

Installation Instructions

Size 25 Incremental Encoder, Bulletin 845H

IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.

Specifications

| Electrical | |
|-------------------------|--|
| Code Format | Incremental, 2 channels with zero index |
| Quadrature | 90° ±22°; Channel A leads B CCW |
| Symmetry | 50% ±10% |
| Zero Index Channel | Gated 1/2 cycle |
| Power Requirements | Determined by catalog number: 5V DC ±5% @ 150mA maximum 8-24V DC @ 150mA maximum |
| Frequency Response | Data: 210kHz Zero index: 210kHz |
| Operating Speed (Data) | (210kHz x 60)/pulses per rev. = RPM or 6000 RPM, whichever is lower |
| Resolution | Up to 5000 PPR on code disk |
| Output Drive Capability | PNP current source = 20mA; NPN current sink = 20mA; Differential line driver = ±20mA; NPN open collector = 20mA |

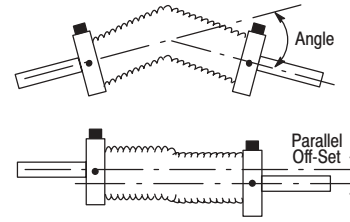
| Mechanical | |
|----------------------------------|---|
| Starting & Running Torque | 2.5Ncm typical [3.5in-oz] |
| Moment of Inertia | 15gcm (2.1 x 10 ⁻⁴ oz-in-sec ²) |
| Slew Speed | 6000 RPM |
| Shaft Loading (3/8" & 10mm Dia.) | Axial 89N [20lbs] (10lbs 5000 PPR); Radial 178N [40lbs] (20lbs 5000 PPR) |
| Shaft Size | 6mm, 10mm, 6.4mm [1/4in] 9.517mm [3/8in] diameter |

| Environmental | |
|-------------------------|--|
| Housing | NEMA Type 4,13, IP66 (IEC 529) |
| Temperature | 0°C to +60°C (+32°F to +140°F)—operating -25°C to +90°C (-13°F to +194°F)—storage |
| Humidity | 98%, noncondensing |
| Shock | 50g (11ms duration) |
| Vibration | 20g (4 to 2000Hz) |
| Approximate Ship Weight | 0.91kg (2lbs) |



ATTENTION: The shielded cables, output devices, and power supplies must be properly grounded. All National Electric Code and applicable local codes and ordinances must be observed when wiring the system.

Flexible Shaft Couplings



ATTENTION: Rigidly coupling the encoder shaft to the machine shaft **will cause a failure** in either the bearings of the encoder or the bearings of the machine shaft.

Accessories

| Description | Part Number |
|------------------------------------|-----------------|
| High Performance Flexible Coupling | 845-FC-*-* |
| Measuring Wheels | 845-MW-A-* |
| Servo Clamps | 845-SC |
| Pre-Wired Cables | 845-CA-*-* |
| Mating Connectors | 845-7P, 845-10P |
| Differential Encoder Buffer Board | 845-BB |

*See the *Sensors* catalog for selection.

Selection

845H — S J H Z 1 4 CR Y 2 C
 a b c d e f g

a

| Mounting Configuration ❶ | |
|--------------------------|------------------------|
| Code | Description |
| D | Square Flange |
| E | 70mm Diameter Flange |
| F | 90mm Diameter Flange |
| G | Metric Servo 48mm B.C. |
| H | English Servo |
| J | Metric Servo 42mm B.C. |

b

| Shaft Options ❶ | |
|-----------------|---------------------|
| Code | Description |
| A | 6mm Diameter |
| B | 10mm Diameter |
| C | 1/4in Diameter |
| Z | 3/8in Diameter |
| K | 6mm w/Flat |
| L | 10mm w/Flat |
| M | 1/4in w/Flat |
| N | 3/8in w/Flat |
| P | 3/8in w/Double Flat |

❶ Standard catalog numbers consist of either English Mounting Configurations with English Shaft Options or Metric Mounting Configurations with Metric Shaft Options.

