



BEI MOTION SYSTEMS COMPANY
Industrial Encoder Division

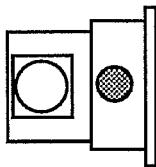
7230 Hollister Avenue, Goleta, CA 93117-2891
 (805) 968-0782 FAX (805) 968-3154

OPTICAL ENCODER SPECIFICATION

924-02056-002

MODEL NUMBER BEI PART NUMBER
 H25Y-SB-5000-M2/C2-ABZC-75158-LED-SM22 924-01042-004

MITSUBISHI PART NUMBER OSE 5KN-6-8-108



924-02056-002 SHT 1 OF 7

			PREPARED <i>[Signature]</i> MCGUIRE 12/08/92
			APPROVED <i>[Signature]</i> LAPLANTE 12/08/92
A	EL0-1103 (ADD Notes to S.B&S.9 - Design Parameter Not Individually tested)	9-2-08	APPROVED
LTR	REVISION	DATE	

All drawings and specifications are and remain the property of BEI Motion Systems Company. All specifications are confidential and are not to be disclosed to any persons other than those to whom they are sent. No drawings, specifications or other data belonging to BEI Motion Systems Company which may be furnished to manufacturers or others for any purpose are to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto

1.0 SCOPE

THIS SPECIFICATION COVERS AN ENCODER MADE FOR MITSUBISHI CNC COMPANY. BASIC FEATURES INCLUDE M2 INTERPOLATED OUTPUT WITH INDEX AND COMMUTATION TRACKS. A MOUNTING BASE IS INCLUDED AND A COUPLING FURNISHED BY MITSUBISHI IS FITTED TO THE SHAFT. THE INDEX IS ALIGNED WITH THE FLATS ON THE SHAFT.

2.0 MODEL NUMBER

H25Y SB 5000 M2/C2 ABZC 75158 LED SM22
BEI PART NO. 924-01042-004
MITSUBISHI MODEL NO. OSE 5KN-6-8-108
5000P/R, JA3102A22-14P CONNECTOR

Note: This Specification Is The Same As 924-02056-001 Rev. B
Except Paragraph 3.7.4

3.0 ELECTRICAL SPECIFICATIONS

(UNDER 0 TO MAX SPEED)

