



**KODIAK
CONTROLS
INCORPORATED**

REMOTE DIAL THERMOMETERS

Offered in 2 ½", 3 ½" and 4 ½" dial sizes, these thermometers are furnished in four stainless steel case configurations for direct, surface or panel mounting. The following coding chart illustrates a wide variety of bulb styles, capillaries and process connection fittings. The versatility of configurations makes these thermometers well suited to a wide range of applications including hot and chilled water pipeline systems, tanks and air ducts.



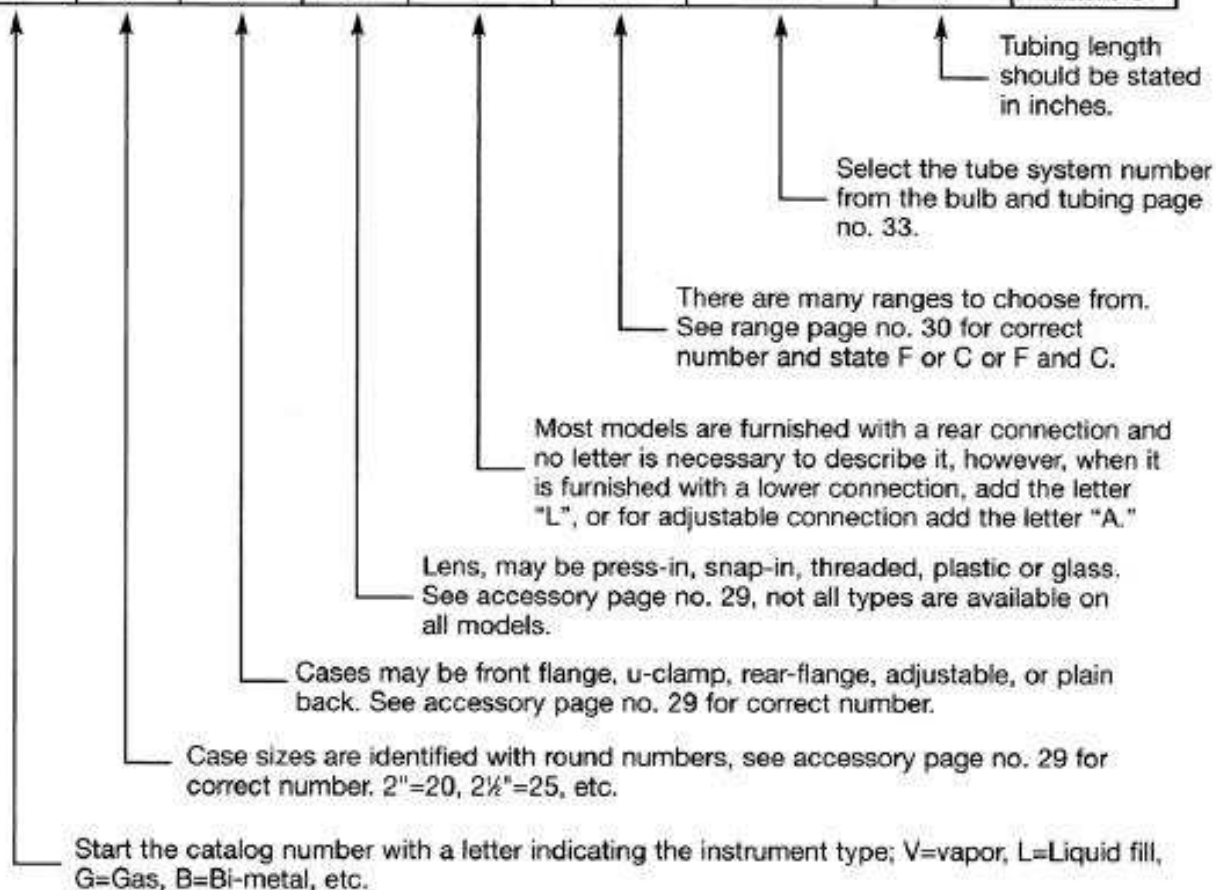
To speed up the ordering process please state...

Quantity, instrument type, size, case style, type lens, connection location, range, tube system including bulb type & tubing length in inches, application and catalog number if available. To create a catalog number, follow the instructions below.