c

| Power Supply | |
|--------------|----------------------|
| Code | Description |
| 1 | 5V DC ±5% |
| 2 | 8-24V DC Unregulated |

d

| Output Configuration ❷ | |
|------------------------|------------------------------------|
| Code | Description |
| 2 | PNP Current Source |
| 3 | NPN Current Sink |
| 4 | DLD 5V DC RS-422 |
| 5 | NPN Open Collector 24V DC Max ❸ |
| 6 | DLD 8-24V DC ❹ |

❷ DLD = Differential Line Driver
 ❸ External pull-up resistor required
 ❹ Can not be ordered with 5V DC power supply (code 1 above)

e

| Resolution | |
|------------|-------------------|
| Code | Description (PPR) |
| AG | 1 |
| AM | 5 |
| BG | 10 |
| CA | 50 |
| CB | 60 |
| CE | 64 |
| CF | 80 |
| CG | 100 |
| DB | 120 |
| DF | 150 |
| EB | 180 |
| CH | 200 |
| CJ | 250 |
| CC | 254 |
| CW | 256 |
| EG | 300 |
| CK | 360 |
| CL | 400 |
| CM | 500 |
| DW | 512 |
| EH | 600 |
| DG | 720 |
| DL | 800 |
| LG | 900 |
| CN | 1000 |
| FW | 1024 |
| EL | 1200 |
| CD | 1250 |
| RF | 1280 |
| CU | 1472 |
| EM | 1500 |
| FL | 1600 |
| CP | 1800 |
| DN | 2000 |
| CS | 2048 |
| HL | 2400 |
| CR | 2500 |
| CY | 2540 |
| LJ | 2750 |
| EN | 3000 |
| CT | 3600 |
| DR | 5000 |

f

| Connection Type | |
|-----------------|-------------------------|
| Code | Description |
| 1 | Axial Connector (End) |
| 2 | Radial Connector (Side) |
| A | Axial Cable (End) |
| R | Radial Cable (Side) |

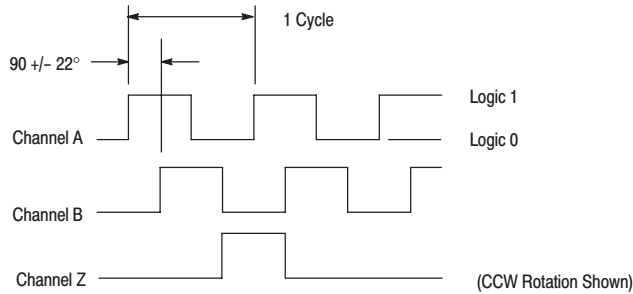
g

| Connection Options | |
|--------------------|-----------------------------|
| Code | Description |
| Blank | Without Mating Connector ❺ |
| C | With Mating Connector ❺ |
| 1 | 1m (3.28ft) Cable Length ❻ |
| 5 | 5m (16.4ft) Cable Length ❻ |
| 9 | 9m (29.52ft) Cable Length ❻ |

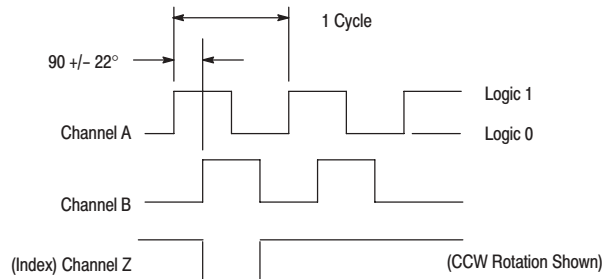
❺ These options not available with Connection Options code: "A" & "R."
 ❻ These options not available with Connection Options code: "1" & "2."

Electrical Connections

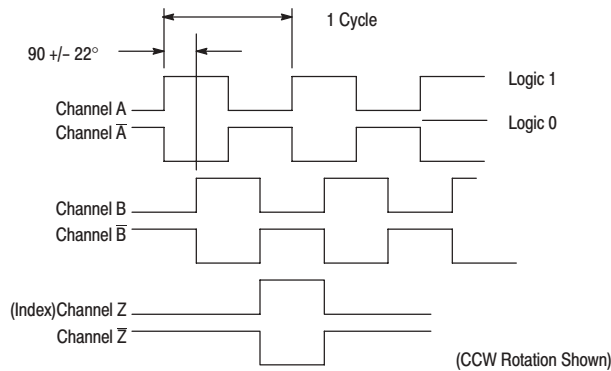
Current Sink and Open Collector Output Waveform:



Current Source Output Waveform:



Differential Line Driver Output Waveform:



7-Pin Connector ACS02E16S-1P (023) or Equivalent

Current Source, Current Sink, Open Collector Outputs

| Pin | Function | Pin | Function |
|----------------|------------------|----------------|-------------|
| A | Channel A Output | E ^① | — |
| B | Channel B Output | F | DC Return |
| C | Channel Z Output | G | Case Ground |
| D ^② | DC+ Input | — | — |

Connector Type

| Output Code | Output Type | Connector Type | Number of Pins | Dimension "B"—mm (in) ^② |
|-------------|-------------------|--------------------|----------------|------------------------------------|
| 2 | Current Source | ACS02E16S-1P (023) | 7 | 63 (2.48) |
| 3 | Current Sink | ACS02E16S-1P (023) | 7 | 63 (2.48) |
| 4 | Diff. Line Driver | ACS02E18-1P (023) | 10 | 73.9 (2.91) |
| 5 | Open Collector | ACS02E16S-1P (023) | 7 | 63 (2.48) |

^① Pins D and E internally connected.

^② Dimension "B" is shown on page 4.

Cable

Current Source, Current Sink, Open Collector Outputs

| Wire Pair | Wire Color | Function |
|-------------|------------|------------------|
| Red/Black | Red | DC+ Input |
| | Black | DC Return |
| White/Black | White | Channel A Output |
| | Black | Not Connected |
| Blue/Black | Blue | Channel B Output |
| | Black | Not Connected |
| Green/Black | Green | Channel Z Output |
| | Black | Not Connected |

