

AAM 33 M SSI - BISS - RS485 MULTITURN ABSOLUTE KIT ENCODER

MAIN FEATURES

Miniaturized multiturn absolute kit encoder for high end application. Thanks to high speed interfaces and high resolution it can be used in robotics, motor feedback and CNC machines.

- · Magnetic sensor technology (Patented Energy Harvesting)
- \cdot 42 bit total resolution (18 bit single turn + 24 bit multiturn)
- \cdot $\,$ Power supply up to +12 VDC with several serial interfaces
- \cdot Connector output
- Hub shaft M3 or M4
- Operating temperature -40° ... +115°C (-40° ... +239°F)









ORDERING CODE	AAM	33M	24	/ 18	B	5	S	M3	Х	LR	. 162
SE multiturn absolute encoder	ERIES er AAM										
kit encoder s	size 33 r	MODEL mm 33M									
N	NULTITU	RN RESOL	UTION bit 24								
	SI	INGLETUR	N RESO	LUTION							
				CC	DE TYPE						
					POWEI	SUPPLY					
					7 12 \	/ DC 7/12	FERENCE				
				Sorial	ELEU	FIRICAL IN	BiSS-C B				
				Serial	Synchrono	RS-48	se - SSI S S RS485				
							HUE M3 s	crew M3			
							IVI4 S	NCLOSUR	E RATING		
									IP 00 X OUTF	PUT TYPE	
								I	radial conr	nector LR	VARIANT
									wihout ma	ting conne	ector 162



885-2020

MAGNETIC MULTITURN ABSOLUTE ENCODERS | AAM 33 M SSI - BISS - RS-485



RECOMMENDED MOTOR INTERFACE FLANGE DESIGN



RECOMMENDED MOTOR SHAFT DESIGN M3 SCREW



dimensions in mm, unless otherwise specified, all tolerances are within ± 0.5 mm. D0 NOT USE FERRO-MAGNETIC SHAFT FOR THE MOTOR

M4 SCREW





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ELECTRICAL SPECIFICATIONS				
Multiturn resolution	24 bit			
Singleturn resolution	18 bit			
Power supply ¹	5 = 4,5 5,5 V DC 7/12 = 7 12,5 V DC			
Current consumption without load	65 mA max (5V model) 55 mA max (7/12V model)			
Electrical interface ²	SSI / BiSS: RS-422 RS-485 half duplex			
Auxiliary inputs (RESET)	active high (+V DC) connect to GND if not used / RESET $t_{\mbox{min}}$ 100 ms			
Clock frequency	SSI: 100 kHz 2 MHz BiSS: 50 kHz 10 MHz RS-485: 2,5 / 5 / 10 MHz			
Code type	binary			
SSI monostable time (Tm)	20 µ s			
SSI pause time (Tp)	21 µs			
RS485 frame	10 bit/frame jitter 100 ns			
Temperature sensor BiSS / RS-485	resolution 1° calculation time 100ms			
Start-up time	500 ms			
Accuracy with electrical correction ³	± 0,087°			
Electromagnetic compatibility	according to 2014/30/EC directive			
RoHS	according to 2011/65/EU directive			

MECHANICAL SPECIFICATI	UN2				
Hub screw	M3 or M4				
Enclosure rating	IP 00 (IEC 60529)				
Max rotation speed ⁴	12000 rpm				
Shock	200 G, 6 ms half sine (IEC 60068-2-27)				
Vibration	10 G, 10 2000 Hz (IEC 60068-2-6)				
Hub material	rass EN-CW614N / plastic				
Operating temperature ⁵	-40° +115°C (-40° +239°F)				
Storage temperature ⁵	-40° +115°C (-40° +239°F)				
Relative air humidity	90% RH				
non-condensing	T=+60°C (+140°F)				
Shaft radial play allowed	± 0,2 mm				
Shaft axial play allowed	± 0,2 mm				
Weight	100 g (3,53 oz)				
 ¹ as measured at the transducer without cable influences ² for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section ³ under recommended magnetic shielding enclosure and calibration at ambient +25°C / +77°F ⁴ encoder works reliably up till this permissible speed ⁵ measured on the transducer flange 					

CONNECTIONS			
Pin	SSI	BiSS C	RS-485
1	GROUND	GROUND	GROUND
2	+ V DC	+ V DC	+ V DC
3	CLOCK -	CLOCK (MA) -	/
4	CLOCK +	CLOCK (MA)+	/
5	DATA -	DATA (SLO) -	DATA -
6	DATA +	DATA (SLO) +	DATA +
7	UART RX ¹	/	/
8	UART TX1	/	/
9	RESET	/	/
10	GROUND	GROUND	GROUND



$^{\rm 1}\,{\rm used}$ for calibration only

Recommended mating connector: Hirose Part No: DF13-10S-1.25C (CL No.536-0006-8) / Hirose (terminal pin for wire 26~30AWG): DF13-2630SCF (CL No.536-0300-5)

MAGNETIC SHIELD DESIGN GUIDELINES

In order to eliminate or minimize the influence of external magnetic field interference on encoder operation, use of shielding is mandatory. A recommended design of shielding made of 1.2mm mild steel (SPCC) is given in figure below.



Shield requirements Minuimun thickness: 1.2 mm / Material: ferro-magnetic

Note:

Please consider that external magnetic interference varies by the application and operating environment, a proper study of external magnetic field and appropriate shield design is needed. Please directly contact our offices for technical assistance.