EXPLANATION OF THE CATALOG NUMBER SYSTEM:

EXAMPLE OF A COMPLETE CATALOG NUMBER = V20366418-72 AND HOW IT IS DEVELOPED

	INST. TYPE	CASE SIZE	CASE STYLE	LENS TYPE	CONN. LOCATION	TEMP. RANGE	TUBE SYSTEM	TUBING LENGTH	TYPICAL COMPLETE CATALOG NUMBER
Description	Vapor	2" Case	Front Flange	Press In	Lower	100-350 F	316SS Armor-1/2" N.P.T.	0'	V20366418-72
Component Numbers	V	20	3	6	L	64	18	72	



If you find it difficult to develop your own catalog number, list all details and call the factory for help, the correct number will be assigned and will expedite your order.

See How To Order Page for the Use of These Numbers

CASE SIZE	
DIAL SIZE	CATALOG COMPONENT NUMBER
1½"	15
2"	20
2½"	25
3½"	35
4½"	45
6"	60
12"	120
63mm	63
100mm	40

CASE STYLES	
DESCRIPTION	CATALOG COMPONENT NO.
BLACK FRONT FLANGE STYLE (hinged ring)	2
BRASS (with threaded lens)	17
CHROME PLATED CRS (with threaded lens)	15
CHROME PLATED REAR FLANGE STYLE	16
CRS PLAIN STYLE	8
CRS U-CLAMP STYLE	5
*PLASTIC PLAIN STYLE	10
*PLASTIC FRONT FLANGE STYLE	3P**
*PLASTIC U-CLAMP STYLE	4
*PLASTIC REAR FLANGE STYLE	0
PLASTIC TURRET STYLE	20
STAINLESS STEEL FRONT FLANGE STYLE	3
STAINLESS STEEL U-CLAMP STYLE	6
STAINLESS STEEL REAR FLANGE STYLE	14

*Please specify color for plastic cases, check availability for each product.

**The "P" is added to the end of the Model number (i.e. V20362102P-48P)

CONNECTION LOCATION

Most remote reading thermometers are furnished standard with the connection or tubing coming from the rear of the case, but when it is supplied coming out of the bottom or lower end, please add the letter "L" for lower or "A" for adjustable after the lens number (i.e. Stainless Steel Case Lower Connection **3L**).

LENS STYLES	
DESCRIPTION	CATALOG COMPONENT NO.
GLASS WITH ALUMINUM HINGED RING	4
GLASS WITH CHROME RING	9
GLASS WITH PAINTED RING	4
GLASS WITH STAINLESS STEEL RING	9
PLASTIC WITH STAINLESS STEEL RING	5
PLASTIC SNAP-IN STYLE	6
PLASTIC THREADED	7

POINTERS






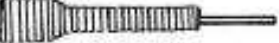
Pointers may be furnished standard many different ways depending upon the instrument.

They are available plain non-adjustable or with a adjustable slotted hub and may be reset in the field to accomodate certain service requirements. Pointers are usually furnished in black but other colors are available such as black with a bright red tip, plain white, or white with a bright red tip, or all red. They may also be furnished to a color of your choice. CAUTION: All instruments are calibrated at the factory against masters traceable to NIST in Washington. Any adjustments to the instrument should be made with that in mind.

STANDARD RANGES					
RANGE	FIGURE INTERVALS		SUB DIVISIONS		CATALOG COMPONENT NUMBER
	F	C	F	C	
-40° to 20° C		10		1	22
-40° to 65° F	10		2		20
-40° to 65° F&C	10	10	2	1	21
20° to 80° F	10		1		16
20° to 80° F&C	10	5	1	1	25
0° to 100° F	10		2		19
0° to 100° F&C	10	10	2	2	29
0° to 100° C		10		2	28
-40° to 110° F	20		2		30
-40° to 110° F&C	20	10	2	2	31
-20° to 120° F	20		2		32
-20° to 120° F&C	20	10	2	2	33
20° to 130° F	10		2		46
20° to 130° F&C	10	10	2	1	48
-40° to 150° F	10		2		67
0° to 150° F	20		2		49
0° to 180° F	20		2		72
0° to 180° F&C	20	20	2	2	73
20° to 220° F	10		2		80
20° to 220° F&C	10	10	2	2	81
30° to 240° F	20		2		50
30° to 240° F&C	20	10	2	2	51
0° to 250° F	20		2		53
0° to 250° F&C	20	10	2	2	54
50° to 250° F	20		2		56
50° to 250° F&C	10	10	2	2	57
30° to 300° F	10		1		60
30° to 300° F&C	10	10	1	2	61
100° to 350° F	20		5		64
100° to 350° F&C	20	20	5	5	66
200° to 450° F	20		2		70
200° to 450° F&C	20	20	2	2	71

