

# Model 755RG 38mm High Precision Servo or Square Flange Mount



Incremental Shaft Encoders



## Features

- Miniature Size (38mm Diameter)
- Up to 30,000 Pulses Per Revolution
- Servo or Flange Mounting
- 1 MHz Frequency Response Available
- Extended Temperature Operating Range Available

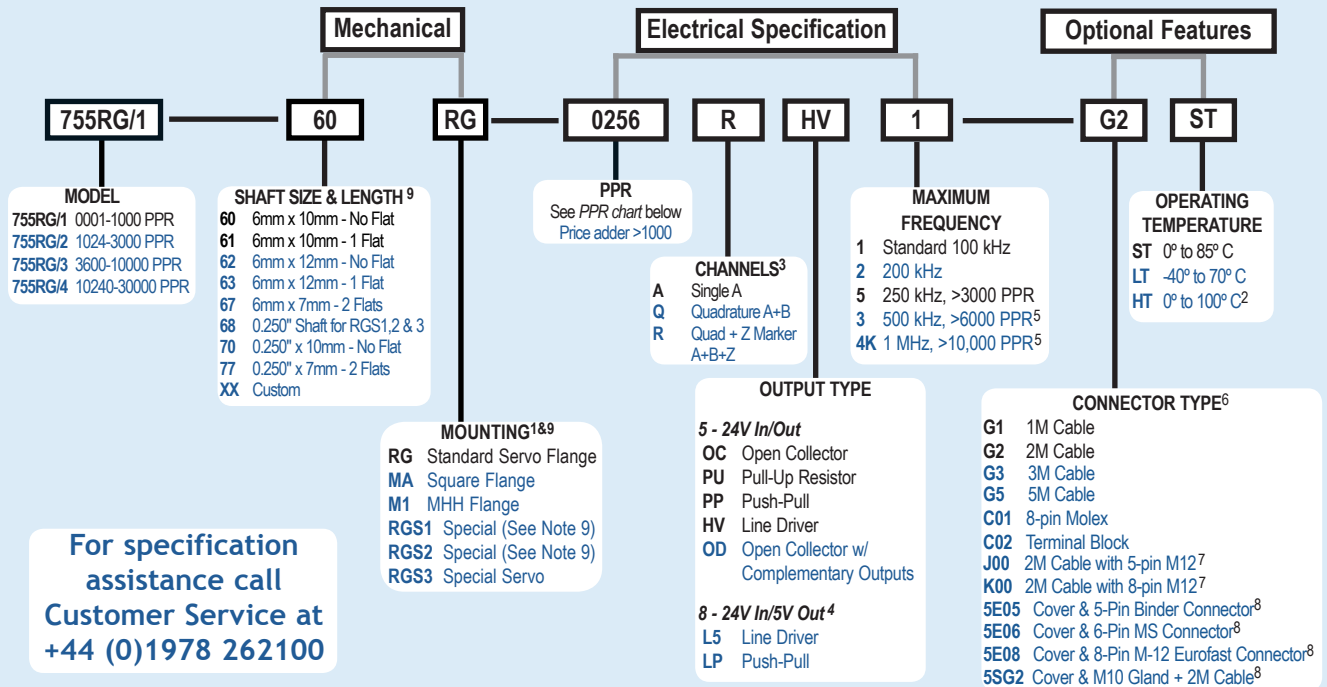
The Model 755RG is ideal for applications requiring a small, high precision, high performance encoder. Approximately 38mm in diameter and 38mm long, it will fit where many encoders cannot. Designed with all metal construction and shielded ball bearings, it will provide years of trouble-free use. The standard servo mount (RG) version is available with a variety of shaft sizes and lengths. Three additional servo style mounts (RGS1, RGS2, RGS3) are also available. The optional flange mounting (MA) is ideal for applications requiring a bolt-on, high precision encoder. And the optional MHH flange (M-1) converts the mounting to be the same as the 58 style 426 package. With its high reliability and quick delivery, the Model 755A encoder is the perfect replacement encoder for less reliable encoders of this size.

## Common Applications

Servo Motor Control, Robotics, Medical Diagnostic Equipment, Speciality Assembly Machines, Digital Plotters, Printers, Typesetting Equipment

## Model 755RG Ordering Guide

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



## Model 755RG PPR 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	1201 <sup>a</sup>	1203 <sup>a</sup>	1204 <sup>a</sup>	1250 <sup>a</sup>	1270 <sup>a</sup>
1440	1500	1800	2000	2048	2400 <sup>a</sup>	2500	2540 <sup>a</sup>	2880 <sup>a</sup>
3000 <sup>a</sup>	3600 <sup>a</sup>	4000 <sup>a</sup>	4096 <sup>a</sup>	5000 <sup>a</sup>	6000 <sup>a</sup>	7200 <sup>a</sup>	7500 <sup>a</sup>	9000 <sup>a</sup>
10,000 <sup>a</sup>	10,240 <sup>a</sup>	12,000 <sup>a</sup>	12,500 <sup>a</sup>	14,400 <sup>a</sup>	15,000 <sup>a</sup>	18,000 <sup>a</sup>	20,000 <sup>a</sup>	20,480 <sup>a</sup>
25,000 <sup>a</sup>	30,000 <sup>a</sup>							

\* Contact Customer Service for High Temperature Option.

