

SPECIAL

REPLACEMENT PARTS

2-10-85
REVISED
1-10-85

MODELS 140, 142

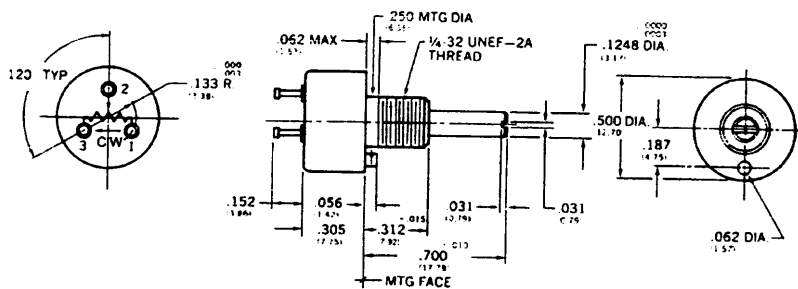
ACTUAL SIZE



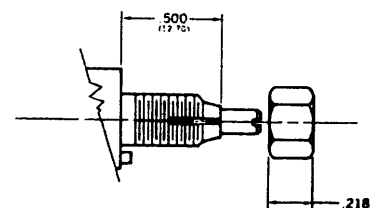
**Model 140
Bushing Mount**



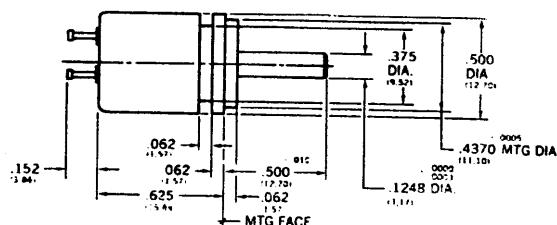
**Model 142
Servo Mount**



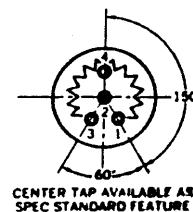
BUSHING MOUNT



INTEGRAL SHAFT LOCK



SERVO MOUNT



TOLERANCES: UNLESS OTHERWISE NOTED.
 DECIMALS $\pm .005$ ANGLES $\pm 2^\circ$
 BASIC DIMENSIONS ARE IN INCHES
 MILLIMETER DIMENSIONS IN PARENTHESES

SPECIFICATIONS (MIL-R-12934 Test Procedures Apply)

ELECTRICAL

TOTAL RESISTANCE	Standard Range 50Ω to 50KΩ, Special to 70KΩ ±5% tolerance.
ABSOLUTE MINIMUM RESISTANCE	Linearity x Total Resistance or 0.5Ω, whichever is greater.
LINEARITY (INDEPENDENT)	±1.0%.
NOISE	100 ohms ENR
POWER RATING	2 watts at 40°C ambient derated linearly to zero at 125°C.
INSULATION RESISTANCE	1,000 megohms min., 500 volts DC.
DIELECTRIC STRENGTH	1,000 volts RMS, 60 Hz.
ROTATION	320° ± 5° 350° ± 0° - 4°
END VOLTAGE	Linearity x total applied voltage for total resistances above 20Ω; 2.0% of total applied voltage for 20Ω and below.

MECHANICAL

	140	142
ROTATION	330° ± 5°	360° continuous
BEARING TYPE	Sleeve Bearing	Ball Bearing
TORQUE (MAXIMUMS)	Starting 0.2 (14,40) Running 0.2 (14,40) Traversing Dead Zone Not applicable	0.075 (5,40) 0.05 (3,60) 0.20 oz. in (14,40) 0.3 oz (8.50 gm) max.
WEIGHT	0.1 oz. max. (2.84 gm)	
STOP STRENGTH	5 in-lbs. (5.76 kgm-cm) static (140 only)	

MECHANICAL (Con't.)

