigidity to the entire assembly and greatly lessens the possibility of damaging the thermocouple.



Model No.	Type	Length	Application	Price
T-11	Bare Metal, Welded Tip	18"	Aluminum & other white metals*	$3.30
T-12	Bare Metal, Welded Tip	24"	Aluminum & other white metals*	3.85
T-13	Bare Metal, Welded Tip	48"	Aluminum & other white metals*	6.60
T-14	Bare Metal, Open End	24"	Brass, Bronze, Copper base alloys	3.30
T-15	Protected	"A"-5", "B"-13", Overall 18"	Crucible work only	6.50
T-16	Protected	"A"-8", "B"-13", Overall 21"	Furnace and crucible work	11.00
T-18	Protected	"A"-12", "B"-13", Overall 25"	Large furnaces and crucibles	13.75

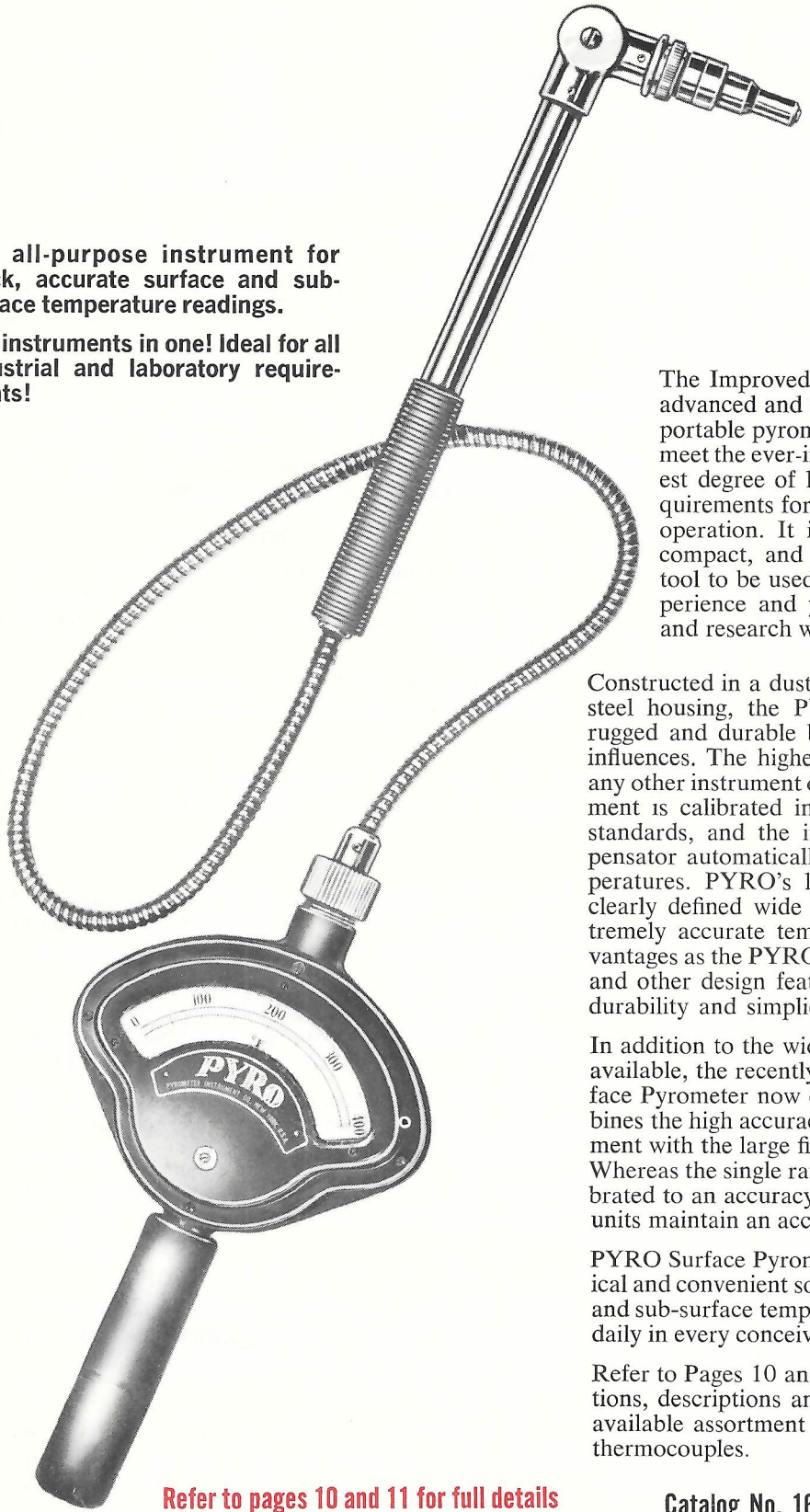
†Registered trademark of the Hoskins Manufacturing Co.

