

Manual

IGS Incremental Encoder



Applications

- Speed and position feedback for high-speed spindles, motors, CNC machines

General Information

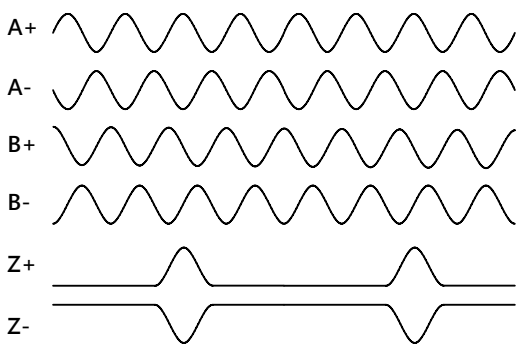
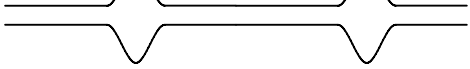
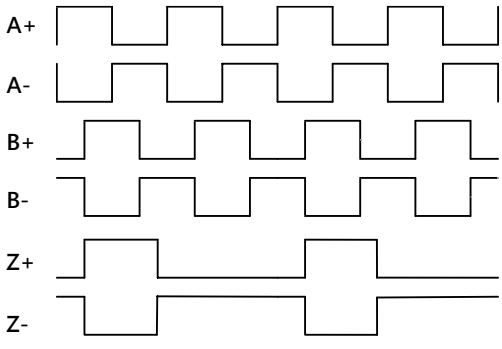
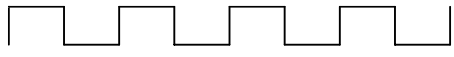
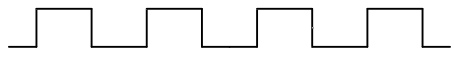
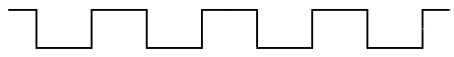
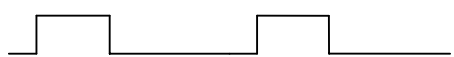
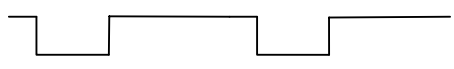
- Contactless scanning of rotating position and speed.
- Compact design for used in limited space.
- Contact free detection without any mechanical wear problem.
- High protecting class IP68.
- Sensing gear wheel from module 0.3 ~ 0.8
- High response, up to 100,000 rpm
- Customized according to dimensions.
- The MIS3 3rd generation sensor added auto-calibration and speed distribution chart function by connecting to the PST-06A Signal Analyzer.

■ Specification

Technical data	1 Vpp (A)	TTL (T)
Power supply Vcc (DCV)	5 V $\pm$ 5%	5 V $\pm$ 5%
Load current (open output)	$\leq$ 60 mA	$\leq$ 60 mA
VOH (open -output)	N/A	$\geq$ 2.5 V
VOL (open -output)	N/A	$\leq$ 0.5 V
Output signal type	Differential Analog (1 Vpp)	RS 422 (TTL)
Max. frequency	150 KHZ	500 KHZ
Output signal amplitude	$\geq$ 1 Vpp	N/A
A 、 B phase shifting	$\leq 90 \pm 10^\circ$	$\leq 90 \pm 25^\circ$
Sensing gap	0.15 $\pm$ 0.03 mm	0.15 $\pm$ 0.03 mm
Weight (with 1m wire)	Standard head 110g $\pm$ 5% ; Mini head 90 $\pm$ 5% ; MIS3 105 $\pm$ 5%	

