# MODEL 755A – INCREMENTAL HOLLOW BORE

Ø1.5"

## FEATURES

**Miniature Size (1.5" Diameter)**
**Up to 30,000 Cycles Per Revolution**
**Flex Mounting & Large Hollow Bore Option (up to 0.750")**
**High Temperature Option**

The Model 755A Size 15 Accu-Coder™ is ideal for applications requiring a small, high-precision, high-performance encoder. Approximately 1.5" in diameter and 1.5" long, it will fit where many encoders cannot. All metal construction and shielded ball bearings provide years of trouble-free use. A variety of blind hollow bore sizes are available with large bores allowing for shafts up to 0.750" or 14 mm. Attaching directly to a motor is quick and simple with the innovative flex mount, first developed by EPC. This industry-standard mount eliminates couplings and increases reliability, while reducing overall length and cost. Where critical alignment is required, a Slotted Flex (SF) is available. A perfect replacement encoder where high reliability is required.

## COMMON APPLICATIONS

**Robotics, Assembly Machines, Motor-Mounted Feedback, Phototypesetters, Printers & Digital Plotters, Elevator Controls, Medical Diagnostic Equipment**

## MODEL 755A ORDERING GUIDE

Blue type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.

**755A – 01 – S – 1000 – R – HV – 1 – S – S – CE**

**MODEL**
**755A** Model 755A

**BORE SIZES**[1]

| | | | |
|---|---|---|---|
| **15** | 3/16", 0.1875" | **16** | 4 mm |
| **01** | 1/4", 0.250" | **18** | 5 mm |
| **03** | 5/16", 0.3125" | **04** | 6 mm |
| **02** | 3/8", 0.375" | **14** | 8 mm |
| **10** | 1/2", 0.500" | **05** | 10 mm |
| **11** | 5/8", 0.625" | **12** | 12 mm |
| **17** | 3/4", 0.750" | **13** | 14 mm |

**OPERATING TEMPERATURE**
**L** -40° to 70° C[2]
**S** 0° to 70° C
**H** 0° to 100° C[3]

**CYCLES PER REVOLUTION** 1-30,000
See *CPR Options* below for available resolutions.
Price adder for CPR >1270

**NUMBER OF CHANNELS**[4]
**A** Channel A
***Channel A Leads B***
**Q** Quadrature A & B
**R** Quadrature A & B with Index
***Channel B Leads A***
**K** Reverse Quadrature A & B
**D** Reverse Quadrature A & B with Index

**OUTPUT TYPE**
***5 - 28V In/Out***[5]
**OC** Open Collector
**PU** Pull-Up Resistor
**PP** Push-Pull
**HV** Line Driver[6]
***8-28V In/5V Out***[7,8]
**H5** Line Driver[6]
**P5** Push-Pull

**MAXIMUM FREQUENCY**
**1** Standard 100 kHz
**2** 200 kHz ≤ 3000 CPR
**5** 250 kHz, >3000 CPR
**3** 500 kHz, >6000 CPR[9]
**4** 1 MHz, >10,000 CPR[9]

**MOUNTING**
**S** Standard Flex Mount
**SF** Slotted Flex Mount

**CONNECTOR TYPE**[10]
**S** Standard 18" Cable[11]
**C01** 8-pin Molex
**C02** Terminal Block
**J00** 18" Cable with 5-pin M12[6]
**K00** 18" Cable with 8-pin M12

**CERTIFICATION**
**N** None
**CE** CE Marked[8,12]

## MODEL 755A CPR OPTIONS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 0001* | 0002* | 0004* | 0005* | 0006* | 0007* | 0008* | 0010* | 0011* |
| 0012* | 0014* | 0020 | 0021* | 0024* | 0025* | 0028* | 0030* | 0032* |
| 0033* | 0034* | 0035* | 0038* | 0040* | 0042* | 0045* | 0050* | 0060 |
| 0064* | 0100 | 0120 | 0125 | 0128* | 0144* | 0150* | 0160* | 0192* |
| 0200 | 0240* | 0250 | 0254* | 0256* | 0300 | 0333* | 0360 | 0400 |
| 0500 | 0512 | 0600 | 0625* | 0635 | 0665* | 0720 | 0768* | 0800 |
| 0889 | 1000 | 1024 | 1200 | 1204*[a] | 1250[a] | 1270[a] | 1440 | 1500 |
| 1800 | 2000 | 2048 | 2400[a] | 2500 | 2540[a] | 2880[a] | 3000[a] | 3600[a] |
| 4000[a] | 4096[a] | 5000[a] | 6000[a] | 7200[a] | 7500[a] | 9000[a] | 10,000[a] | |
| 10,240[a] | 12,000[a] | 12,500[a] | 14,400[a] | 15,000[a] | 18,000[a] | 20,000[a] | 20,480[a] | |
| 25,000[a] | 30,000[a] | | | | | | | |

*Contact Customer Service for High Temperature Option.
[a]High Temperature Option (H) limited to 85° C maximum for these CPR options.