*Can be used in brass, bronze, copper base alloys, etc.

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PYRO SURFACE PYROMETER

- **The all-purpose instrument for quick, accurate surface and sub-surface temperature readings.**
- **Ten instruments in one! Ideal for all industrial and laboratory requirements!**



The Improved PYRO Surface Pyrometer now offers advanced and unique features not found in any other portable pyrometer. It has been especially designed to meet the ever-increasing needs for combining the highest degree of laboratory accuracy with industrial requirements for ruggedness, dependability, and ease of operation. It is completely self-contained, portable, compact, and quick-acting; made as a rugged shop tool to be used by any operator without previous experience and yet obsolutely accurate for laboratory and research work.

Constructed in a dust, shock and moisture resistant shielded steel housing, the PYRO Surface Pyrometer is not only rugged and durable but also immune to external electrical influences. The highest degree of accuracy, unsurpassed by any other instrument of this type, is assured since each instrument is calibrated individually against the best laboratory standards, and the internal automatic cold junction compensator automatically counteracts variations in room temperatures. PYRO's large 4¾" direct reading meter, with clearly defined wide scale divisions, permits quick and extremely accurate temperature readings. Such exclusive advantages as the PYRO Lock-Swivel, automatic internal shunt and other design features assure exceptional dependability, durability and simplicity of operation.

In addition to the wide selection of single range instruments available, the recently developed PYRO Double Range Surface Pyrometer now offers a truly versatile unit which combines the high accuracy and readability of a low range instrument with the large field of other applications up to 1500°F. Whereas the single range PYRO Surface Pyrometers are calibrated to an accuracy of better than 1%, the Double Range units maintain an accuracy of 1½%.

PYRO Surface Pyrometers offer the most practical, economical and convenient solution to the limitless number of surface and sub-surface temperature measuring problems which arise daily in every conceivable plant and laboratory.

Refer to Pages 10 and 11 for detailed specifications, illustrations, descriptions and prices for these instruments and the available assortment of interchangeable extension arms and thermocouples.

Refer to pages 10 and 11 for full details including models and specifications.

Catalog No. 169 contains many more details including special purpose surface pyrometers. Ask for a copy.

PYRO SURFACE



Model No. 31 shown with Rigid Arm and Mold Thermocouple



Model No. 31 shown with Flexible Arm and Mold Thermocouple



Model No. 12 Rigid Extension Arm



Model No. 42 Flexible Extension Arm

INSTRUMENT MODELS

To facilitate the selection of the proper equipment required for various applications, PYRO Surface Pyrometers are furnished in component parts which include the instruments, extension arms and thermocouples. When ordering, it is therefore necessary to specify the model number and the temperature range of the instrument, as well as model and type number of the extension arms and thermocouples selected. Tabulated below will be found the various models of standard instruments and extension arms with respective prices while a brief description, representative applications, and prices for the thermocouples are shown below. To determine the total cost of the complete assembly, total the individual prices of instrument, extension arm and thermocouples. A plush-lined carrying case with individual compartments for all parts is furnished with each instrument at no extra charge.

Model No.	Range *	Degrees per Division	Price with Case
30	0-300°F	5	$90.00
31	0-400°F	5	90.00
32	0-600°F	10	90.00
33	0-900°F	10	90.00
34	0-1200°F	20	90.00
35-DR	0- 500°F 0-1500°F	5 20	125.00

*For equivalent Centigrade calibration, add the suffix "C" to the Model No. Temperature ranges below 0° and above 1500°F available upon special request.

EXTENSION ARM MODELS

Interchangeable, rigid and flexible extension arms, illustrated, are designed for use with any selection of instrument and thermocouples. Each arm is furnished with the exclusive lock-swivel, thermocouple connector ring and lock ring for attaching arm to the instrument. The extension arms designated "Quick-Change" permit thermocouples to be snapped into the arm which eliminates the necessity of tightening the lock ring to the thermocouple. Rigid arms are 12″ long whereas flexible arms are 42″ long and consist of a 12″ metal tube with plastic grip handle and 30″ flexible stainless steel armor cable.

