Absolute angle encoder

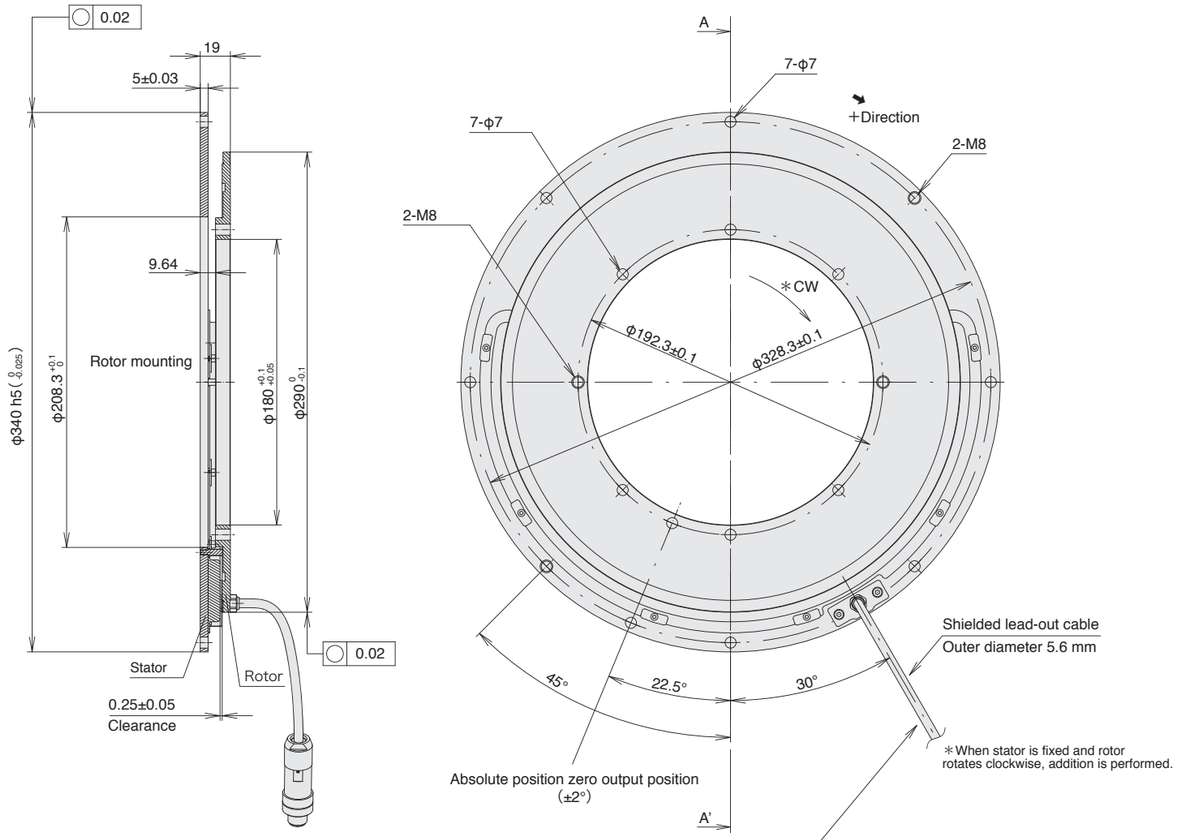
Exposed type

RS97-1024N

- Enables direct communication using the protocol of each supporting manufacturer without the requirement of an amplifier
- Magnetic system enables use even in environments with condensation, oil, and other adverse conditions
- 180mm diameter through-hole allows for design and mounting flexibility
- Dual head configuration reduces the effect of axial runout

FANUC | Mitsubishi Electric | SIENEMS

Dimensions



Section A-A'

Please contact us for inquiries about RS97-1024N model.

FANUC / Mitsubishi Electric
R20 (without repeated bending)
R50 (with repeated bending)
Outer diameter Φ7.8mm

SIEMENS AG
R10 (without repeated bending)
R50 (with repeated bending)
Outer diameter Φ5.6mm

Unit: mm

Specifications

Model name	RS97-1024NGA	RS97-1024NGD	RS97-1024NGZ
Output wave number	1,024 waves/revolution		
Through hole diameter	φ180 mm		
Accuracy(at 20°C)	±2.5"		
Output signal	Absolute serial bidirectional signal, compliant with EIA-485		Compliant with DRIVE-CLiQ
Compatible controllers	FANUC	Mitsubishi Electric	SIEMENS AG
Resolution	23 bits (8,388,608 pulses/revolution)		
Maximum response revolutions	5,000 min^{-1}		
Functional Safety	Please consult with each controller manufacturer regarding support for functional safety.		EN ISO13849-1:2008 Cat.3 EN 62061:2005 / IEC 61508:2010 EN61800-5-2:2007
Legal compliance	FCC Part15 Subpart B Class A ICES-003 Class A Digital Device EN55011 Gp1 Class A, EN61000-6-2		
Operating temperature range	0 to +60°C		
Storage temperature range	-10 to +60°C		
Vibration resistance	150 m/s^2 (50 Hz to 2,000 Hz)		
Impact resistance	1,000 m/s^2 (11 ms)		
Protective design grade	IP65		
Power supply voltage range	DC+4.75 to +5.25 V		DC+17 to +30.8 V
Maximum consumption current	1.35W or less (4.75V) 1.3W or less (5.25V)		2.5W or less (17V) 3.2W or less (30.8V)
Consumption current	260mA (5V) (when the controller is connected)		120mA (24V) (when the controller is connected)
Output connector	JN1HS10PL2 made by Japan Aviation Elecronics Industry		SACC-M12MS-8Q H made by Phoenix Contact
Moment of inertia	8.8× 10^{-3} kgm^2 or less		
Mass	Approx. 3.4kg (rotor: 0.6kg/ stator: 2.8kg) or less		
Compatible cables (types without relay connectors) Maximum cable length	CH23-***NPFA 30 m	CH23-***NPMA 30 m	CH22-***NSFY 30 m
Compatible cables (types with relay connectors) Maximum cable length	CH23-***NPKA + CH23-***NPFA 30 m	CH23-***NPKA + CH23-***NPMA 30 m	CH22-***NSFF + CH22-***NSFY 30 m

*Magnescale reserves the right to change product specifications without prior notice.