New CPR values are periodically added to those listed. Contact Customer Service to determine all currently available CPR values. Special disk resolutions are available upon request. A one-time NRE fee may apply.

**NOTES:**

1 Contact Customer Service for additional options.
2 Low temperature option not available with resolutions of 3000 CPR or higher.
3 0° to 85° C for certain resolutions, see CPR Options.
4 Contact Customer Service for index gating options.
5 24 VDC max for high temperature option.
6 Line Driver outputs not available with 5-pin M12 connector.
7 Standard temperature, 60 to 3000 CPR only. Not available with 2540 CPR.
8 H5 and P5 outputs are not available with CE option.
9 Standard cable lengths only. For details, please refer to Technical Bulletin ***TB116: Noise and Signal Distortion Considerations*** encoder.com.
10 For mating connectors, cables, and cordsets see **Accessories** at encoder.com. For Connector Pin Configuration Diagrams, see Technical Information or see **Connector Pin Configuration Diagrams** at encoder.com.
11 Additional cable lengths available. Please consult Customer Service. For non-standard cable lengths, add a forward slash (/) plus cable length expressed in feet. Example: S/6 = 6 feet of cable.
12 Please refer to Technical Bulletin ***TB100: When to Choose the CE Mark*** at encoder.com.

## MODEL 755A SPECIFICATIONS

### Electrical

Input Voltage..... 4.75 to 28 VDC max for temperatures up to 70° C
4.75 to 24 VDC for temperatures between 70° and 100° C

Input Current ..... 100 mA max with no output load

Input Ripple..... 100 mV peak-to-peak at 0 to 100 kHz

Output Format..... Incremental – Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the encoder mounting face. See *Waveform Diagrams*.

Output Types..... Open Collector – 100 mA max per channel
Pull-Up – Open Collector with 2.2K ohm internal resistor, 100 mA max per channel
Push-Pull – 20 mA max per channel
Line Driver – 20 mA max per channel (Meets RS 422 at 5 VDC supply)

Index..... Occurs once per revolution. The index for units > 3000 CPR is 90° gated to Outputs A and B. See *Waveform Diagrams*.

Max Frequency ..... Up to 1 MHz

Electrical Protection ..... Reverse voltage and output short circuit protected. NOTE: Sustained reverse voltage may result in permanent damage.

Noise Immunity..... Tested to BS EN61000-4-2; IEC801-3; BS EN61000-4-4; DDENV 50141; DDENV 50204; BS EN55022 (with European compliance option); BS EN61000-6-2; BS EN50081-2

Symmetry..... 1 to 6000 CPR: 180° (±18°) electrical at 100 kHz output
6001 to 20,480 CPR: 180° (±36°) electrical

Quad Phasing..... 1 to 6000 CPR: 90° (±22.5°) electrical at 100 kHz output
6001 to 20,480 CPR: 90° (±36°)

Min Edge Sep..... 1 to 6000 CPR: 67.5° electrical at 100 kHz output
6001 to 20,480 CPR: 54° electrical
> 20,480 CPR: 50° electrical

Rise Time..... Less than 1 microsecond

Accuracy..... Instrument and Quadrature Error: For 200 to 1999 CPR, 0.017° mechanical (1.0 arc minutes) from one cycle to any other cycle. For 2000 to 3000 CPR, 0.01° mechanical (0.6 arc minutes) from one cycle to any other cycle. Interpolation error (units > 3000 CPR only) within 0.005° mechanical. (Total Optical Encoder Error = Instrument + Quadrature + Interpolation)

### Mechanical

Max Shaft Speed..... 7500 RPM. Higher shaft speeds may be achievable, contact Customer Service.

