



Bulletin #79445-001 Rev. A

Mechanical

Outline :	See Figure 1
Mounting Requirements :	See Figure 1
Shaft Loading :	5 lb axial and 5 lb radial
Shaft Run Out :	.0005"
Starting Torque :	.5 oz-in @ 25°C
Accuracy :	± 2 min of arc (mechanical)
Bearing Life :	L ₁₀ = 2 billion revolutions
Shaft Material :	Stainless Steel
Base Material :	Aluminum
Cover Material :	Glass filled polycarbonate
Alignment - M5, M6 :	
Angular offset :	5°
Parallel Offset :	.008"
Axial Motion :	±.020"
Weight :	4.8 oz with C-flange

Electrical

Input Power :	5VDC ± 5%
Nominal Power Required :	See Table 5
Output Configuration :	See Figure 2
Output Frequency :	100 KHz (all channels)
Termination :	See Table 4 (custom lengths available)

Environmental

Operating Temperature :	-10°C to +85°C -10°C to +100°C (available on LD & VC only)
Storage Temperature :	-30°C to +110°C
Relative Humidity :	90% (Non-condensing)
Shock :	50 G's for 11ms duration
Vibration :	5-2000 Hz @ 10 G's
Encoder Package (sealing) :	Enclosure not sealed

Resolutions

Range:	5 to 2048
Currently Available:	5, 10, 50, 60, 75, 100, 104, 150, 180, 192, 200, 250, 256, 288, 300, 360, 400, 500, 508, 512, 600, 625, 720, 800, 900, 1000, 1024, 1140, 1250, 1270, 1500, 1800, 1885, 2000, 2048

All dimensions are in inches unless otherwise specified.
Product specifications subject to change without notice.

SELF-CONTAINED 2.1 INCH ENCODER



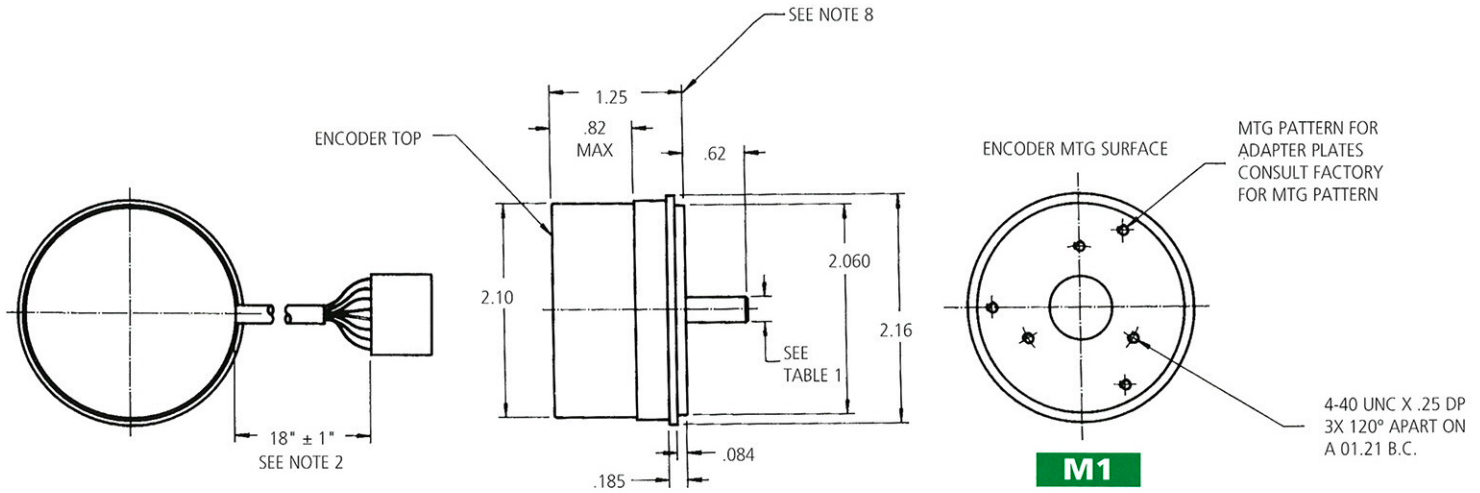
Features

- ▶ 2.1" outside diameter
- ▶ Robust 0.060" chrome-on-glass code disk
- ▶ 100 KHz frequency response
- ▶ A, B, Index with complements
- ▶ Large selection of electrical output formats
- ▶ Wide variety of index gating options
- ▶ Single LED light source for high reliability
- ▶ Differential photo transistor sensor array
- ▶ Robust metal bearing assembly
- ▶ Sealed or shielded bearings
- ▶ 1/4" output shaft standard, 3/8" optional
- ▶ Glass-filled polycarbonate cover standard
- ▶ Integral cable strain relief
- ▶ 2.1" servo mount with four hole bolt pattern on face standard
- ▶ 2.5" servo mount optional
- ▶ C-Flange mounting adapter available for use with flex-couplings

