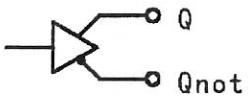



TITLE		REV.	REVISIONS	DATE	REVISED	APPROVED
INCREMENTAL ENCODER SPECIFICATION		(2)	Slow speed change	Feb. 7, '02	K. Shibuya	M. Yamashita
5 S P - 0 0 8 1	[1]MODEL	$\text{MSK} - \text{015} - \text{1024} - \text{00}$ <p style="text-align: center;"> <span style="margin-right: 100px;">MODEL</span> <span style="margin-right: 100px;">FUNCTION No.</span> <span style="margin-right: 100px;">OUTPUT PULSE</span> <span>GEAR</span> </p>				
	[2]NAME	KIT TYPE MAGNETIC ENCODER				
	[3]EXTERNAL VIEW	5-201066				
	[4]OUTPUT SIGNALS	DUAL SQUARE WAVE IN QUADRATURE WITH INDEX SIGNAL				
	[5]MECHANICAL SPECIFICATION	5-1)SLEW SPEED $\text{@ } 18000$ $\pm 2000 \text{ r/min.}$ 5-2)ALLOWABLE INPUT ANGLE ACCELERATION $10000 \text{ rad/s}^2$ 5-3)MOMENT OF INERTIA $6.3 \times 10^{-4} \text{ kg} \cdot \text{m}^2$ 5-4)WEIGHT APPROX. $0.2 \text{ kg}$ (SENSOR, WITHOUT CABLE) APPROX. $0.6 \text{ kg}$ (GEAR) 5-5)AIR GAP $0.15 \pm 0.1 \text{ mm}$				
	[6]ENVIRONMENTAL SPECIFICATION	6-1)VIBRATION RESISTANCE $98 \text{ m/s}^2$ (10~2000 Hz 2 HOURS EACH IN X, Y, Z DIRECTIONS) 6-2)SHOCK RESISTANCE $196 \text{ m/s}^2$ (11 ms, 2 TIMES EACH IN X, Y, Z DIRECTIONS) 6-3)OPERATING TEMPERATURE $0 \sim +85 \text{ }^\circ\text{C}$ 6-4)STORAGE TEMPERATURE $-20 \sim +90 \text{ }^\circ\text{C}$ 6-5)CONSTRUCTION IP54 6-6)HUMIDITY 95 %RH (+40 °C, 8 HOURS)				
	[7]ELECTRICAL SPECIFICATION	7-1)SUPPLY VOLTAGE $\text{DC} 5 \pm 0.5 \text{ V}$ (RIPPLE LESS THAN 3%) 7-2)CURRENT REQUIREMENT 100 mA Max. (NO LOAD) 7-3)OUTPUT CIRCUIT LINE DRIVER (RS-422A)				
	PROVIDE					
	PHOTO	26C31 <span style="float: right;">(和文 5 S P - 0 0 8 1)</span>				
	WARE:H	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING No.	
	JUL. 9. 1999	JUL. 9. '99	JUL. 9. '99	5 S P - 0 0 8 1		
	H. Kanno	K. Shibuya	M. Yamashita			

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CUSTOMER SUPPORT Dept.

5 S P - 0 0 8 1

2  
3

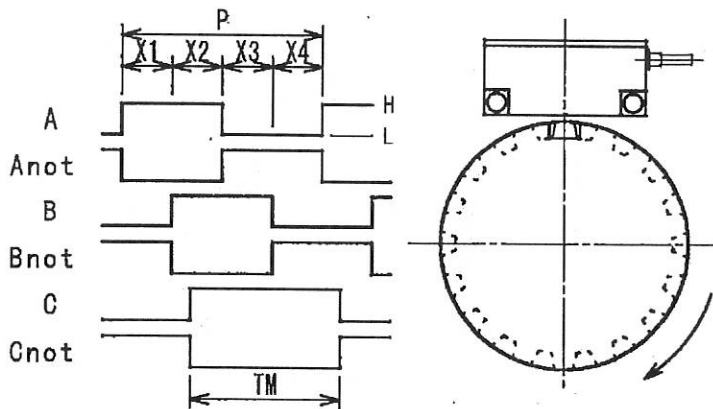
TITLE	REV.	REVISIONS	DATE	REVISED	APPROVED

- 7-4) OUTPUT VOLTAGE [H]  $\geq 2.4 \text{ V}$  ( $V_{cc}=4.5 \text{ V}$ )
- 7-5) OUTPUT VOLTAGE [L]  $\leq 0.4 \text{ V}$  ( $V_{cc}=5.5 \text{ V}$ )
- 7-6) RISE/FALL TIME  $\leq 100 \text{ nS}$  (CABLE 1 m END)  
@ 18000
- 7-7) FREQUENCY RESPONSE (A, B, C)  $0 \sim 42000 \text{ r/min.}$
- 7-8) BY-PASS CAPACITOR  $0.15 \mu\text{F}$   
(CONNECTED BETWEEN 0 V, +5 V AND CASE)