Bore Tolerance ..... -0.0000" / +0.0006"

User Shaft Tolerances
- Radial Runout ..... 0.007" max
- Axial End Play..... ±0.030" max

Starting Torque ..... 0.14 oz-in typical
4.0 oz-in typical for -40° C operation

Moment of Inertia ... 2.8 x $10^{-4}$ oz-in-$sec^2$

Housing ..... Black non-corrosive finish

Bearings..... Precision ABEC ball bearings

Weight..... 3.50 oz typical

### Environmental

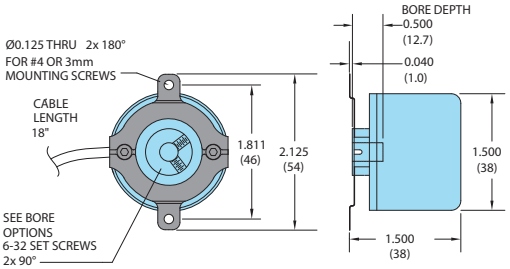
Storage Temp ..... -25° to 85° C

Humidity..... 98% RH non-condensing

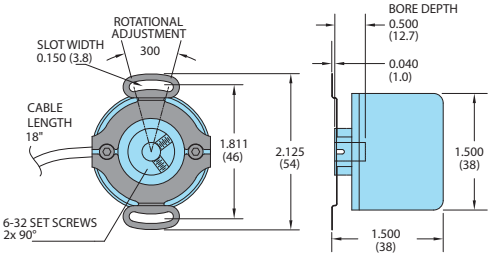
Vibration..... 10 g @ 58 to 500 Hz

Shock..... 50 g @ 11 ms duration

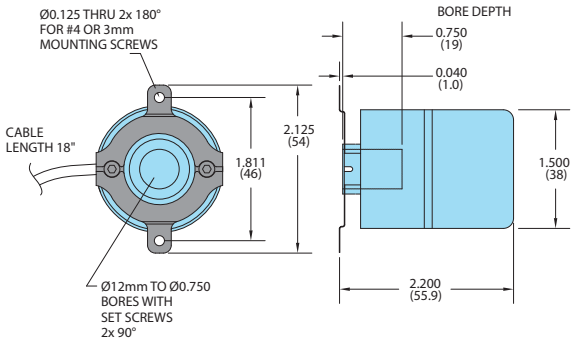
## MODEL 755A FLEX MOUNT (S)




## OPTIONAL SLOTTED FLEX MOUNT (SF)



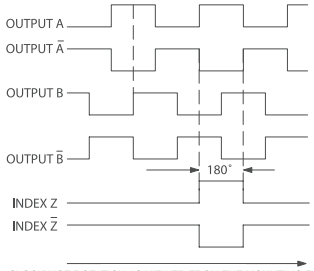

## MODEL 755A LARGE BORE FLEX MOUNT (S)




All dimensions are in inches with a tolerance of +0.005" or +0.01" unless otherwise specified. Metric dimensions are given in brackets [mm].

## WAVEFORM DIAGRAMS

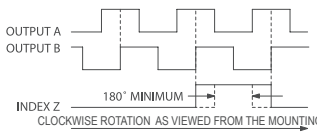
Line Driver and Push-Pull




CLOCKWISE ROTATION AS VIEWED FROM THE MOUNTING FACE

NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. WAVEFORM SHOWN WITH OPTIONAL COMPLEMENTARY SIGNALS Ā, B̄, Z̄ FOR HV OUTPUT ONLY.

Open Collector and Pull-Up




CLOCKWISE ROTATION AS VIEWED FROM THE MOUNTING FACE

NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. INDEX IS POSITIVE GOING.

## WIRING TABLE

For EPC-supplied mating cables, refer to wiring table provided with cable. Trim back and insulate unused wires.

| Function | Flying Leads Cable† Wire Color | Terminal Block | 8-pin Molex | 5-pin M12** | 8-pin M12** |
|---|---|---|---|---|---|
| Com | Black | 7 | 2 | 3 | 7 |
| +VDC | White | 8 | 1 | 1 | 2 |
| A | Brown | 1 | 8 | 4 | 1 |
| A' | Yellow | 2 | 7 | -- | 3 |
| B | Red | 3 | 4 | 2 | 4 |
| B' | Green | 4 | 3 | -- | 5 |
| Z | Orange | 6 | 6 | 5 | 6 |
| Z' | Blue | 5 | 5 | -- | 8 |
| Shield | Bare* | -- | -- | -- | -- |

*CE Option: Cable shield (bare wire) is connected to internal case.
†Standard cable is 24 AWG conductors with foil and braid shield.
**CE Option: Use cable cordset with shield connected to M12 connector coupling nut.