3.1 SUPPLY VOLTAGE +5 VDC +5% , -10%(COMMERCIAL I.C.'S ARE USED)

3.2 CURRENT REQUIREMENT 420 MA MAX

3.3 OUTPUT FROM SN 75158

3.5 CHANNEL A AND B (FIG. 1)

3.5.1 RESOLUTION 5000 OR 3000 CYCLES PER REV

3.5.2 FREQUENCY RESPONSE 300 KHZ

3.5.3 PHASE SHIFT (a,b,c,d) $1/4 \pm 1/8$ CYCLE (90 ± 45 DEG. E)

3.5.4 ONE CYCLE ERROR $1/10$ CYCLE

3.5.5 CUMULATIVE PITCH ERROR $1/4$ CYCLE

3.5.6 ADJACENT PITCH ERROR $1/12$ CYCLE

3.6 CHANNEL Z

3.6.1 Z PULSE WIDTH $1 1/2$ TO 4 CYCLES

3.6.2 PHASE SHIFT $g = 3/4$ TO 2 CYCLES. TEST AT 500 RPM

3.6.3 LOCATION OF SHAFT FLAT RISE OF Z SHALL OCCUR WHILE "A"

RELATIVE TO RISE OF Z MARK IS ALIGNED WITH KEYWAY

WITHIN ± 1.5 DEG. MECHANICAL

3.6.4 NUMBER OF CYCLES 1 PER REV.

3.6.5 FREQUENCY RESPONSE 60 HZ

3.7 U,V,W CHANNELS (FIG 2)

3.7.1 NUMBER OF CYCLES 2 PER REV.

3.7.2 FREQUENCY RESPONSE 120 HZ

3.7.3 RELATION TO CH. Z 0 ± 0.4 DEG.

3.7.4 PHASE SHIFT (k-n,q,r) 30 ± 0.5 DEG. MECHANICAL

3.7.5 PULSE WIDTH 180 ± 0.2 DEG. MECHANICAL

3.8 NOISE SUPPRESSION CAPACITOR

0.1 UFD, 50V CAPACITOR BETWEEN 0V AND CASE GROUND (INSTALL AFTER HIGH POT TEST)

FIGURE 1 A,B AND Z CHANNELS

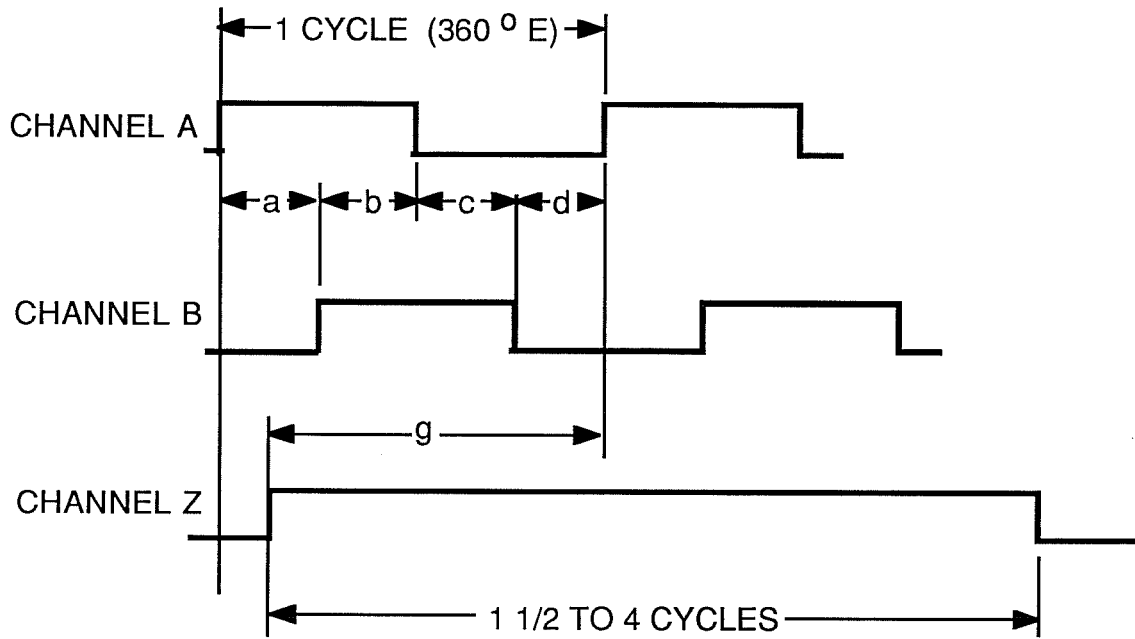
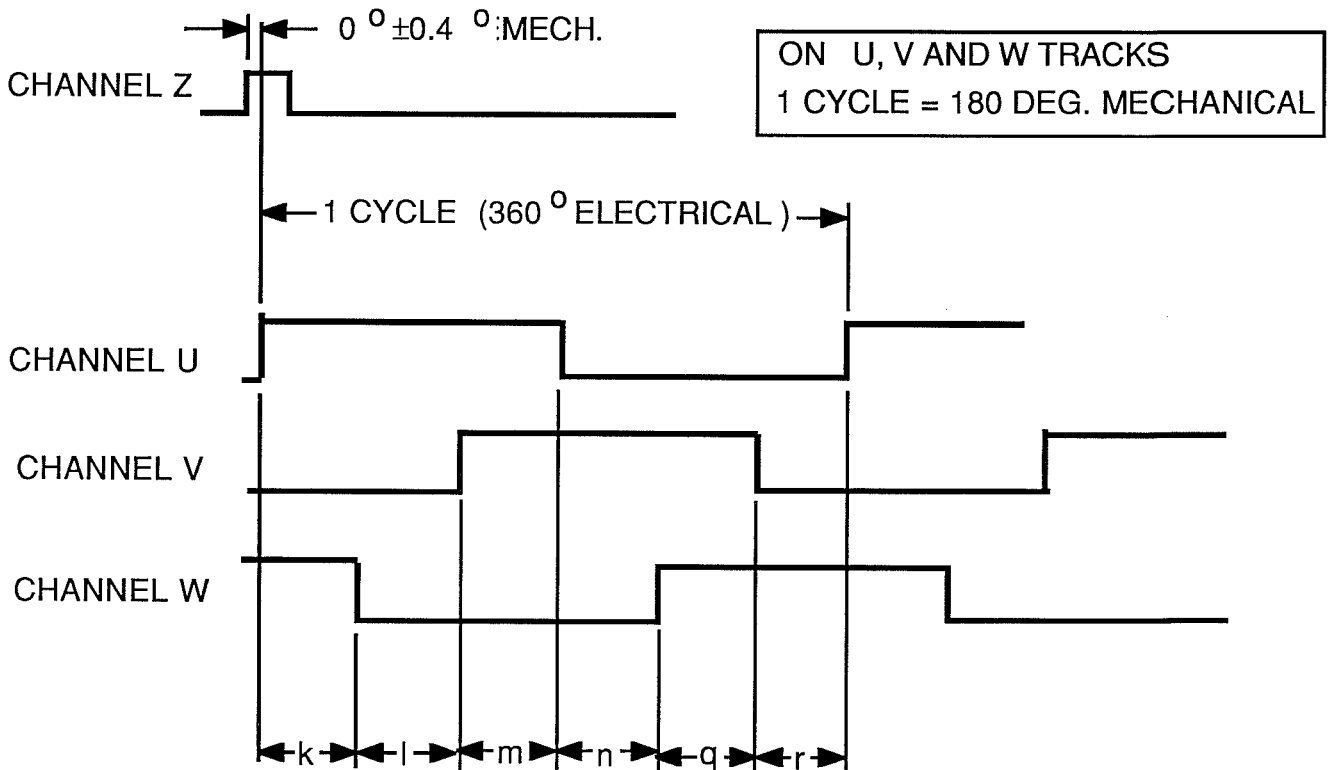


