

AR-C Series

Absolute Rotary Encoder

The Model AR-C is a cost-effective rotary encoder that brings absolute position verification to the encoder marketplace. All the elements of an absolute encoder including the encoding disks, microprocessor, and interface are incorporated in this design and can be ordered with a single part number. This unique construction makes the Model AR-C extremely easy to use.

In absolute mode, users may configure the resolution from 3,048 to 16,384 discrete positions. In incremental mode, the encoder's resolution is fixed at 1,024 lines (pre-quadrature). The Model AR-C is ideal for fine positioning applications. Up to 512 complete turns provide the user with 8,388,608 discrete absolute positions.

A microprocessor is used to decode the encoder output, and make the subsequent information compatible with easy-to-use interfaces such as RS-422, RS-485C, RS-232 or parallel, BCD and binary. Up to 16 devices can be multidropped from a single RS-422 port. The microprocessor also provides for error detection, programmable scaling of resolution, and zero offsets.

The Model AR-C incorporates reliability, high resolution, and unique communications in a single, cost-effective, standalone package, or it can be directly interfaced to Compumotor Model 500, 4000, and SX-A Indexers.

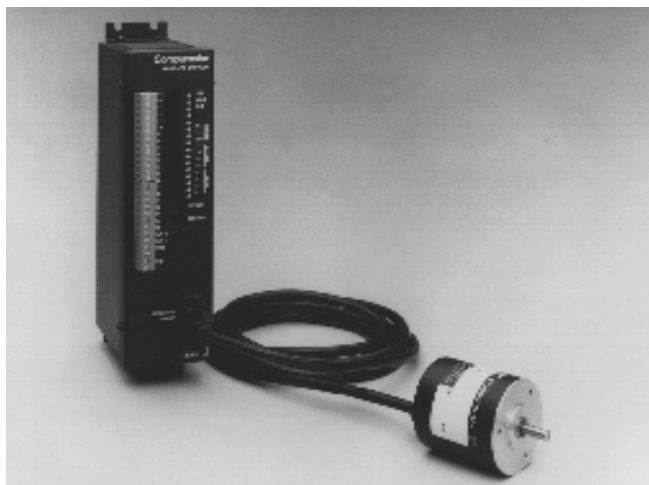
For custom cable lengths, contact Compumotor's Custom Products Group.

Features

- AR-C directly interfaces to Compumotor 500, 4000, and SX-A Indexers
- High resolution—up to 16,384 discrete positions/rev
- Multi-turn—up to 512 turns at full resolution – 8,388,608 total discrete positions
- Microprocessor decoding eliminates user decoding
- Several communication methods: Parallel BCD or binary (8- or 16-bit); RS-422C; RS-232C; RS-485C

Specifications

Parameter	Value
Mechanical	
Resolution	Absolute for up to 512 (-256 to +256) revolutions or 8,388,608 discrete positions (2 ³³) Programmable scaling is available through the microprocessor for other resolutions @16,384 ppr: ±0.0002 rev (5.3 arc-minutes)
Accuracy	Less than 1 count (16,384 counts/rev)
Repeatability	1.5 oz-in (108 gm-cm)
Starting torque	.03 oz-in ² (5.49 gm-cm ²)
Inertia	1.0 lbs (0.45 Kg)
Weight (less decoder box)	ABEC 5 shielded
Bearing rating	Radial – 3 lbs
Shaft loading	Axial – 1 lb
Speed	
Slew	5,000 rpm (higher speeds result in readings with errors in LS bits)
Max operation at full resolution (2 ¹³)	1,000 rpm
Electrical	
Input power	120 VAC ±10%, 0.5 amps
Output characteristics	TTL-compatible parallel interface (8- or 16-bit); RS-422C (9600 baud); RS-232C (9600 baud)
Encoder to Decoder Box	
Standard cable length	10 feet (armored cable available as -A option)
Maximum cable length	25 feet (contact Custom Product Group for quote)
Environmental	
Electronics head	32° to 122°F (0° to 50°C)
Operating temperature	32° to 140°F (0° to 60°C)
Storage temperature	-22° to 185°F (-30° to 85°C)

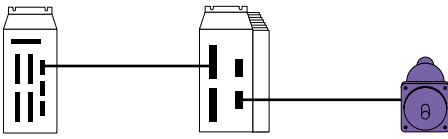


- Position offset
- Programmable distance scaling
- Multiple encoders may be multidropped via RS-422C or RS-485C
- Microprocessor monitors for errors and sensor failure

