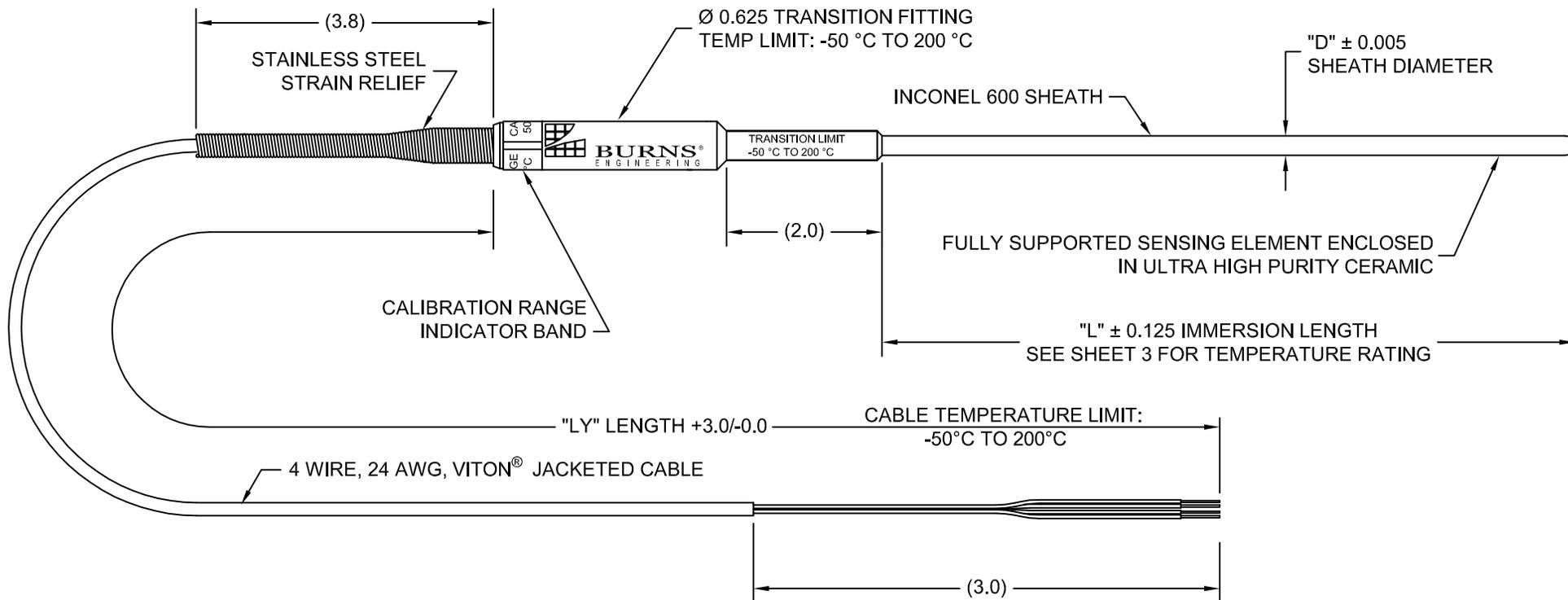


SYM	ECO NUMBER	DATE	APPD
A	ECO 6731	3-1-12	RJT
B	ECO 7287	7-28-14	JAZ
C	ECO 7307	8-27-14	JAZ
D	ECO 7747	3-14-16	JAZ
E	ECO 7922	9-26-16	JAZ



SEE SHEET #2 FOR ORDERING INFORMATION

-TOLERANCES- UNLESS OTHERWISE SPECIFIED	
ALL DIMENSION IN INCHES	
FRACTIONS = ±1/16	
ONE PLACE .X = ±.050	
TWO PLACE .XX = ±.010	
THREE PLACE .XXX = ±.005	
ALL ANGLES ARE ± 0°30'	
SHEATH AND LEAD LENGTHS PER BURNS P/N 17026	
UNLESS OTHERWISE NOTED: ALL SURFACES 125 ✓	
ALL FINISHES IN MICRO INCHES	



BURNS ENGINEERING

SCALE	NOT TO SCALE	
DFTM	PAC	3-1-12
CHKD	TSH	3-1-12
APPD	RJT	3-1-12

MOUNTING AND OUTLINE DRAWING
SECONDARY STANDARD
PLATINUM RESISTANCE THERMOMETER
(SSPRT)

