

Absolute angle encoder
Enclosed type

RU77-4096A



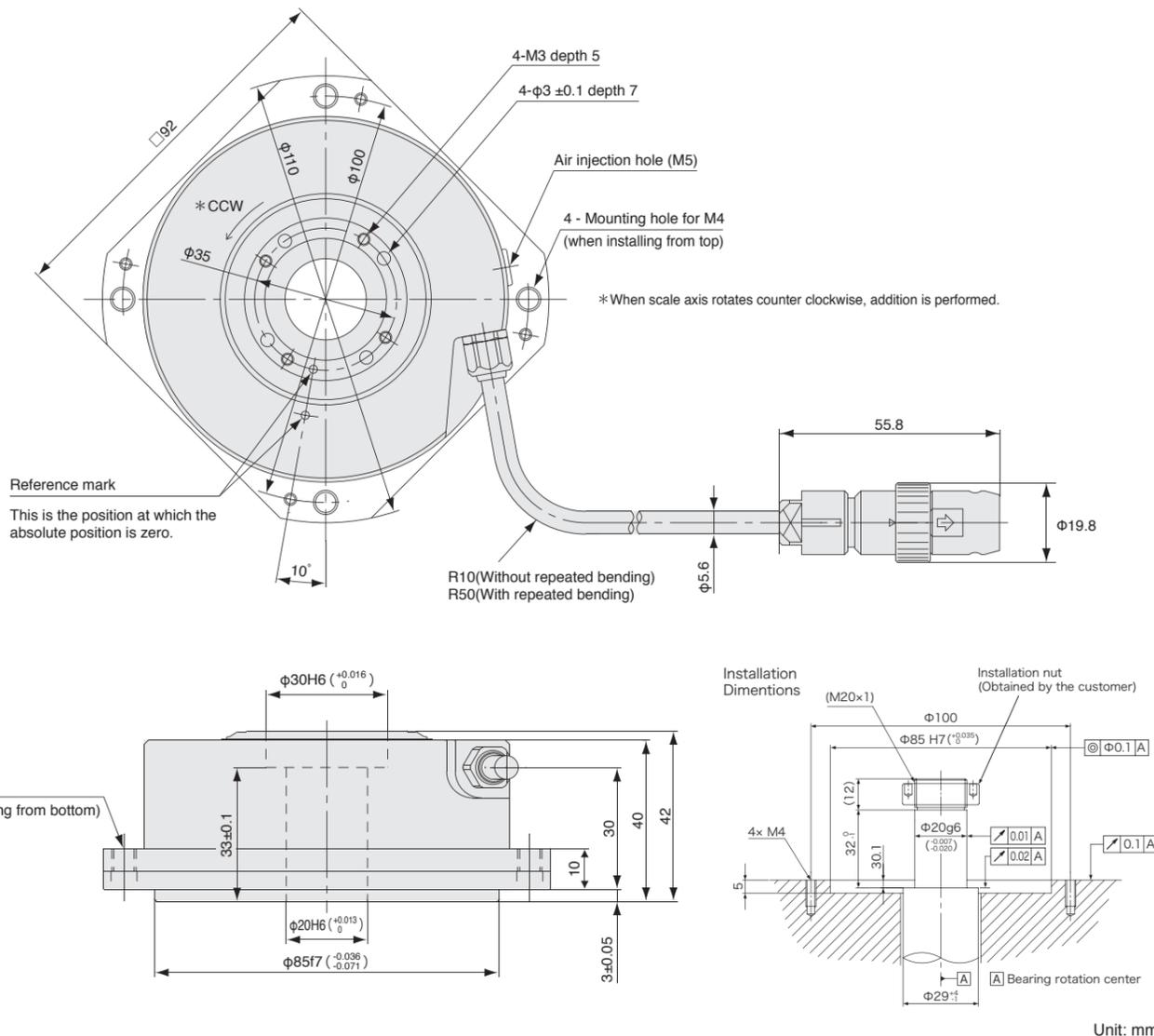
- Magnetic system enables use even in environments with condensation, oil, and other adverse conditions
- Enables direct communication using the protocol of each supporting manufacturer without the requirement of an amplifier
- Internal coupling allows for design and mounting flexibility

FANUC

Mitsubishi Electric

Yaskawa Electric

Dimensions



Specifications

Model name	RU77 - 4096A□A	RU77 - 4096A□B RU77 - 4096A□D	RU77 - 4096A□F
Output wave number	4,096 waves/revolution		
Through hole diameter	φ20 mm		
Accuracy(at 20°C)	±2.5"		
Output signal	Absolute serial bidirectional signal, compliant with EIA-485		
Compatible controllers	FANUC	Mitsubishi Electric	Yaskawa Electric
Maximum resolution	25bit (33,554,432 pulse/revolution)		21bit (2,097,152 pulse/revolution)
Maximum response revolutions	2,000 min ⁻¹		
Maximum mechanical revolutions	3,000 min ⁻¹		
Functional safety	-		
Legal compliance	FCC Part15 Subpart B Class A and ICES-003 Class A Digital Device and EN55011 Gp 1 Class A, EN 61000-6-2 Safety standards not applicable (60 V DC or less)		
Operating temperature range	0 to +60°C		
Storage temperature range	-10 to +60°C		
Vibration resistance	150 m/s ² (50 Hz to 2000 Hz)		
Impact resistance	1,000 m/s ² (11 ms)		
Protective design grade	IP65		
Power supply voltage range	DC4.75-5.25 V (with connecting terminal)		
Consumption current	200mA (at 120Ω termination)		
Moment of inertia	9.4×10 ⁻⁵ kgm ² or less		
Starting torque (at 20°C)	0.1 Nm or less		
Mass	Approx. 1.2kg or less		
Standard compatible cable	CH33-***, CE28-***		
Maximum cable length	CH33-*** : 30 m, CE28-*** : 15 m		