Options

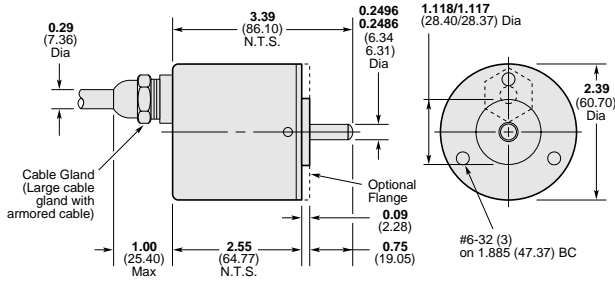
To assist in mounting, there are four options available:

- -F Flange
 - -B Size 23 stepper bracket
 - -C Size 34 stepper bracket
 - -D Size 42 stepper bracket
- Armored cable
- -A 10-foot armored cable

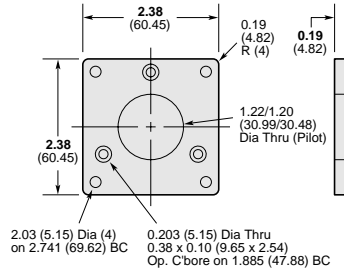


Dimensions (—) denotes millimeters

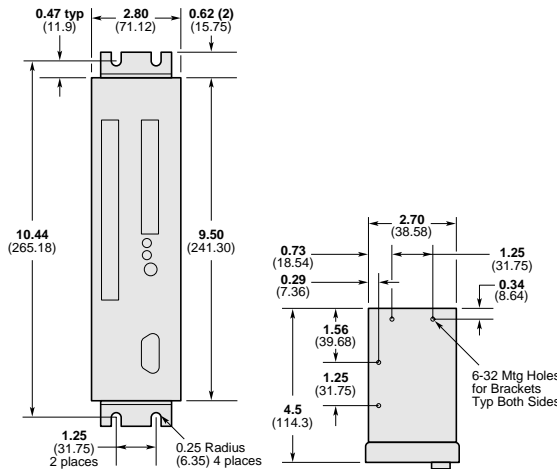
Encoder



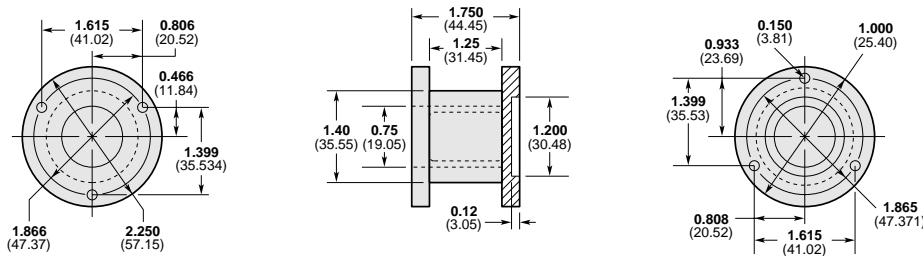
Optional Flange (-F)



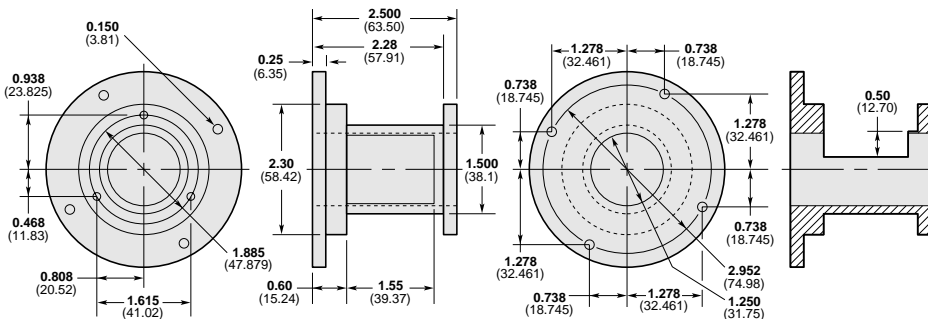
Decoder Box



-B Size 23 Stepper Motor Bracket



-C, -D Size 34/42 Stepper Motor Bracket



Model AR-C

120 VAC input

RS-232C, RS-422C,
RS-485C 8- or 16-bit
binary or BCD

Pin Out List

Pin No.	Signal
1	120 VAC line
2	120 VAC neut
3	Earth GND
4	No connection
5	No connection
6	RS232C receive
7	RS232C transmit
8	RS232C GND
9	RS422C/ RS-485C transmit -
10	RS422C/ RS-485C transmit +
11	RS422C/ RS-485C receive -
12	RS422C/ RS-485C receive +
13	Incremental A +
14	Incremental A -
15	Incremental B +
16	Incremental B -

Pin No.	Signal
1	D15
2	D14
3	D13
4	D12
5	D11
6	D10
7	D9
8	D8
9	D7
10	D6
11	D5
12	D4
13	D3
14	D2
15	D1
16	D0
17	A1
18	A0
19	DR (data request)
20	DV (data valid)
21	DE (device enable)
22	Out 1
23	Out 2
24	Opto -
25	No connection
26	GND