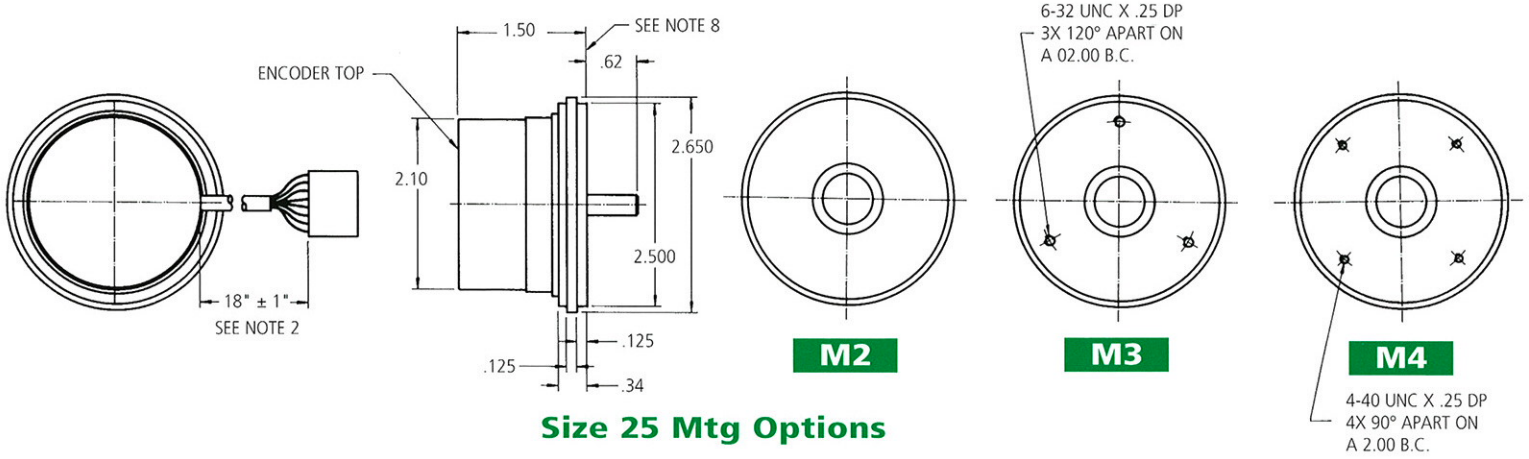
The RS Encoder family has been designed for manufacturability as well as performance, allowing them to meet the cost needs for high volume OEM applications, while maintaining enough flexibility to satisfy the low-volume semi-custom marketplace. A wide variety of mounting styles, output interface formats, and index gating options allow the unit to meet the requirements of almost any application while remaining within the scope of the standard product offering.

The RS21 is a 2.1" self-contained encoder which provides maximum versatility in line count, output options, and shaft size. These capabilities make it the ideal choice for new, replacement, or retro-fit applications.