DIMENSIONS IN INCHES
REF: 22354 (1/4" AND 3/16" B)
23340 (1/4" AND 3/16" S)
22413 (1/8" S)

SHEET 1 OF 3	SIZE A	DRAWING NUMBER 12005	REV E
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ORDERING INFORMATION:

12005	BASIC MODEL NUMBER					
	SHEATH DIAMETER "D" IN INCHES					
	-A	A = SHEATH DIAMETER OF 1/4"				
	-B	B = SHEATH DIAMETER OF 3/16"				
	-C	C = SHEATH DIAMETER OF 1/8" (420 °C MAXIMUM TEMPERATURE, 12" MAXIMUM "L" LENGTH)				
	IMMERSION LENGTH "L" IN INCHES					
	-7	7 = 7" IMMERSION LENGTH (MINIMUM LENGTH)				
	-9	9 = 9" IMMERSION LENGTH				
	-12	12 = 12" IMMERSION LENGTH (STANDARD LENGTH)				
	-18	18 = 18" IMMERSION LENGTH				
	-24	24 = 24" IMMERSION LENGTH				
	SPECIFY "L" IN INCHES (24" MAX. FOR 3/16" AND 1/4" DIA, 12" MAX. FOR 1/8" DIA.)					
	CABLE LENGTH "LY" IN FEET					
	-6	6 = 6 FEET (STANDARD LENGTH)				
	-LY	LY = SPECIFY "LY" IN FEET (100' MAXIMUM)				
	CALIBRATION (INCLUDES TABLE IN 1°C INCREMENTS OVER CALIBRATION RANGE)				BAND COLOR	
	-0	0 = NO CALIBRATION* OR CUSTOM CALIBRATION			SILVER	
	-1	1 = CALIBRATION AT -196, -38, 0.01, 100, 300, 500°C (ONLY AVAILABLE FOR SENSORS RATED TO 500°C)			BLACK	
	-2	2 = CALIBRATION AT -196, -38, 0.01°C			BLUE	
	-3	3 = CALIBRATION AT -80, -38, 0.01, 100, 200°C			GREEN	
	-4	4 = CALIBRATION AT 0.01, 100, 300, 500°C (ONLY AVAILABLE FOR SENSORS RATED TO 500°C)			RED	
	-5	5 = CALIBRATION AT -80, -38, 0.01, 200, 420°C			VIOLET	
	-6	6 = CALIBRATION AT -196, -38, 0.01, 200, 420°C			GOLD	
	TEMPERATURE SCALE					
	-A	A = ITS-90, CALIBRATION REPORT INCLUDES APPLICABLE ITS-90 COEFFICIENTS.				
	-B	B = CALLENDAR VAN-DUSEN, CALIBRATION REPORT INCLUDES APPLICABLE CVD COEFFICIENTS.				
12005	-A	-12	-6	-1	-A	TYPICAL PART NUMBER 12005 SECONDARY STANDARD WITH Ø 0.25 SHEATH, 12 INCH SHEATH LENGTH, 6 FOOT CABLE LENGTH, CALIBRATION TABLE FROM -196 TO 500°C IN 1°C INCREMENTS, ITS-90 TEMP. SCALE. SEE METROLOGY CATALOG OR WEB SITE FOR ADDITIONAL OPTIONS.

*WHEN NO CALIBRATION IS SELECTED, A TAG WILL BE ATTACHED TO THE SILVER CALIBRATION BAND STATING THAT THE SENSOR HAS NOT BEEN CALIBRATED. THIS TAG CAN BE REMOVED FOLLOWING CALIBRATION. CALIBRATION BANDS LISTED ABOVE CAN BE PURCHASED SEPERATELY TO INDICATE THE NEW CALIBRATION RANGE.

GENERAL DESCRIPTION: THE BURNS ENGINEERING MODEL 12005 IS A HIGH QUALITY PLATINUM RESISTANCE THERMOMETER DESIGNED FOR USE AS A REFERENCE TEMPERATURE STANDARD. THE SENSING ELEMENT IS MANUFACTURED USING AN ULTRA HIGH PURITY CERAMIC AND A PURE PLATINUM WIRE (99.999%) WHICH IS FULLY SUPPORTED IN A MANNER THAT IMPOSES MINIMAL STRAIN.