FIGURE 2 U,V AND W CHANNELS



4.0 MECHANICAL SPECIFICATIONS:

4.1 BEARING LIFE	10X 10 ⁹ REVOLUTIONS AT 70 ⁰ C
4.2 SHAFT RUNOUT	.004" MAX
4.3 SHAFT RADIAL LOAD	5 LBS
4.4 SHAFT AXIAL LOAD	2.5 LBS
4.5 INERTIA	4.1 X 10 ⁻⁴ OZ-IN-SEC ²
4.6 TORQUE	1.50 OZ-IN MAX AT 25 DEG. C.
4.7 SHAFT AXIAL PLAY	.0004" MAX UNDER 1 LB LOAD
4.8 SHAFT RADIAL PLAY	.0008" MAX UNDER 1 LB LOAD
4.9 BEARING PROTECTION	FRONT BEARING RUBBER SEALED
4.10 CONNECTOR LOCATION	WITHIN ±3 DEG OF "A" MARK
4.11 HOUSING MATERIAL	ALUMINUM, CHEM FILM TREATED
4.12 SHAFT MATERIAL	STAINLESS STEEL 416
4.13 ALLOWABLE SPEED	5000 RPM
4.14 STRUCTURAL LOADING STRENGTH	80 KG MIN. (175 LBS)
4.15 ON FLOOR STRENGTH	70 KG MIN. (154 LBS)
5.0 <u>ENVIRONMENTAL CONDITIONS:</u>	
5.1 VIBRATION	10 TO 50 HZ, 1.5 MM FULL AMPLITUDE IN AXIAL AND RADIAL DIRECTIONS.
5.2 SHOCK	30 G FOR 11 MSEC, 10 IMPACTS IN AXIAL AND RADIAL DIRECTIONS
5.3 TEMPERATURE	-10 TO 75 DEG. C (COMMERCIAL I.C.'S ARE USED)
5.4 HUMIDITY	90% AT 40 DEG C.
5.5 WATER TIGHTNESS	UNIT SHALL BE SPLASH PROOF WHEN THE CONNECTOR IS PROTECTED AND ALL RUBBER PARTS ARE IN PLACE .
5.6 MAX SPEED	3600 RPM
5.7 MAX ANGULAR ACCELERATION	6000 RADIANS / SEC ²

NOTE: THE CAPACITOR BETWEEN 0V AND CASE GROUND MUST BE DISCONNECTED FOR THESE TESTS

5.8 DIELECTRIC WITHSTAND VOLTAGE
DESIGN PARAMETER -
NOT INDIVIDUALLY TESTED

APPLY 500VAC BETWEEN BODY OF ENCODER AND ALL OUTPUT PINS EXCEPT CASE GROUND FOR ONE MINUTE.