Model No.	Type	Price
12	Rigid	$14.00
42	Flexible	23.00
12-QC	Rigid with Quick-Change Connector	17.00
42-QC	Flexible with Quick-Change Connector	26.00

Compact, light-weight carrying case furnished with each PYRO Surface Pyrometer accomodates any selection of instrument, extension arms and thermocouples in separate, cushioned compartments.

INTERCHANGEABLE THERMOCOUPLES

Any variety of surface or sub-surface temperature problems can be solved quickly and accurately by the proper selection of one or more PYRO Thermocouples. Types and typical applications are briefly described below. All thermocouples are interchangeable without adjustment or tools.

CONVEX AND ROTATING SURFACES

Roll types designed for rotating or stationary convex surfaces. "V" guides automatically center hot junction on surface, and universal joint permits easy adjustment to any surface angle.

TYPE NO. 301: Roll Type Thermocouple with 10″ rigid arm. Thermocouple does not disconnect from arm. *Price $33.00*

TYPE NO. 301A: Separate Roll Thermocouple head; may be used interchangeably in either Rigid or Flexible Arms. *Price $28.00*

RELATIVELY FLAT SURFACES

These are designed for use on any type of surface. Require contact area of ¼″. Thermocouple junction mounted in shielded refractory with swivel tip for automatic positioning against surface.

TYPE NO. 302: Lava or Mold Thermocouple universally used for any stationary surface. Response very rapid—3 seconds. *Price $18.00*

TYPE NO. 303: Silver Disc Thermocouple, ¼″ diameter, requires relatively flat surface for contact. Response in 7 to 10 seconds. *Price $18.00*

TYPE NO. 312: Silver Disc Thermocouple, ⅛″ diameter, similar to the Type No. 303. Response in 5 seconds. *Price $18.00*

METALLIC SURFACES

TYPE NO. 304: Prod Type Thermocouple for instantaneous readings of CLEAN metal surfaces. Points will scratch surface slightly. Usually used on castings, billets, bars, sheets, forgings, engine heads, etc. *Price $15.00*

PLASTIC, RUBBER, SEMI-FLUID MATERIALS

Needle types for determining temperatures of semi-fluids such as plastics, rubber, chemicals, etc. Constructed of stainless steel hypodermic tubing. Will not corrode or contaminate materials.

PYROMETERS

TYPE NO. 305: Extremely sensitive, 2″ long, 1/16″ diameter. Requires ⅜″ penetration into the material.
Price $21.50

TYPE NO. 306: More rugged type, 6″ long, ⅛″ diameter. Requires ¾″ penetration. *Price $21.50*

TYPE NO. 315: Similar to Type No. 305 but more rugged. 2″ long, ⅛″ diameter. Requires ¾″ penetration.
Price $21.50

LIQUIDS, GASES, MOLTEN SOFT METALS

Immersion Types are furnished in "bare wire" and "protected" types for measuring liquids, gases and molten soft metals. For immersion temperatures above 1200°F in non-ferrous foundries, please refer to instruments on Page 8.

TYPE NO. 307: 6″ Bare Wire Type for liquids and air. Surface of liquid must be clean and free of dross and slag.
Price: $8.00

TYPE NO. 308: Protected Stainless Steel Tube 6″ long, ¼″ diameter, for immersion and is unaffected by surface impurities. *Price: $21.50*

TYPE NO. 313: Protected Stainless Steel Tube similar to Type No. 308 except 16″ long.
Price: $25.00