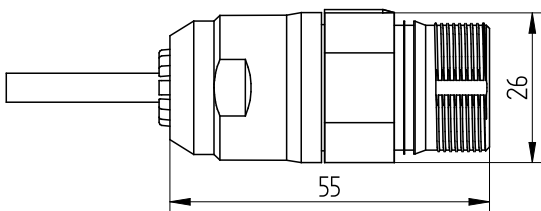
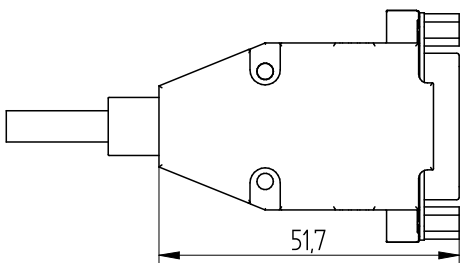
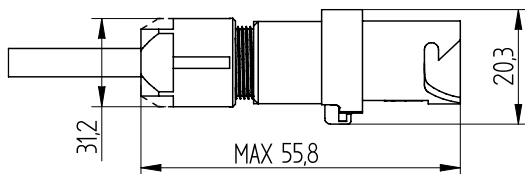
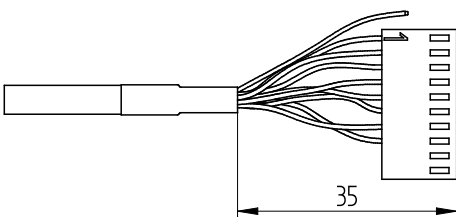
Electrical testing	
EMC/EMI	EN 61000-6-1 ; EN 61000-6-2 /EN 61000-6-3 ; EN 61000-6-4
Protection	IP 68 (IEC 60529)
Vibration	200 m/ s ² , 55Hz to 2000Hz (EN 60068-2-6)
Shock	2000 m/ s ² , 6ms (EN 60068-2-27)
Operating temperature	-20°C ~ 120 °C

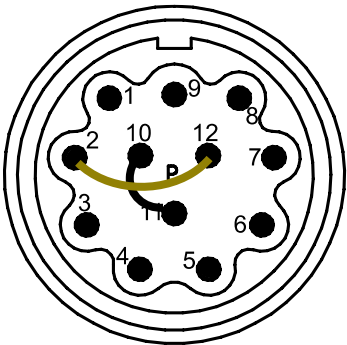
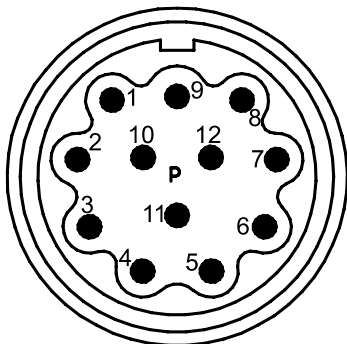
■ Signal diagram

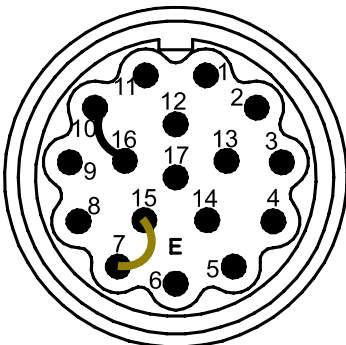
1 Vpp (A)	TTL (T)
 <p> A+  A-  B+  B-  Z+  Z-  </p>	 <p> A+  A-  B+  B-  Z+  Z-  </p> <p> 2, 4, 8, 16 interpolation Ex. 4 folds interpolation sensor head with 256T sensor gear : 1024 pulses TTL signal </p>

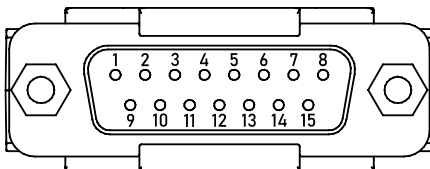
■ Dimension & Installation

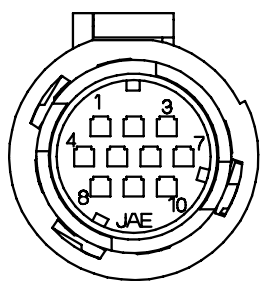
	Standard (SI)	Mini (MI)
Encoder Dimension		
Installation		
Cable Outlet	 Axial	 Axial Right (R)