<sup>a</sup> High Temperature Option (H) limited to 85° C maximum for these PPR options.

Contact Customer Service to determine all currently available PPR values. Special disk resolutions are available upon request. A one-time NRE fee may apply.

## NOTES:

- 1 See drawing diagrams for dimension and hole placements for all mountings.
- 2 0° to 85°C for certain resolutions - Please see PPR options table.
- 3 Contact Customer Service for marker gating options.
- 4 Standard temperature, 60 to 3000 PPR only.
- 5 Standard cable lengths only.
- 6 For non-standard cable lengths, please call our sales office.
- 7 5-pin not available with Line Driver (HV, L5) outputs. Additional cable lengths available. Please consult Customer Service.
- 8 See 755 Special Covers page 51 for Cover Diagrams & options.
- 9 Please Note :- RGS1, RGS2 Bodies are ONLY available with shafts 62, 63 and 68 - If choosing shaft 62 and 63 - the length from of the shaft from the face will be 7mm - shaft 68 length will be the same as diagram.

# Model 755RG 38mm High Precision Servo or Square Flange Mount



## Model 755RG Specifications

### Electrical

Input Voltage.....4.75 to 28 Vcc max for temperatures up to 70° C  
4.75 to 24 Vcc for temperatures between 70° C to 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* below.

Output Types.....Open Collector- 100 mA max per channel  
Pull-Up- 100 mA max per channel  
Push-Pull- 20 mA max per channel  
Line Driver- 20 mA max per channel (Meets RS 422 at 5 Vcc supply)

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

Max Frequency.....Up to 1 MHz

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

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

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

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

Rise Time.....Less than 1 microsecond

Accuracy .....Instrument and Quadrature Error: For 200 to 1999 PPR, 0.017° mechanical (1.0 arc minutes) from one cycle to any other cycle. For 2000 to 3000 PPR, 0.01° mechanical (0.6 arc minutes) from one cycle to any other cycle. Interpolation error (units > 3000 PPR 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.

Shaft Size .....Up to 0.250" Diameter

Bore Tolerance .....g6, Sliding fit for H7 host bore

### User Shaft Tolerances

Radial Shaft Load.....2.25 Kg max

Axial Shaft Load.....1.36 Kg max

Starting Torque .....9.886 x 10<sup>-4</sup> typical  
2.824 x 10<sup>-2</sup> typical for -40° C operation

Electrical Conn .....2M cable (foil and braid shield, 24 AWG conductors), 5- or 8-pin M12 (12 mm) in-line connector with 2M cable (braid shield), 8-pin Molex, Terminal Block, 5 Pin Cover, 6 Pin Cover, 8 Pin Cover, Gland Cover (See appendix sheet for cover options)

Housing.....Black non-corrosive finish

Bearings.....Precision ABEC ball bearings

Mounting.....Servo or Optional Flange

Weight.....100 grams typical

### Environmental

Operating Temp.....0° to 70° C for standard models  
-40° to 70° C for low temperature option  
0° to 100° C for high temperature option  
(0° to 85° C for certain resolutions, see PPR Options.)

Storage Temp.....-25° to +85° C

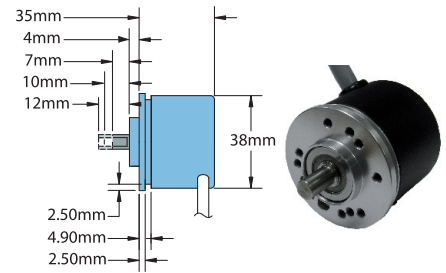
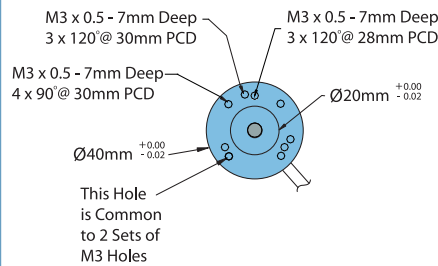
Humidity.....98% RH non-condensing