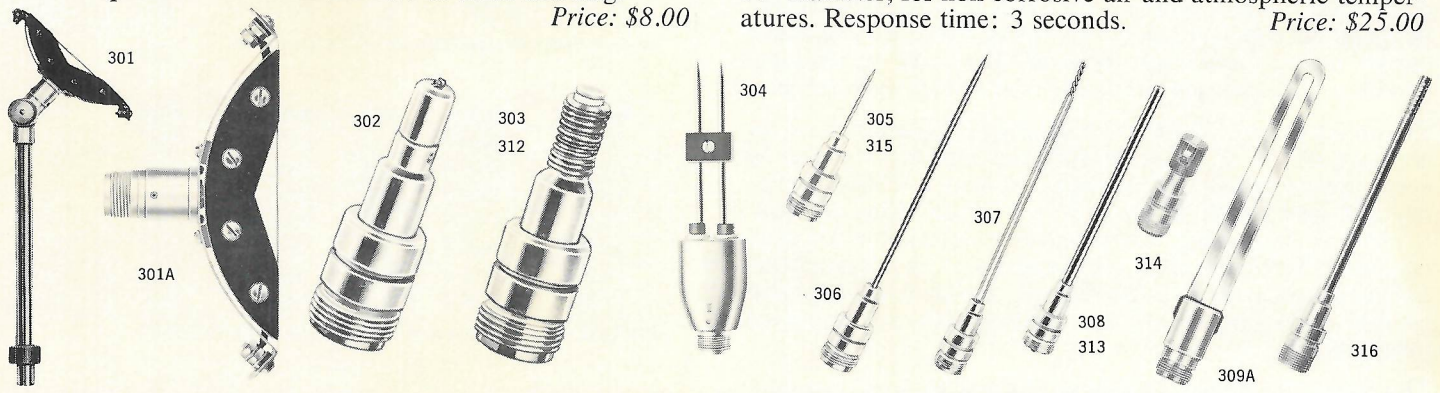
SPECIAL PURPOSE TYPES

TYPE NO. 309-A: Leaf Type, 6″ long, .010″ thick, used for measuring temperatures between jaws of presses, platens, dies, laminations, and other materials under pressure.
Price: $23.00

TYPE NO. 314: Convex Band Type, used on stationary or moving fragile materials such as paper, flexible packaging films, textiles, etc. *Price: $25.00*

AIR TEMPERATURES:

TYPE NO. 316: Air Special Temperature Probe, 6″ long, ¼″ diameter, for non-corrosive air and atmospheric temperatures. Response time: 3 seconds. *Price: $25.00*

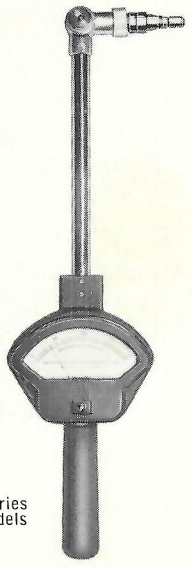


ECONOMY TYPE SURFACE PYROMETERS

The PYRO Economy Type Surface Pyrometers are suitable for many applications where great accuracy is not required and answers the need for a budget-priced version of the standard PYRO Surface Pyrometers. These models do not incorporate the great ruggedness, accuracy, or other outstanding features of the standard units—although all the interchangeable thermocouples described above are available (except Type No. 301). They are constructed in plastic housings, have built-in extension arms, and an accuracy of approximately 2%. The prices listed below include the instrument complete with any ONE of the thermocouples listed above except the Type 301A, for which there is an additional charge of $7.50. Additional thermocouples may be supplied at the above listed prices. When ordering, specify model number, temperature range and thermocouple desired.

Model No.	Range *	Extension Arm Type	Complete Price*
180-4	0- 400°F	Rigid	$87.50
180-6	0- 600°F	Rigid	87.50
180-10	0-1000°F	Rigid	87.50
180-12	0-1200°F	Rigid	87.50
181-4	0- 400°F	Flexible	97.50
181-6	0- 600°F	Flexible	97.50
181-10	0-1000°F	Flexible	97.50
181-12	0-1200°F	Flexible	97.50

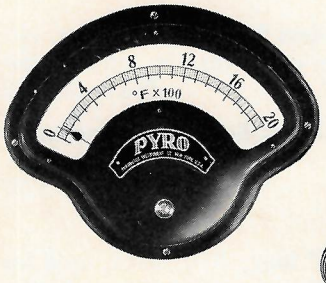
* If centigrade calibration is desired, please add $7.50.
Compact carrying case for instrument and accessories available at $12.50 extra.


Series 180 Models

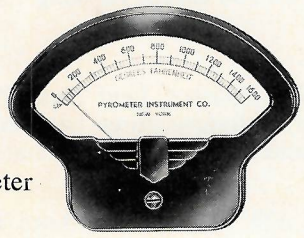

Series 181 Models

PRECISION PYRO PYROMETERS

PYRO INDICATING PYROMETERS



Series 65 and 70 Indicating Pyrometer



Series 75 Indicating Pyrometer

PYRO Indicating Pyrometers are available in a wide selection of designs and temperature ranges and are ideally suited for permanent installation on heat treating furnaces, ovens, kilns, melting crucibles, and similar applications. They are economical, rugged, accurate and easily readable instruments designed for panel or bracket mounting and can be installed readily at any convenient location. They can be obtained with thermocouples, insulated lead wire and selector switches.

The Series 65 and 70 PYRO Indicating Pyrometers have an accuracy of 1% of full scale deflection and are identical in every respect except that the Series 70 have a 6″ direct reading scale and the Series 65 have a 4″ scale. They are constructed in dust, shock, and moisture resistant shielded steel housings. Each instrument is furnished with an automatic internal cold end junction compensator as standard equipment so that variations in ambient temperatures are corrected automatically.