RANGES: There are many standard ranges available between -40°F and 450°F and are offered in combination F & C. Many are NSF listed for food service. Special ranges, colors, name on dial is also available at a nominal charge. Vapor instruments have progressive graduations and are best read in the upper 1/3 of the range, and care should be exercised to select a range that will locate the working temperature within this area. Other standard ranges are also available, consult the factory.

The following connecting tubing is designed to be used on vapor actuated dial thermometers in conjunction with the tube systems listed on the previous page.

 <p>COPPER</p>	<p>Smooth .062 DIA. nickel plated copper capillary. For use with tube systems No. 02, 12 & 22. The catalog component No. (2) identifies this item and is the second digit of the tube system number. This material is very smooth and small in diameter and may be formed to small bends and is excellent for food service applications.</p>
 <p>PVC</p>	<p>Smooth .150 DIA. PVC covered .062 nickel plated copper capillary. For use with tube systems No. 03, 13 & 23. Suitable for dishwasher applications. The catalog component No. (3) identifies this item and is the second digit of the tube system number. This material is also smooth and easy to clean, but it is very tough and strong and is ideal to be bundled with other tubing or wire as it is dielectric.</p>
 <p>BRAIDED</p>	<p>Bronze braided .150 DIA. armor over .062 copper capillary. For use with tube systems No. 04, 14, & 24. This material is very good for rough and abrasive situations. The catalog component No. (4) identifies this item and is the second digit of the tube system number.</p>
 <p>316 S.S.</p>	<p>Smooth .062 DIA. type 316 stainless steel. For use with tube systems No. 05, 15 & 35. This material is excellent for chemical or corrosion resistance. The catalog component No. (5) identifies this item and is the second digit of the tube system number.</p>
 <p>316 S.S. with 316 S.S. ARMOR</p>	<p>.025 DIA. 316 stainless steel spiral type interlocking armor over 316 smooth stainless steel tubing. This material is ideal for applications requiring the best chemical resistance and rugged service. For use with tubing systems No. 08, 18, 28 & 38. the catalog component No. (8) identifies this item and is the second digit of the tube system number.</p>
 <p>TUBING PROTECTOR</p>	<p>Where additional protection from handling is required, please specify a plastic boot to be installed at the case end of the tubing, and/or a stainless steel round wire protector 3" long at the bulb end. No. A42-6</p>

WATERPROOFING THE CASE AND LENS:

To prevent moisture from entering the front of the case from the lens side, most instruments may be provided with an "o" ring or gasket seal. The case may also be sealed at the rear to prevent moisture contamination. Specify rear sealant for this service. For a completely sealed 2" dial thermometer, see page 9 (waterproof u-clamp style).

FROST CONTROL OF THE LENS:

On certain applications on refrigerated equipment, cold air will enter the case from the rear causing frost or fogging. Specify rear case sealant to prevent this condition.

WEEP HOLE IN THE CASE:

In situations where moisture collects in the bottom of the case, a small hole can be provided to drain the case.

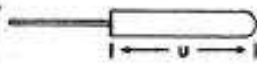
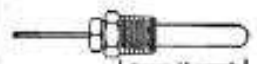

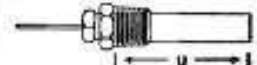
OVER RANGE PROTECTION:

It is very important that an instrument is used within the range indicated on the dial. In certain cases, on low range instruments i.e. -40° to 65°F, the instrument will be exposed to higher temperature during shipment or when not in use. In these cases, limit filling or other means, depending upon the situation, must be incorporated into the product to prevent damage or incorrect readings. Please consult the factory.

On other high ranges, such as 30° to 240°F, over ranging in use (higher than 240°F) will damage the instrument. Protection may be provided to endure some over ranging, please specify. Consult the factory.