10-Pin Connector ACS02E18-1P (023) or Equivalent

Differential Line-Driver Outputs

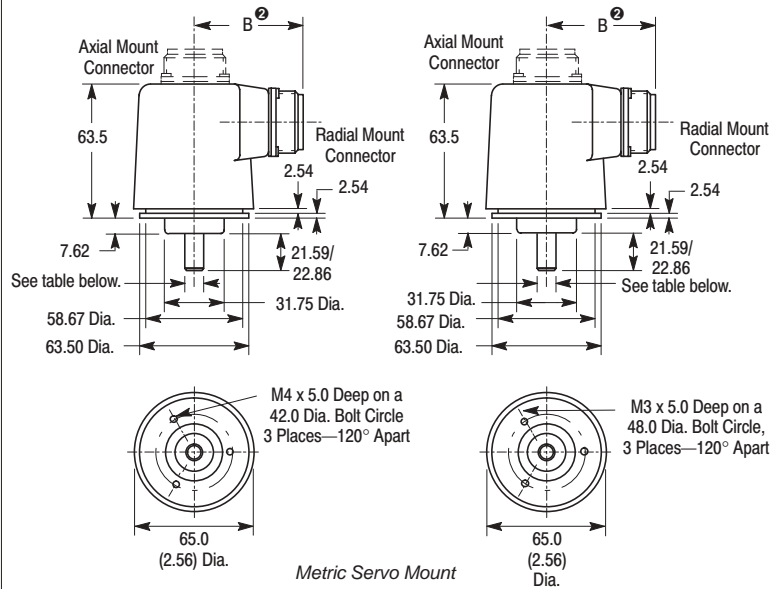
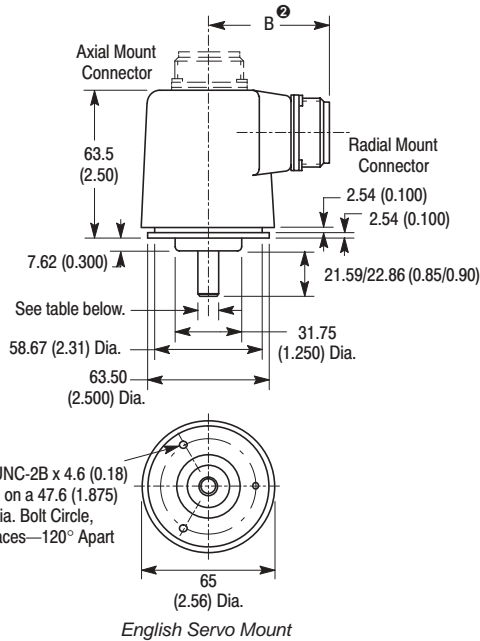
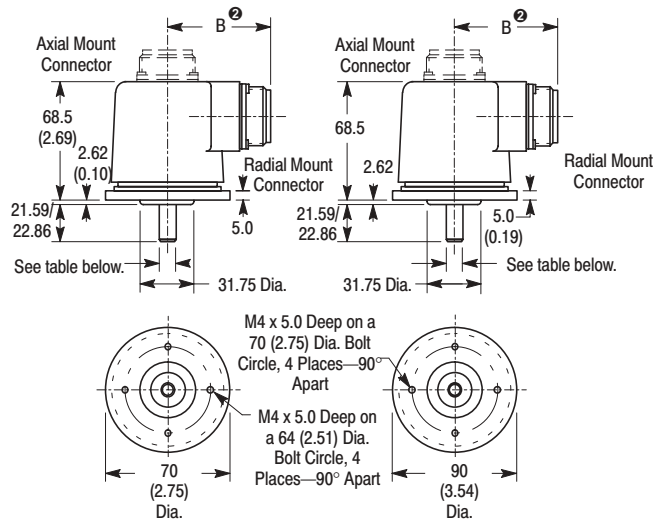
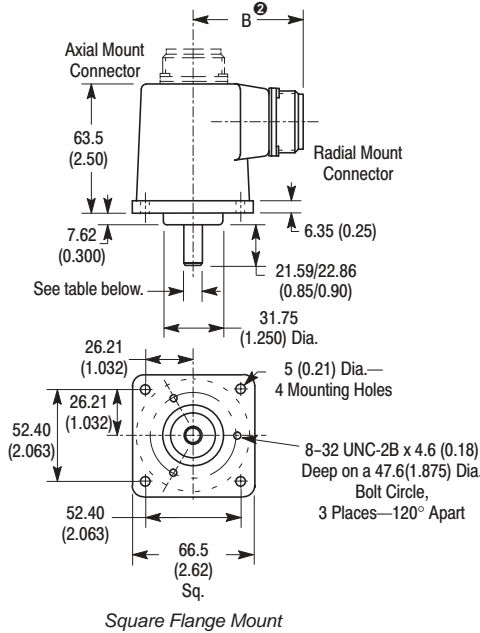
| Pin | Function | Pin | Function |
|----------------|------------------|-----|----------------------|
| A | Channel A Output | F | DC Return |
| B | Channel B Output | G | Case Ground |
| C | Channel Z Output | H | Channel A-bar Output |
| D ^① | DC+ Input | I | Channel B-bar Output |
| E ^① | — | J | Channel Z-bar Output |

Cable

Differential Line Driver Outputs

| Wire Pair | Wire Color | Function |
|-------------|------------|----------------------|
| Red/Black | Red | DC+ Input |
| | Black | DC Return |
| White/Black | White | Channel A Output |
| | Black | Channel A-bar Output |
| Blue/Black | Blue | Channel B Output |
| | Black | Channel B-bar Output |
| Green/Black | Green | Channel Z Output |
| | Black | Channel Z-bar Output |

Dimensions—mm (inches)

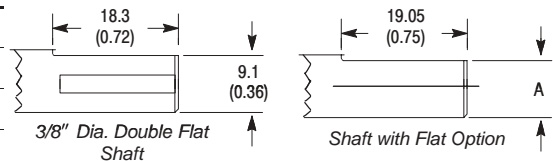


Shaft Diameter Options

| Code | Shaft Diameter |
|--------|--------------------------------|
| A or K | 6mm +0.00mm, -0.013mm |
| B or L | 10mm +0.00mm, -0.013mm |
| C or M | 6.35 (0.2499) +0.0000, -0.0005 |
| Z or N | 9.52 (0.3749) +0.0000, -0.0005 |

Flat Dimensions

| Code | Dimension "A" |
|------|----------------|
| K | 5.3mm (0.21in) |
| L | 9.1mm (0.36in) |
| M | 5.5mm (0.22in) |
| N | 8.6mm (0.34in) |



⊕ For Dimension "B," see table on page 3.