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

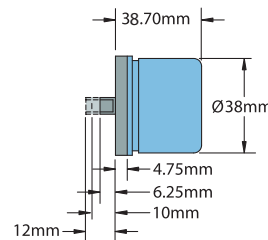
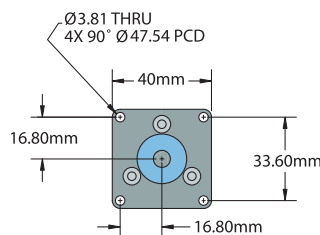
Shock.....50 g @ 11 ms duration

Sealing.....IP50 Standard

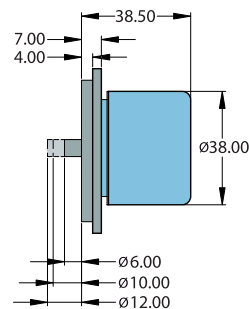
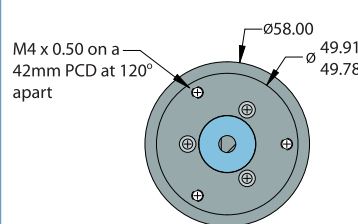
## Model 755RG Standard Servo Mount (RG)



## Model 755RG Square Flange Option (MA)

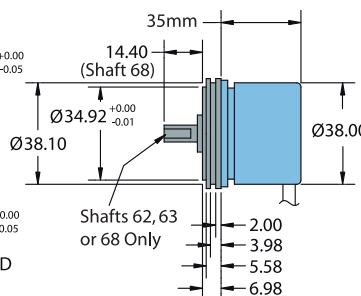
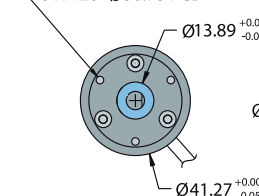


## Model 755RG MHH 58mm Flange (M1)



## Model 755RG Servo Mounts RGS1 and RGS2

4-40 UNC-2B 6.35 DEEP  
3 X 120° Ø30.73 PCD



CABLE LENGTH 2M STANDARD



RGS1

RGS1 has a 13.89mm Boss.  
RGS2 Pictured below has a 19.05mm Boss.



RGS2

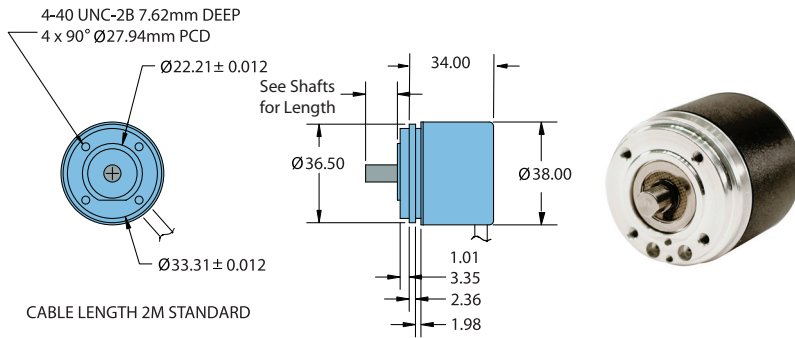
All dimensions are in mm with a tolerance of ±0.127mm or ±0.254 unless otherwise specified

# Model 755RG 38mm High Precision Servo or Square Flange Mount



## Model 755RG Mounting RGS3

### Wiring Table

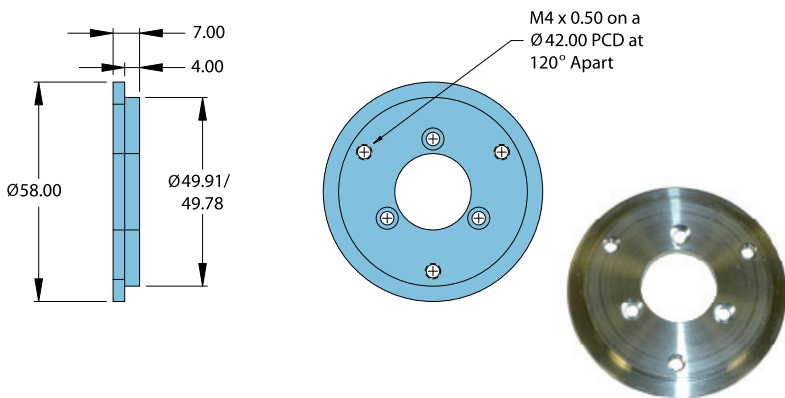


Function	Cable Wire Color	Terminal Block	8-pin <sup>1</sup> Molex	5-pin <sup>1</sup>	8-pin M12 <sup>1</sup>	6-pin MS <sup>1</sup>
0 Volts	Black	7	2	3	7	A
+ Vcc	White	8	1	1	2	B
A	Brown	1	8	4	1	D
A'	Yellow	2	7	---	3	---
B	Red	3	4	2	4	E
B'	Green	4	3	---	5	---
Z	Orange	6	6	5	6	C
Z'	Blue	5	5	---	8	---
Shield	Bare <sup>1</sup>	---	---	---	---	---