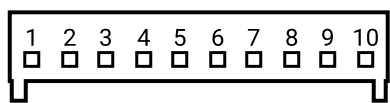
Connector type	code	
M23 12 Pin / 17 Pin	E12 / E17	
D-SUB 15 Pin	D	
JAE 10 Pin	P	
Open-end	N	

M23 12 Pin				
1Vpp (A)	Pin	Signal	Color	TTL (T)
	1	B-	red	
	2	sensor +	-	
	3	Z+	grey	
	4	Z-	pink	
	5	A+	green	
	6	A-	yellow	
	7	-	-	
	8	B+	blue	
	9	-	-	
	10	0V	white	
	11	sensor -	-	
	12	+ 5V	brown	
	cover	GND	shielding	

M23 17 Pin	Pin	Signal	Color
	1	A+	green
	2	A-	yellow
	3	Z+	grey
	4	-	-
	5	-	-
	6	-	-
	7	0V	white
	8	-	-
	9	-	-
	10	+ 5V	brown
	11	B+	blue
	12	B-	red
	13	Z-	pink
	14	-	-
	15	sensor -	-
	16	sensor +	-
	17	-	-
	cover	GND	shielding

D-SUB 15 Pin	Pin	Signal	Color
	1	+ 5V	brown
	2	0V	white
	3	A+	green
	4	A-	yellow
	5	-	
	6	B+	blue
	7	B-	red
	8	-	
	9	-	
	10	Z+	grey
	11	-	
	12	Z-	pink
	13	-	
	14	-	
	15	-	
	cover	GND	shielding

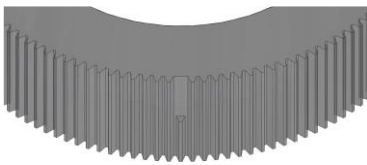
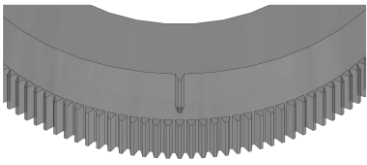
JAE 10 Pin Model: JN1HS10PL3	Pin	Signal	Color
	1	B+	blue
	2	B-	red
	3	GND	shielding
	4	+ 5V	brown
	5	A+	green
	6	A-	yellow
	7	0V	white
	8	Z+	grey
	9	Z-	pink
	10	-	

Open-end	Pin	Signal	Color
	1	A+	green
	2	A-	yellow
	3	+ 5V	brown
	4	0V	white
	5	B+	blue
	6	B-	red
	7	Z+	grey
	8	Z-	pink
	9	-	
	10	-	