The Series 75 PYRO Indicating Pyrometer is an inexpensive model with a 3¾″ scale. It is constructed in a plastic housing.

Those designed for iron-constantan calibrations are equipped with automatic cold end compensators. An external adjusting screw on the face of the dial permits correction for variations in ambient temperatures.

Detailed dimensional and mounting drawings as well as instructions are available upon request and are enclosed with each instrument at time of shipment.

ORDERING SPECIFICATIONS

Specifications and model numbers of the various PYRO Indicating Pyrometers that are available in the Series 65, 70 and 75 models, as well as thermocouples and accessory equipment, are tabulated at right. Under the heading "Type", note that the abbreviations C/A and I/C have been used which refer to the type of calibration; namely chrome-alumel or iron-constantan respectively. Lead wire and thermocouples should, therefore, be selected to correspond to the specified calibration indicated. When ordering, please specify each item desired, including instrument, thermocouple, length of lead wire and connector block. If thermocouple and lead wire are not desired, please specify gauge and length of wire which will be used or external resistance desired so that the instrument can be calibrated accordingly.

SERIES 65 MODELS

Model	Range*	Type	Compensator	Scale	Price
65-3	0-300°F	I/C	Automatic	4″	$ 90.00
65-4	0-400°F	I/C	Automatic	4″	90.00
65-6	0-600°F	I/C	Automatic	4″	90.00
65-9	0-900°F	I/C	Automatic	4″	90.00
65-12	0-1200°F	I/C	Automatic	4″	90.00
65-15	0-1500°F	C/A	Automatic	4″	90.00
65-20	0-2000°F	C/A	Automatic	4″	90.00
65-25	0-2500°F	C/A	Automatic	4″	90.00
65-15S	600-1500°F	C/A	Automatic	4″	115.00
65-25S	1000-2500°F	C/A	Automatic	4″	115.00

* No extra charge for equivalent Centigrade calibration.

SERIES 70 MODELS

Model	Range *	Type	Compensator	Scale	Price
70-4	0-400°F	I/C	Automatic	6″	$169.00
70-6	0-600°F	I/C	Automatic	6″	169.00
70-9	0-900°F	I/C	Automatic	6″	169.00
70-12	0-1200°F	I/C	Automatic	6″	169.00
70-15	0-1500°F	C/A	Automatic	6″	169.00
70-20	0-2000°F	C/A	Automatic	6″	169.00
70-25	0-2500°F	C/A	Automatic	6″	169.00

* No extra charge for equivalent Centigrade calibration.

SERIES 75 MODELS

Model	Range*	Type	Compensator	Scale	Price
75-4	0-400°F	I/C	Automatic	3¾″	$42.50
75-6	0-600°F	I/C	Automatic	3¾″	42.50
75-10	0-1000°F	I/C	Automatic	3¾″	42.50
75-12	0-1200°F	I/C	Automatic	3¾″	42.50
75-16	0-1600°F	C/A	Manual	3¾″	37.50
75-20	0-2000°F	C/A	Manual	3¾″	37.50
75-25	0-2500°F	C/A	Manual	3¾″	37.50

* Add $7.50 extra for Centigrade calibrations in Series 75 models.

THERMOCOUPLES

Model	Type	Gauge	12″ Length	24″ Length
T-701	Chromel-Alumel	8	$3.00	$3.85
T-702	Chromel-Alumel	11	3.00	3.50
T-703	Chromel-Alumel	14	3.00	3.50
T-704	Iron-Constantan	8	2.75	3.25
T-705	Iron-Constantan	14	2.75	3.25

ACCESSORIES

Asbestos covered Chromel-Alumel Lead Wire, per ft. $0.35
Braided Iron-Constantan Lead Wire, per ft..... $0.25
Connector Block for connecting thermocouple to wire, $1.10
Double Pole, Double Throw Switch..... $2.50
Selector Switch, 6 points..... $47.50
Selector Switch 10 points..... $55.00
Selector Switch, 20 points..... $78.75

ADDITIONAL INFORMATION

More detailed literature is available for each instrument described in this bulletin and may be secured simply for the asking. These offer complete technical information, illustrations, representative applications and other data not included in the brief outlines contained herein.

Temperature measurement problems arise daily in plants and laboratories that cannot be referred to catalogs but, rather, must be solved individually. Inquiries concerning particular applications are welcomed by the PYRO engineers. Simply send an outline of the problem with pertinent data to:

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