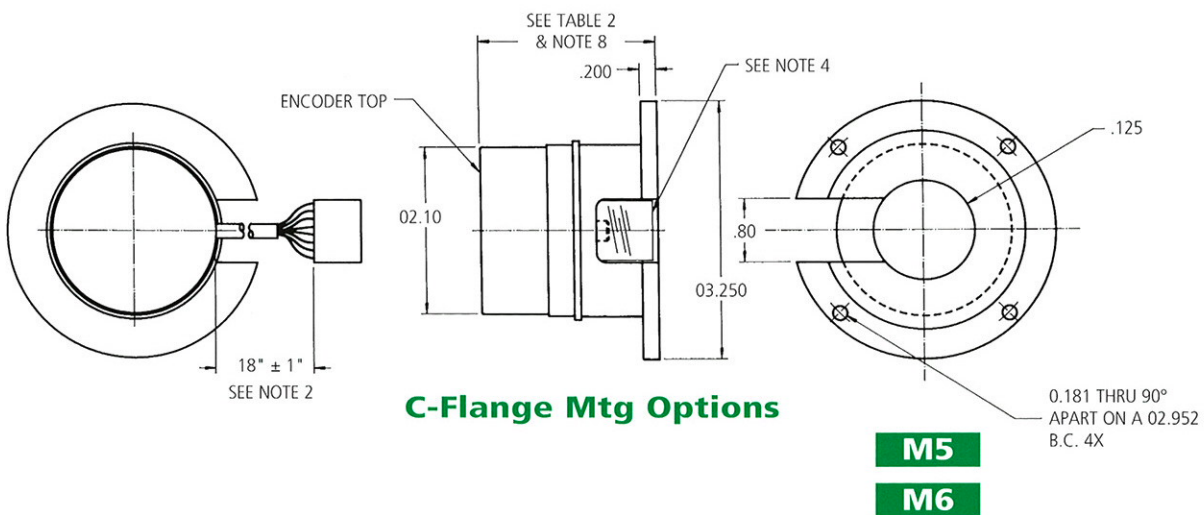
FIGURE 1 Mechanical Outlines



Size 21 Standard Mtg



Size 25 Mtg Options



C-Flange Mtg Options

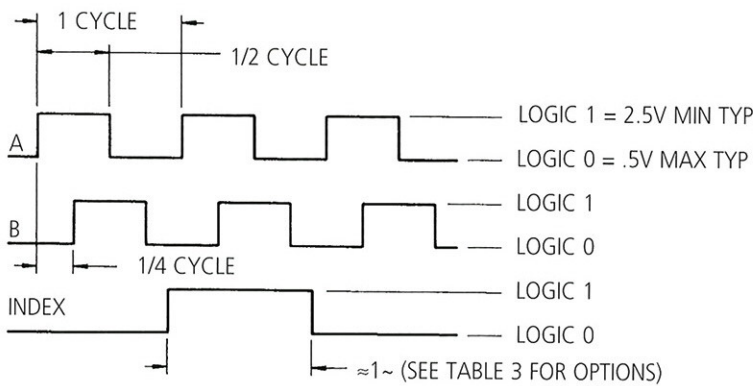
TABLE 1

Shaft Size	
Shaft +.0000/-0.0002	Specify
.2497	1/4
.3747	3/8

TABLE 2

C-Flange Mtg Options		
Option	Customer Shaft Length	Specify
2.11"	FOR MTR MTG W/ .3-.5 SHAFT EXT	M5
2.90"	FOR MTR MTG W/ .75-1.00 SHAFT EXT	M6

FIGURE 2 Output Configuration



Minimum transition to transition edge separation is typically 45° at Max operating temperature and frequency. Complementary outputs are not shown for simplicity. CW viewing encoder mounting surface.

TABLE 3

Gating Options		
Specify	Gating Option	Index Width
0	UNGATED	360° ± 20%
1	GATED W/A&B	90° ± 45°

FIGURE 3 Termination

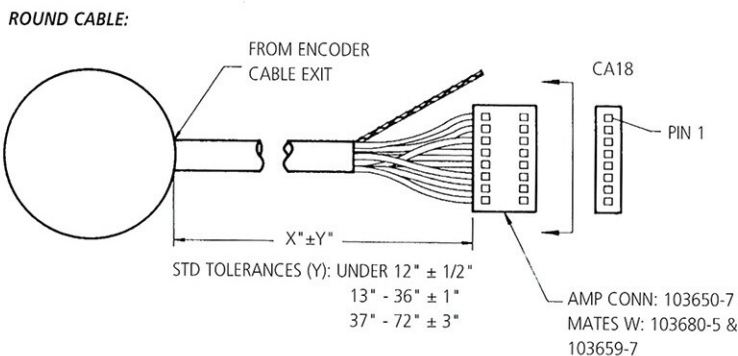
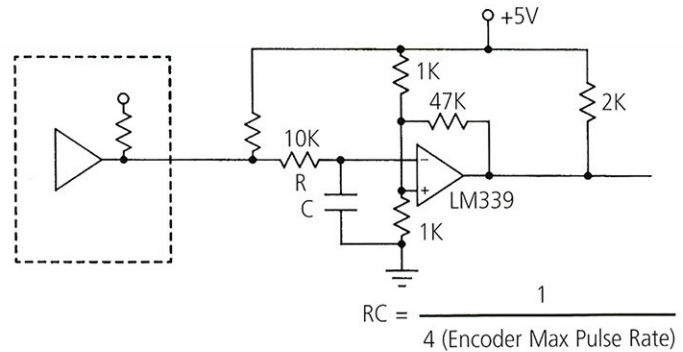