REFERENCE  
ONLY

[8] OUTPUT WAVEFORM AND DIVISION ACCURACY

- 8-1) PITCH  $1.0T \pm 0.2T$  ( $T=360^\circ/1024$ )
- 8-2) SYMMETRY  $X1+X2=0.5T \pm 0.2T$   
 $X2+X3=0.5T \pm 0.2T$
- 8-3) PHASE SHIFT  $X_n \geq 0.09T$  ( $n=1, 2, 3, 4$ )
- 8-4) SIGNAL WIDTH OF C CHANNEL  $T_M=0.5 \sim 4T$   
(POSITIONAL RELATIONSHIP OF A&B CHANNELS  
AND C CHANNEL IS NOT SPECIFIED)



THIS FIGURE SHOWS THE WAVEFORMS WHEN A GEAR IS ROTATED CW VIEWING INDEX SLIT SIDE.

PROVIDE

PHOTO

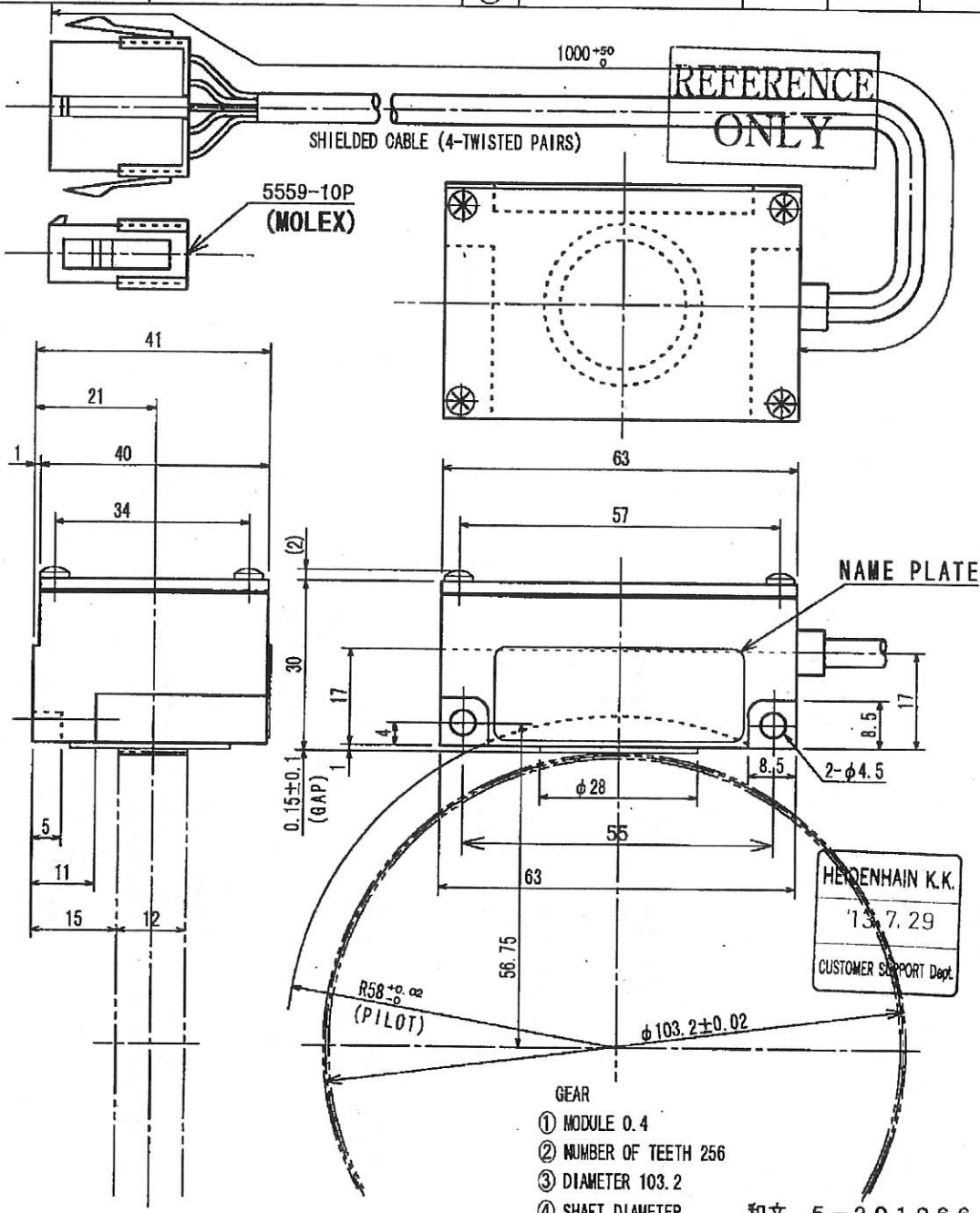
HEIDENHAIN K.K.  
'13. 7. 29  
CUSTOMER SUPPORT Dept.