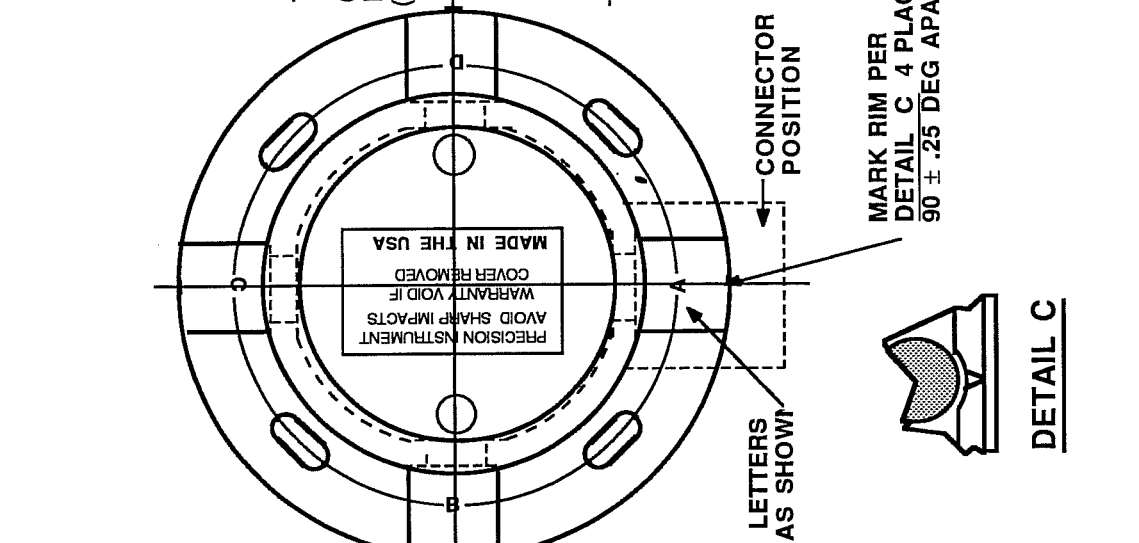
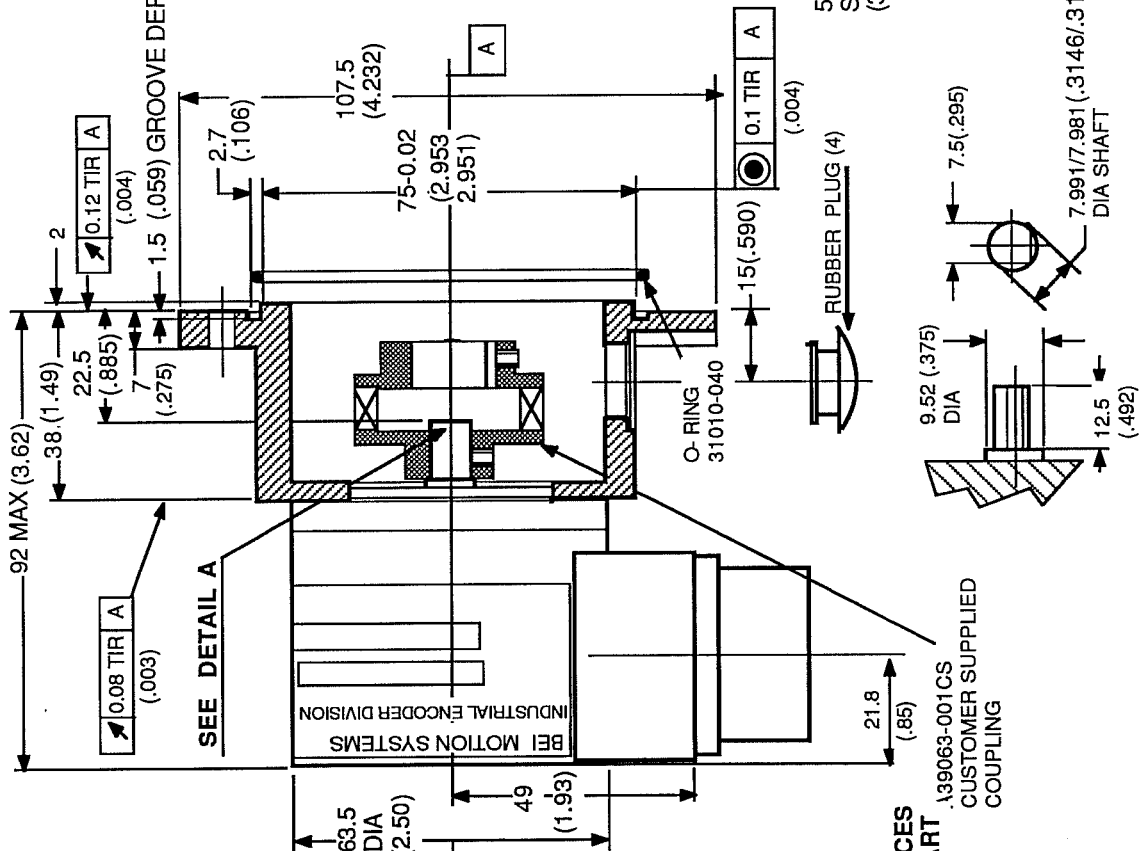
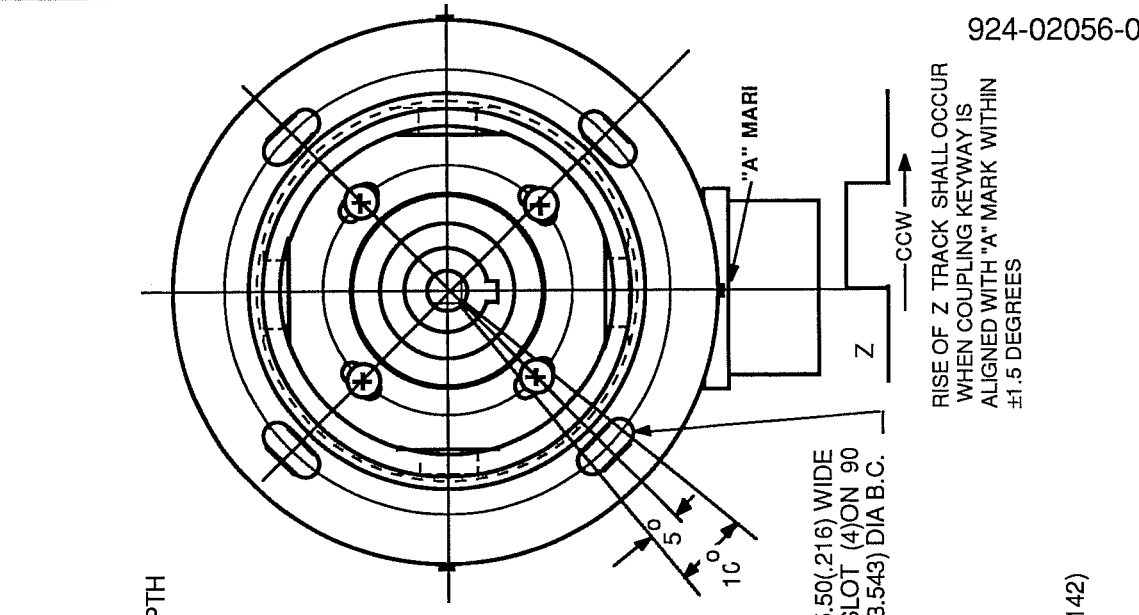
5.9 INSULATION RESISTANCE
DESIGN PARAMETER -
NOT INDIVIDUALLY TESTED