CAUTION: RESISTANCE STABILITY IS HIGHLY DEPENDENT UPON HANDLING. THEREFORE, IT IS NOT INCLUDED IN THE STANDARD WARRANTY. THIS SENSOR IS INTENDED TO BE USED IN A LABORATORY SETTING AND SHOULD NOT BE EXPOSED TO SEVERE THERMAL SHOCK , PHYSICAL SHOCK, OR VIBRATION. CAREFUL HANDLING WILL ASSURE ACCURACY AND LONG LIFE.

ICE POINT RESISTANCE: 100 ± 0.10 Ω AT 0 °C

ALPHA VALUE: 0.003925 Ω / Ω / °C

W(302.9146K): 1.11806 TYPICAL

TEMPERATURE RATING: 1/4" AND 3/16" SHEATH DIAMETER: -200 °C TO 500 °C
 1/8" SHEATH DIAMETER: -200 °C TO 420 °C
 SENSORS ORDERED WITH SHEATH BENDING CODES (/SB): -200 °C TO 420 °C (NOTE: THE TEMPERATURE RANGES AVAILABLE FOR RECALIBRATION OF A BENT SENSOR MAY BE RESTRICTED DUE TO SPACE CONSTRAINTS OF BURNS CALIBRATION EQUIPMENT.)

PERFORMANCE SPECIFICATIONS: k=2, 95% CONFIDENCE LIMITS ARE LISTED BELOW. TESTING PERFORMED PER ASTM E644-11.

INSULATION RESISTANCE: GREATER THAN 1000 MEGOHMS @ 100 VDC @ 20°C GREATER THAN 20 MEGOHMS @ 100 VDC @ 400°C

SHORT TERM REPEATABILITY LESS THAN 0.008°C (0.003 Ω) CHANGE AT THE TPW OVER ANY 10 CONSECUTIVE THERMAL CYCLES FROM -196 °C TO +420 °C.

HYSTERESIS: LESS THAN 0.006°C (0.002 Ω) FROM -196 °C TO +420 °C.

LONG TERM STABILITY: LESS THAN 0.024 °C (0.009 Ω) CHANGE AT TRIPLE POINT PER 100 HOURS AT 500 °C (APPLIES ONLY TO SENSORS RATED TO 500°C)
 LESS THAN 0.005 °C (0.002 Ω) CHANGE AT TRIPLE POINT PER 100 HOURS AT 420 °C
 LESS THAN 0.003 °C (0.001 Ω) CHANGE AT TRIPLE POINT PER 100 HOURS AT 250 °C

SELF HEATING: LESS THAN 0.020 °C / mW (0.008 Ω/mW) IN WELL STIRRED BATH

THERMOELECTRIC VOLTAGE: THERMOELECTRIC VOLTAGE SHALL NOT EXCEED 2 μV AT 0°C, 50 μV AT 200 °C, 80 μV AT 420 °C.

TIME CONSTANT: 9 SECONDS TYPICAL FOR 63.2% RESPONSE TO STEP CHANGE IN TEMPERATURE IN WATER AT 3 FT / SEC.

MINIMUM IMMERSION: 4.0 INCH MINIMUM IMMERSION.

INDIVIDUAL CALIBRATION: EACH THERMOMETER WILL BE PROVIDED WITH CALIBRATION PER THE ORDERING INFORMATION SHOWN ON SHEET 2. THE BURNS ENGINEERING CALIBRATION LABORATORY COMPLIES WITH THE REQUIREMENTS OF ANSI/NCSL Z540-1 PART 1, AND ISO/IEC 17025 AND IS ACCREDITED BY NVLAP (LAB CODE 200706-0). CALIBRATION UNCERTAINTIES WILL BE INCLUDED ON THE CALIBRATION REPORT AT EACH MEASURED TEMPERATURE, TYPICAL EXPANDED UNCERTAINTIES (k=2, APPROXIMATELY 95%) ARE LISTED IN THE TABLE BELOW AND INCLUDE ALL OF THE KNOWN SOURCES PRESENT AT THE TIME OF CALIBRATION.

TEMPERATURE (°C)	EXPANDED UNCERTAINTY k=2 (°C)
-196	0.024
-38	0.011
0.01	0.010
200	0.018
300	0.029
420	0.029
500	0.029



BURNS ENGINEERING INC.
 MINNEAPOLIS, MINNESOTA

SHEET 3
 OF 3

SIZE
 A

DRAWING NUMBER
 12005

REV
 E