WARE.H.	DRAWN BY JUL. 9. 1999 H. Kanno	CHECKED BY Jul. 9. '99 K. Chibuya	APPROVED BY Jul. 9. '99 M. Yamashita	SSUMITAK	DRAWING No. 5 S P - 0 0 8 1	2 3
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TITLE	REV.	REVISIONS	DATE	REVISED	APPROVED																																															
<div style="float: left; width: 50px; text-align: center;">1800-SSS</div> <div style="float: right; width: 50px; text-align: center;">3</div> <p>[9]CABLE AND CONNCTION</p> <p>9-1)CABLE                    5GP-0023                                   (4-TWISTED PAIRS, PACKAGE SHIELD)</p> <p>9-2)CABLE LENGTH        1000 <math>\begin{smallmatrix} +50 \\ 0 \end{smallmatrix}</math> mm</p> <p>9-3)CABLE DIAMETER     <math>\phi</math> 5 mm</p> <p>9-4)CONNECTOR            5559-10P (MOLEX)</p> <p>9-5)MATCHING CONNECTOR 5559-10R 1PC (MOLEX)       (ATTACHED)        5556 T2L 10 pcs (MOLEX)</p> <p>9-6)CONNECTION</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>PIN No.</th> <th>SIGNAL</th> <th>SYMBOL</th> <th>COLOR OF CABLE</th> </tr> </thead> <tbody> <tr><td>1</td><td>+5 V</td><td>Vcc</td><td>WHITE</td></tr> <tr><td>2</td><td>0 V</td><td>0 V</td><td>BLACK</td></tr> <tr><td>3</td><td>A</td><td>PCA</td><td>RED</td></tr> <tr><td>4</td><td><math>\bar{A}</math></td><td>*PCA</td><td>PINK</td></tr> <tr><td>5</td><td>B</td><td>PCB</td><td>GREEN</td></tr> <tr><td>6</td><td><math>\bar{B}</math></td><td>*PCB</td><td>BLUE</td></tr> <tr><td>7</td><td>C</td><td>PCC</td><td>YELLOW</td></tr> <tr><td>8</td><td><math>\bar{C}</math></td><td>*PCC</td><td>ORANGE</td></tr> <tr><td>9</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>10</td><td>-</td><td>SS</td><td>SHIELD</td></tr> </tbody> </table> <p style="text-align: center;">※SHIELD IS NOT CONNECTED TO THE CASE.</p> <p>[10]WARRANTY SUMTAK WARRANTS ITS NEW PRODUCTS AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP UNDER NORMAL USE AND SERVICE FOR PERIOD OF ONE (1) YEAR FROM THE DATE OF ORIGINAL SHIPMENT.</p> <div style="text-align: right; margin-top: 20px;"> <table border="1" style="border-collapse: collapse;"> <tr><td style="padding: 2px;">HEIDENHAIN K.K.</td></tr> <tr><td style="text-align: center; padding: 2px;">'13. 7. 29</td></tr> <tr><td style="padding: 2px;">CUSTOMER SUPPORT Dept.</td></tr> </table> </div>	PIN No.	SIGNAL	SYMBOL	COLOR OF CABLE	1	+5 V	Vcc	WHITE	2	0 V	0 V	BLACK	3	A	PCA	RED	4	$\bar{A}$	*PCA	PINK	5	B	PCB	GREEN	6	$\bar{B}$	*PCB	BLUE	7	C	PCC	YELLOW	8	$\bar{C}$	*PCC	ORANGE	9	-	-	-	10	-	SS	SHIELD	HEIDENHAIN K.K.	'13. 7. 29	CUSTOMER SUPPORT Dept.					
PIN No.	SIGNAL	SYMBOL	COLOR OF CABLE																																																	
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				5SP-0081	3/3																																															

DRAWING NO.  
5-201066

CONNECTION DRAWING NO.	MARK	REVISIONS	DATE	REVISED BY	APPROVED BY
	○				
	○				
	○				



HERDENHAIN K.K.  
13.7.29  
CUSTOMER SUPPORT Dept.

PROVIDE				
PHOTOGRAPH				
WAREHOUSING				

D	C	B	A	DWG. NO. . TYPE. NORM.	NAME OF PART	MATERIAL	DIMENSIONS	REMARKS
				TYPE	DRAWN BY		CHECKED BY	
				MSK-015-1024-00	DESIGNED BY		APPROVED BY	
CONNECTION CONTENTS				SUMITAK CO., LTD.		UNITS		3RD. ANGLE PROJECTION
						mm		
SCALE				TITLE		DRAWING NO.		
1 / 1				MAGNETIC ENCODER EXTERNAL VIEW		5-201066		