RUNOUTS (MAXIMUM)	140	142
Shaft	.002 (0,05) TIR	.002 (0,05) TIR
Pilot Dia.	.002 (0,05) TIR	.002 (0,05) TIR
Lateral	.003 (0,08) TIR	.002 (0,05) TIR
Shaft end play	.006 (0,15)	.004 (0,10)
Shaft radial play	.003 (0,08)	.002 (0,05)

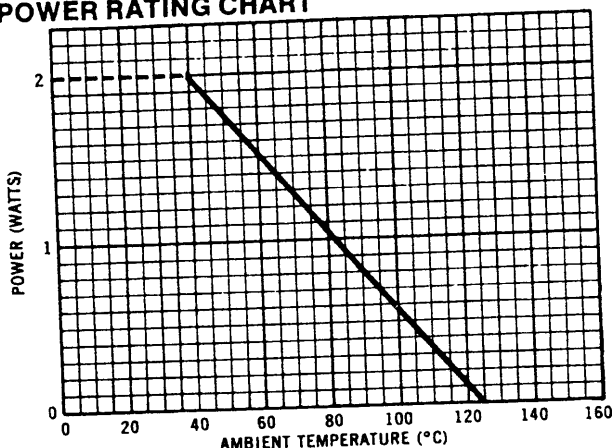
ENVIRONMENTAL

VIBRATION	20G through 2,000 Hz
SHOCK	50G
SALT SPRAY	96 hours
ROTATIONAL LIFE	500,000 shaft revolutions
LOAD LIFE	900 hours
TEMPERATURE RANGE	-55°C to +125°C (operating)

MATERIALS

SHAFT	Stainless steel, non magnetic, passivated.
HOUSING	Aluminum, anodized
REAR LID	Molded glass filled thermoset plastic.
TERMINALS	Brass, gold plated.
MOUNTING HARDWARE (MODEL 140 ONLY)	Lockwasher: internal tooth, steel, nickel plated. Panel nut: brass, nickel plated.
MARKING	Units shall be marked with manufacturer's name, model number, resistance value & tolerance, circuit diagram, terminal identification, linearity & date code.

POWER RATING CHART



STANDARD RESISTANCE ELEMENT DATA

STD RESISTANCE VALUES (OHMS)	RESOLUTION %	OHMS PER TURN	MAX CURRENT AT 40°C AMBIENT (MILLIAMPS)	MAX VOLTAGE ACROSS COIL (VOLTS)	WIRE TEMP COEF PPM/°C
50	.542	.271	200.	10.0	20
100	.431	.431	141.	14.1	20
200	.361	.722	100.	20.0	20
500	.312	1.56	63.2	31.6	20
1K	.255	2.55	44.7	44.7	20
2K	.197	3.94	31.6	63.2	20
5K	.170	8.50	20.0	100.	20
10K	.147	14.7	14.1	141.	20
20K	.105	21.0	10.0	200.	20
50K	.091	45.6	6.32	316.	20

HOW TO ORDER THE MODEL 140 & 142

This part number consists of four groups of digits. The first group is the SPECTROL Model number. The second digit describes the mechanical options available. The third digit describes the other optional features which can be supplied. The fourth group is the standard EIA resistance code.

MODEL NUMBER	MECHANICAL OPTIONS	OTHER OPTIONAL FEATURES	RESISTANCE CODE
Bushing 140	0. Stops, Slotted Shaft (std.) 1. Plain Shaft 2. Shaft Lock 3. Continuous Rotation 4. Combination 1 & 2 5. Combination 1 & 3 6. Combination 2 & 3 7. Combination 1, 2, & 3	0. Standard Torque 1. Center Tap (10K max. Rt) 2. High Torque 3. Sealed Construction 4. Combination 1 & 2 5. Combination 1 & 3 6. Combination 2 & 3 7. Combination 1, 2, & 3	2 0 3 Number of zeros following Second significant figure First significant figure
Servo 142	0. Continuous Rotation, Plain Shaft (std.)	0. Standard Torque 1. Center Tap (10K max. Rt)	Same as above

Example:
Part number 140-0-0-203 describes bushing mount model 140 with stops, slotted shaft, standard torque and resistance of 20K Ω.

SPECTROL ELECTRONICS GROUP



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