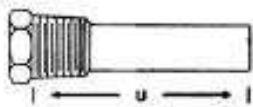
BULBS, CONNECTIONS, and TUBING

*Most vapor actuated dial thermometers are furnished standard with 5 feet of smooth nickel plated copper tubing and a plain nickel plated copper bulb $\frac{3}{8}$ " O.D. x $2\frac{1}{2}$ " "U" length for tubing lengths up to 10' long, for tubing lengths over 10' and up to 50' the "U" length is $4\frac{1}{2}$ " and over 50' and up to 100' the "U" length is 6". For tube system lengths over 100 ft. consult the factory. Other sizes and types are also available, see table for a partial listing. For the range of -40°F to 65°F the plain connection bulb is $\frac{1}{4}$ " O.D. x 2" long.

TYPE	TUBE SYS. NUMBER	TUBING MATERIAL	TUBING LENGTH	TYPE CONN.	CONNECTION OR SOCKET MAT.	BULB MATERIAL
 PLAIN CONNECTION	02	Copper Ni. Plated	5'	Plain	None	CU. Ni. PL't'd
	03	Copper PVC Coated	5'	Plain	None	CU. Ni. PL't'd
	04	Bronzed Braided	5'	Plain	None	CU. Ni. PL't'd
	05	Smooth 316 S.S.	5'	Plain	None	316 S.S.
	08	316 S.S. Armor	5'	Plain	None	316 S.S.
 UNION CONNECTION	12	Copper Ni. Plated	5'	$\frac{1}{2}$ " N.P.T.	Brass	CU. Ni. PL't'd
	13	Copper PVC Coated	5'	$\frac{1}{2}$ " N.P.T.	Brass	CU. Ni. PL't'd
	14	Bronzed Braided	5'	$\frac{1}{2}$ " N.P.T.	Brass	CU. Ni. PL't'd
	15	Smooth 316 S.S.	5'	$\frac{1}{2}$ " N.P.T.	316 S.S.	316 S.S.
	18	316 S.S. Armor	5'	$\frac{1}{2}$ " N.P.T.	316 S.S.	316 S.S.
 ADJUSTABLE UNION CONN.	35	Smooth 316 S.S.	5'	$\frac{1}{2}$ " N.P.T.	316 S.S.	316 S.S.
	38	316 S.S. Armor	5'	$\frac{1}{2}$ " N.P.T.	316 S.S.	316 S.S.
 SEPARABLE SOCKET	22	Copper Ni. Plated	5'	$\frac{1}{2}$ " N.P.T.	Brass	CU. Ni. PL't'd
	23	Copper PVC Coated	5'	$\frac{1}{2}$ " N.P.T.	Brass	CU. Ni. PL't'd
	24	Bronzed Braided	5'	$\frac{1}{2}$ " N.P.T.	Brass	CU. Ni. PL't'd
	25	Smooth 316 S.S.	5'	$\frac{1}{2}$ " N.P.T.	316 S.S.	316 S.S.
	28	316 S.S. Armor	5'	$\frac{1}{2}$ " N.P.T.	316 S.S.	316 S.S.

SEPARABLE SOCKETS

(Sold Separately)

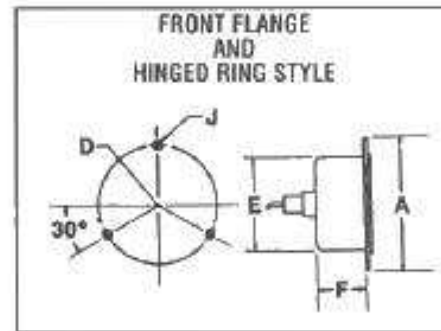
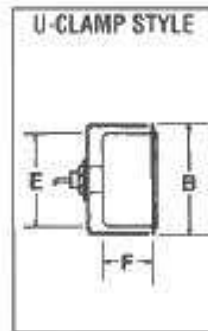
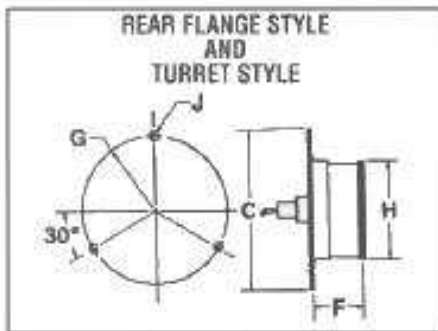
	CONNECTION	MATERIAL	IMMERSION LENGTH "U"		
			2½"	4½"	6"
			CATALOG NUMBERS		
	$\frac{1}{2}$ " N.P.T.	Brass	138-2	138-5	138-8
	$\frac{1}{2}$ " N.P.T.	316 S.S.	138-4	138-7	138-10
	$\frac{3}{8}$ " N.P.T.	Brass	138-12	138-15	138-18
	$\frac{3}{8}$ " N.P.T.	316 S.S.	138-14	138-17	138-20