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

Details of model designation

Scale

RU77 - 4096A□□★□□

[□]Resolution

Type	Resolution	Number of pulses/revolution	Number of partitions
A	Approx. 2.5°/1,000	131,072	1/32
B	Approx. 1°/1,000	262,144	1/64
C	Approx. 7°/10,000	524,288	1/128
D	Approx. 3.5°/10,000	1,048,576	1/256
E	Approx. 2°/10,000	2,097,152	1/512
F	Approx. 1°/10,000	4,194,304	1/1,024
G	Approx. 4.5°/100,000	8,388,608	1/2,048
H	Approx. 2°/100,000	16,777,216	1/4,096
J	Approx. 1°/100,000	33,554,432	1/8,192

*Yaskawa Electric: D,F

[★]Connector

Connector	Description	Remarks
Plastic water proofing(Male)	J	main cable length Max.1m, extension cable : CH33 ※Max cable length(main+extension) : 30m
Metal water proofing(Male)	G	main cable length Max.9m, extension cable : CE28 ※Max cable length(main+extension) : 15m

[△]Communication protocol

Type	Number of wires	NC manufacturer
A	4-wire	FANUC α interface
B	2-wire	Mitsubishi Electric
D	4-wire	Mitsubishi Electric
F	2-wire	Yaskawa Electric

[○○]Cable length

Type	Cable length
10	1m

CH33 - □□□□▽※#

[□□]Cable length
Written by flush right,
indication in "m" units,
up to 30 m, 1 m pitch

(Example)

Type	Cable length	Type	Conduit
07	7m	C	With conduit (standard)
26	26m	N	Without conduit

[○]Conduit

Type	Conduit
C	With conduit (standard)
N	Without conduit

Cable

CE28 - □□□□○※

[□□□]Cable length
Written by flush right,
indication in "10cm" units,
up to 14m, 1m pitch

(Example)

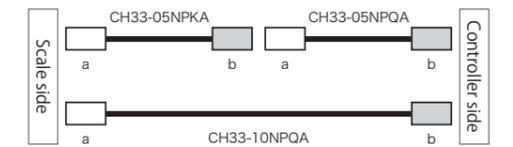
Type	Cable length	Type	Conduit
070	7m	C	With conduit (standard)
090	9m	N	Without conduit
130	13m		

[▽]Cable sheath (covering)

Type	Specification
P	PVC (Polyvinyl chloride)
E	PU (Polyurethane)

[※]Controller side connector

Type	Specification	Remarks
Without/With	Earth wire	
None	- Open-end	Standard
M	- 10P made by Sumitomo 3M	Mitsubishi NC, J3,J4 (ABS)
-	Q 20P straight case made by Honda Tsushin Kogyo	FANUC (ABS)
G	- 6P made by molex*	YASKAWA Electric(ABS)
-	S Horizontal drawing case made by HROSE Electric	FANUC (ABS)
K	- 10P JN1 (Male) made by Japan Aviation Electronics Industry	Relay



CH33-05NPKA example)	CH33-10NPQA example)	CH33-05NPQA example)
Cable length 5m Without conduit	Cable length 10m Without conduit	Cable length 5m Without conduit
Controller side connector 10P (JN1) made by Japan Aviation Electronic Industry	Controller side connector 20P made by Honda Tsushin Kogyo	Controller side connector 20P made by Honda Tsushin Kogyo
Scale side connector JN2DS10SL2-R made by Japan Aviation Electronics Industry	Scale side connector JN2DS10SL2-R made by Japan Aviation Electronics Industry	Scale side connector JN2DS10SL2-R made by Japan Aviation Electronics Industry

[#]Scale side connector

Type	Specification	Remarks
A	10P JN2(Female)made by Japan Aviation Electronics Industry	Relay

[※]Controller side connector

Type	Specification	Remarks
Without/With	Earth wire	
Without	- Open-end	Standard
M	- 10P made by Sumitomo 3M	Mitsubishi NC, J3,J4 (ABS)
F Q	20P made by Honda Tsushin Kogyo	FANUC (ABS)
G	- 6P made by molex*	YASKAWA Electric (ABS)
J	- 10P (JN1) made by Japan Aviation Electronics Industry	RU77 cable extension (standard)
K	- 10P (JN1) made by Japan Aviation Electronics Industry	RU77 cable extension (standard)