Details of model designation

Scale

RS97-1024N G △ ■■

[N]Rotor inner diameter
180 mm

[G]Resolution
23 bit

[△]Communication protocol

Type	NC manufacturer	Remarks
A	FANUC	α interface
D	Mitsubishi Electric	4-wire
Z	SIEMENS AG	DRIVE-CLiQ

[■■]Head cable length

Type	Head cable length
01	1 m
02	2 m
03	3 m

Cables

CH22- □□□ ○ ▽ ※ #

[□□□]Cable length
Written by flush right, indication in "m" units, up to 30 m, 0.5 m pitch
(Example)

Type	Cable length
010	1.5m
070	7m
260	26m

[○]Conduit specification

Type	Conduit specification
C	With conduit
N	Without conduit (standard)

【▽】Cable seath (covering)

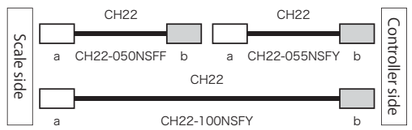
Type	Cable specification
S	PU (Polyurethane, Siemens Motion connect 800+)

【※】Scale side connector

Type	Specification	Remarks
M	Scale head connector	Standard
F	M12 connector (Female) made by Phoenix Contact	Relay/ Waterproofing
E	M12 connector (Female) made by Phoenix Contact	Relay/ Waterproofing/ Attatched connector

【#】Controller side connector

Type	Specification	Remarks
None	Open-end	
Y	RJ45 connector made by YAMAICHI ELECTRONICS	Adopts NC machine tool
Z	RJ45 connector (water proof) made by YAMAICHI ELECTRONICS	Relay
F	M12 connector (Male) made by Phoenix Contact	Relay/ Waterproofing



CH22-050NSFF
example)
Cable length 5m
Without conduit
PU sheath
Scale side connector
M12 (Female) made by Phoenix Contact
Controller side connector
M12 (Male) made by Phoenix Contact

CH22-100NSFY
example)
Cable length 10m
Without conduit
PU sheath
Scale side connector
M12 (Female) made by Phoenix Contact
Controller side connector
RJ45 made by YAMAICHI ELECTRONICS

CH22-055NSFY
example)
Cable length 5m
Without conduit
PU sheath
Scale side connector
M12 (Female) made by Phoenix Contact
Controller side connector
RJ45 made by YAMAICHI ELECTRONICS

CH23- □□□ ○ ▽ ※ #

[□□□]
Cable length
(Example)

Type	Cable length
010	1m
005	0.5m
065	6.5m
100	10m

[○]Conduit specification

Type	Conduit specification
C	With conduit(standard)
N	Without conduit

【※】Controller side connector

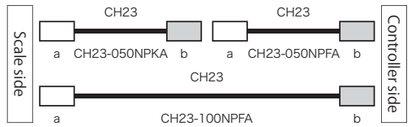
Type		Specification	Remarks	
Without	With			
Z	-	Earth wire		
		Open-end	Scale side connector should be 10P JN2 (Female) made by Japan Aviation Electronics Industry or 2P made by TAJIMI ELECTRONICS	
None	-	Standard		
M	-	10P made by Sumitomo 3M		Mitsubishi NC, J3 (INC serial, ABS)
F	Q	20P straight case made by Honda Tsushin Kogyo		FANUC (INC serial, ABS)
J	S	Horizontal drawing case made by HIROSE Electric		FANUC (INC serial, ABS)
K	-	10P JN1 (Male) made by Japan Aviation Electronics Industry		Relay
N	-	12P R04 (Male) made by TAJIMI ELECTRONICS		Relay (fixed)

[▽]Cable sheath

Type	Cable specification
V	PVC(Φ6.8) [Scale side]
P	PVC(Φ8) [Controller side]
E	PU(Φ8) [Controller side]

【#】Scale side connector

Type	Specification	Remarks
None	Original of Magnescale	Standard
A	10P JN2 (Female) made by Japan Aviation Electronics Industry	Relay
C	12P R04-9125JF8.5 made by TAJIMI ELECTRONICS	Relay (fixed)



CH23-050NPKA
example)
Cable length 5m
Without conduit
PVC sheath(Φ8)
Scale side connector
10P JN1 (Female) made by Japan Aviation Electronics Industry
(Female) Controller side connector
10P JN2 (Male) made by Japan Aviation Electronics Industry

CH23-100NPFA
example)
Cable length 10m
Without conduit
PVC sheath(Φ8)
Scale side connector
10P JN1 (Female) made by Japan Aviation Electronics Industry
Controller side connector
20P made by Honda Tsushin Kogyo

CH23-050NPFA
example)
Cable length 5m
Without conduit
PVC sheath(Φ8)
Scale side connector
10P JN2 (Female) made by Japan Aviation Electronics Industry
Controller side connector
20P made by Honda Tsushin Kogyo