TABLE 4

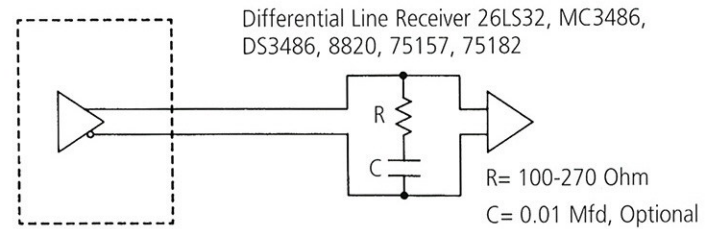
Termination		
Pin	Function	Color
1	VCC	RED
2	GND	BLK
3	CH A	WHT
4	CH A NOT	YEL
5	CH B	GRN
6	CH B NOT	BLU
7	INDEX	ORN
8	INDEX NOT	BRN

**TABLE 5****Output Interfaces****VC (VOLTAGE COMPARATOR)****VO (VC W/OPEN COLLECTOR)**

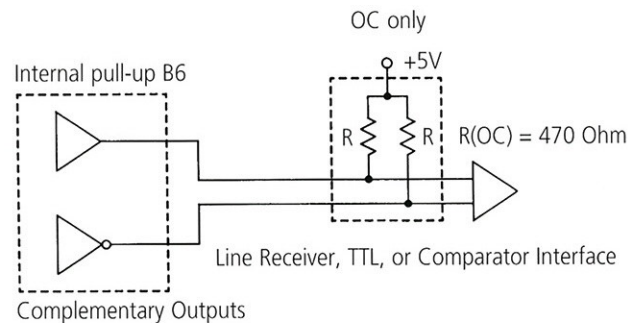
LM339 (VC with pullup resistor)
 No complementary signals available
 5 VDC power input, TTL compatible (See Note 7)
 Output sinks 6mA
 Nominal power requirements 75mA for VC
 and 125mA for VO option

**LD (LINE DRIVER)**

26LS31 typical output
 26LS32 typical line receiver suggested for user interface
 Output sinks and sources 20mA
 Nominal power requirements 135mA

**B4 (7404 BUFFER OUTPUT)****B6 (7406 W/470 OHM INTERNAL PULLUP)****OC (7406 OPEN COLLECTOR)**

TTL Compatible with complementary signals for all options
 5 VDC operation only for all options
 Internal pullup resistors supplied B6 standard
 - B4 output sinks 16mA, sources -0.4mA
 - B6 output sinks 30mA
 Open collector output 7406 (OC)
 - OC output sinks 40mA
 Nominal power requirements 125mA for B4, 175mA for B6 and OC

**Notes:**

- Resolutions other than those listed on front sheet may be ordered. Consult factory.
- Standard shielded round cable (CA18) is supplied with connector P/N AMP 103650-7 or equivalent. This connector mates with any .025 sq. non-polarized single row header (.100 centers) or may be installed into single row latching shroud (AMP P/N 103680-5). Standard length of cable is 18". Custom lengths are available, consult factory.
- P1 = 0-70°C; 100KHz operation. Unsealed.
- Optional shaft coupler: Customer to provide motor shaft size & length for proper coupler and/or C-Flange mounting option.
- Ribbon cable available. Consult factory.
- Consult factory for special requirements not covered by this bulletin.
- Gating option 0 (ungated) is standard. Consult factory for other gating options. See Table 3.
- Length shown is for 1/4" shaft. 3/8" shaft is longer, consult factory.
- VC & VO output options may be ordered with +12V input voltage.
- Nominal power requirements in Table 5 indicates current consumption for encoder with recommended loads.

Ordering Information: To order, specify model number from tables and codes above

RS21 - P1 - _____ - 5 - CA18 - _____ - _____ - _____ - S
 Dual CH = B See Note 3 RESOLUTION See Front of Sheet SHAFT SIZE See Table 1 INPUT VDC See Note 9 TERMINATION See Table 4 & Note 2 & 5 OUTPUT INTERFACE See Table 5 INDEX GATING See Table 3 MOUNTING OPTIONS See Figure 1 & Table 2 SPECIAL Leave Blank if Std

For Technical and Sales Information: Call 805-968-1525 Example Model Number: RS21D-P1-1000-1/4-5-CA18-VC-0-M2
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