50 MEGOHM MIN
 MEASURED BY 500V MEGOHM METER BETWEEN EACH CONNECTOR PIN AND CASE

6.0 OUTPUT TERMINATION

CONNECTOR IS JA3102A22-14P OR EQUIVALENT.

PIN	FUNCTION
A	$\frac{A}{A}$
B	$\frac{A}{A}$
C	$\frac{B}{B}$
D	$\frac{B}{B}$
F	$\frac{Z}{Z}$
G	$\frac{Z}{Z}$
H	$\frac{U}{U}$
J	$\frac{U}{U}$
K	$\frac{V}{V}$
L	$\frac{V}{V}$
M	$\frac{W}{W}$
U	$\frac{W}{W}$
R	0V
S	+5VDC
N	CASE GND



RISE OF Z TRACK SHALL OCCUR WHEN COUPLING KEYWAY IS ALIGNED WITH "A" MARK WITHIN ±1.5 DEGREES

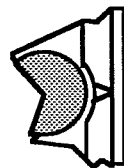
5.50(.216) WIDE SLOT (4) ON 90 (3.543) DIA B.C.

FIGURE 3

SHAFT DETAIL A

MARK RIM PER DETAIL C 4 PLACES 90 ± .25 DEG APART

139063-001CS CUSTOMER SUPPLIED COUPLING



DETAIL C

SEE DETAIL A

BEI MOTION SYSTEMS INDUSTRIAL ENCODER DIVISION

LETTERS AS SHOWN

CONNECTOR POSITION