PRESSURE RATINGS FOR SEPARABLE SOCKETS

MATERIAL	OPERATING TEMPERATURE °F					
	70	200	400	600	800	1000
	MAXIMUM OPERATING PRESSURE (lbs. per sq. in.)					
Brass	1200	1000	200	---	---	---
316 S.S.	2100	2000	1900	1700	1600	1400

DIAL THERMOMETERS

CASE AND MOUNTING DIMENSIONS



DIAL SIZE	STYLE	OUTLET LOCATION	MATERIAL	A	B	C	D	E	F	G	H	J
1/2"	U-CLAMP	REAR	S.S.	-	1.82	-	-	1.60	.86	-	-	-
2"	FRONT FLANGE	REAR OR LOWER	S.S.	2.94	-	-	1.28R	.205	1.09	-	-	156
	U-CLAMP	REAR	S.S.	-	2.24	-	-	.205	1.09	-	-	-
	REAR FLANGE	REAR	S.S.	-	-	3.50	-	-	1.09	159R	2.24	156
2"	FRONT FLANGE	REAR ONLY	ABS	2.94	-	-	1.28R	2.06	1.09	-	-	156
	U-CLAMP	REAR OR LOWER	ABS	-	2.24	-	-	2.06	1.09	-	-	156
2"	CABINET	LOWER	CRS CHROME PLATED	-	-	-	-	2.10	1.11	-	2.34	-
2 1/2"	FRONT FLANGE	REAR OR LOWER	S.S.	3.48	-	-	1.60R	2.56	1.09	-	-	148
	U-CLAMP	REAR OR LOWER	S.S.	-	2.86	-	-	2.56	1.09	-	-	-
	REAR FLANGE	REAR ONLY	S.S.	-	-	3.87	-	2.56	1.25	1.60R	2.85	172
2 1/2"	CABINET	LOWER	CRS CHROME PLATED	-	-	-	-	2.66	1.14	-	2.90	156
3 1/2"	FRONT FLANGE	REAR OR LOWER	S.S.	4.30	-	-	2.00R	3.50	1.09	-	-	180
	U-CLAMP	REAR OR LOWER	S.S.	-	3.94	-	-	3.50	1.09	-	-	-
	REAR FLANGE	REAR OR LOWER	S.S.	-	-	4.87	-	3.50	1.25	2.10R	3.94	180
3 1/2"	FRONT FLANGE EXTRA WIDE	REAR	S.S.	4.87	-	-	MIN 2.10R MAX 2.27R SLCTED	3.50	1.09	-	-	180X350 SLOTTED
3 1/2"	REAR FLANGE	COMBINATION REAR OR LOWER	BLACK CRS	-	-	4.63	-	-	1.27	2.12R	3.75	210
100mm	FRONT FLANGE	REAR OR LOWER	S.S.	5.41	-	-	2.44R	4.25	1.06	-	4.65	240
	REAR FLANGE	REAR OR LOWER	S.S.	-	-	5.41	-	4.25	1.95	2.44R	4.65	240
4 1/2"	REAR FLANGE	COMBINATION REAR & LOWER	GLASS FILLED NYLON	-	-	5.83	-	-	1.50	2.10R	3.95	180
4 1/2"	TURRET	REAR OR LOWER	PHENOLIC	-	-	5.83	-	-	2.32	2.70R	5.05	220
4 1/2"	FRONT FLANGE HINGE RING	REAR	ALUMINUM	6.10	-	-	2.68R	4.77	1.55	-	-	156
6"	HINGE RING	REAR	ALUMINUM	7.57	-	-	3.50	6.33	1.50	-	-	200
12"	REAR FLANGE	REAR OR LOWER	ALUMINUM	-	-	14.25	-	-	2.53	6.75R	12.66	280