Encoder model

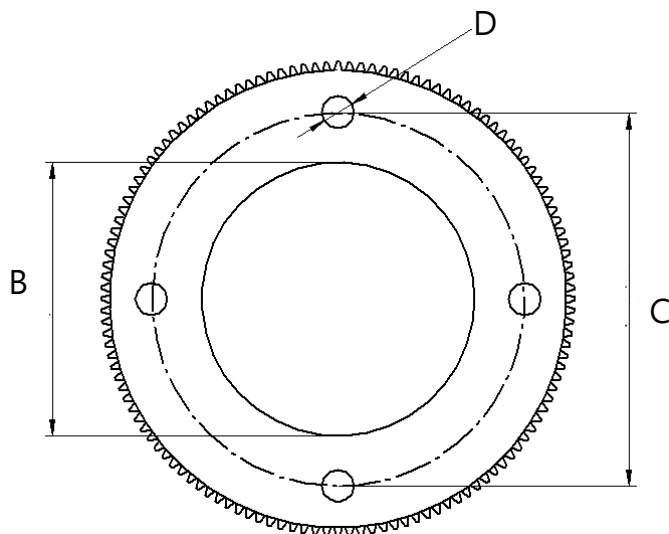
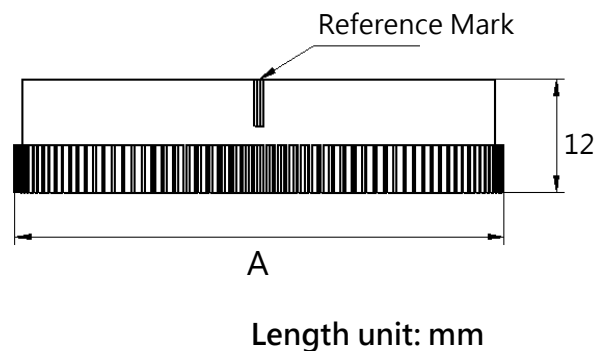
Encoder type code	
GS XX - X - XX - XX - X - X - X - XX - X (1) (2) (3) (4) (5) (6) (7) (8) (9)	
(1)	Module 03 : 0.3 ; 04 : 0.4 ; 05 : 0.5 ; 08 : 0.8
(2)	Signal type A : 1 Vpp T : TTL / RS422
(3)	Interpolation 01 : 1 , For 1 Vpp & TTL 02 : 2 , For TTL only 04 : 4 , For TTL only 08 : 8 , For TTL only 11 : 1 , For 1 Vpp signal control
(4)	Encoder Dimension MI : Mini SI : Standard
(5)	Cable Lenth S : 1 m L : 3 m
(6)	Functional version - : Signal measurement 3 : Signal measurement, Auto-calibration, Speed distribution chart (1 Vpp output type only)
(7)	Connectors E12 : M23 12 Pin E17 : M23 17 Pin P : JAE 10 Pin D : D-sub 15 Pin N : open-end
(8)	Reference mark of gear STD : gap FR : flag
(9)	Cable outlet - : Axial R : Right (Mini type only)

Sensing gear code	
M X XXX - XXX - XXX (1) (2) (3) (4)	
(1)	Module: 3 : module 0.3 (flag only) 4 : module 0.4 5 : module 0.5
(2)	Teeth: 128 : 128 teeth 256 : 256 teeth 384 : 384 teeth 512 : 512 teeth
(3)	Inner diameter (mm) Ex. 125
(4)	Reference mark: STD : gap FR : flag

Reference mark	Image
STD	
FR	

Gear Selection Table

Specification	OD (A)	ID (B)	PCD (C)	Mounting Hole Diameter (D)	Number of teeth
Module 0.3					
M3 720-160	216.6	160 $+0.02/-0$	175	5.5	720
M3 512-130	154.2	130 $+0.02/-0$	140	4.5	512
M3 512-125	154.2	125 $+0.02/-0$	140	4.5	512
M3 512-120	154.2	120 $+0.02/-0$	140	4.5	512
M3 384-82	115.8	82 $+0.02/-0$	92	4.5	384
Module 0.4					
M4 512-180	205.6	180 $+0.02/-0$	194.4	4.5	512
M4 384-125	154.4	125 $+0.02/-0$	140	4.5	384
M4 384-108	154.4	108 $+0.02/-0$	120	4.5	384
M4 256-82	103.2	82 $+0.02/-0$	92	4.5	256
M4 192-60	77.6	60 $+0.02/-0$	68	3.5	192
M4 192-50	77.6	50 $+0.02/-0$	64	3.5	192
M4 128-35	52	35 $+0.02/-0$	43	3.5	128
M4 128-30	52	30 $+0.02/-0$	41	3.5	128
Module 0.5					
M5 256-95	129	95 $+0.02/-0$	112	4.5	256
M5 128-50	65	50 $+0.02/-0$	57	3.5	128
M5 128-40	65	40 $+0.02/-0$	53	4.2	128
M5 64-20	33	20 $+0.02/-0$	25.2	3.5	64



GUBOA Technology Co., Ltd reserves the right to make technical alterations without prior notice.
For more information, please visit www.guboa.com