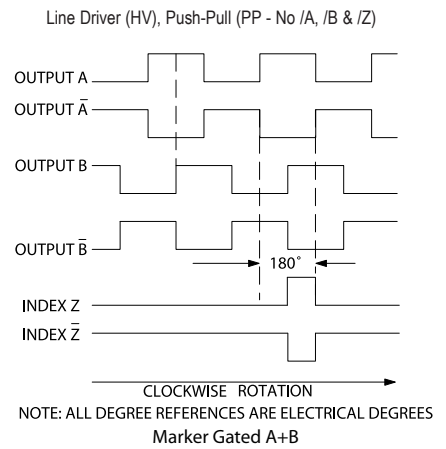
<sup>1</sup>See Appendix Data Sheet for Connector Cover Options

Also Available as Separate Flanges are the M-1 and MA Flanges Below.

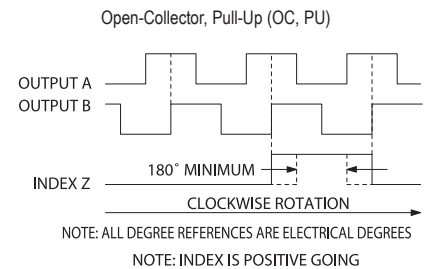
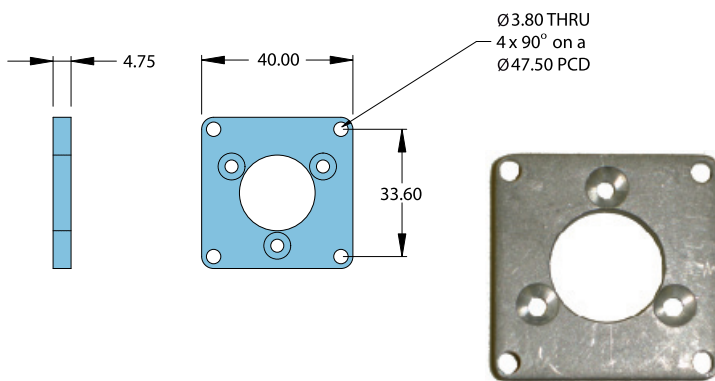
## Individual M-1 Flange Kit (MHH)



### Waveform Diagram



## Individual MA Flange Kit (Square Flange)



All dimensions are in mm with a tolerance of  $\pm 0.127$ mm or  $\pm 0.254$  unless otherwise specified

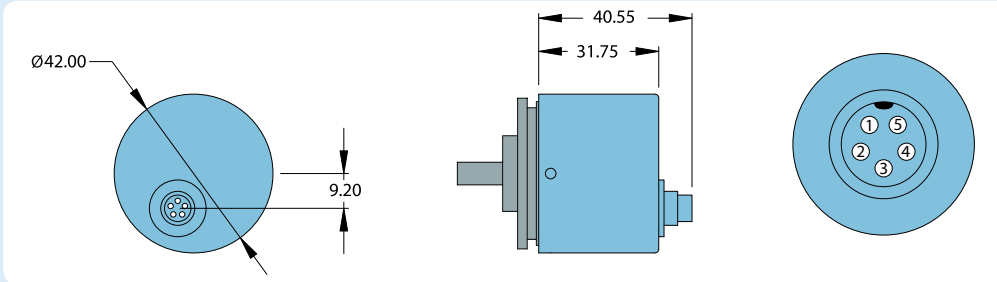
# 755 Special Covers Appendix Sheet



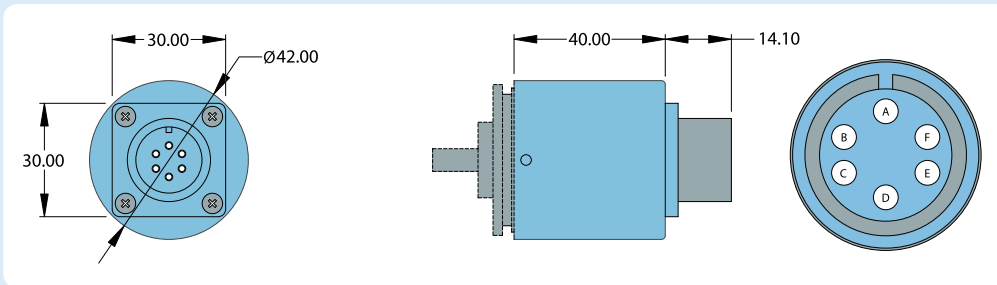
## 755HS and 755RG Special Covers

Please see Specific Model (755RG or 755HS) Ordering Guides for Options

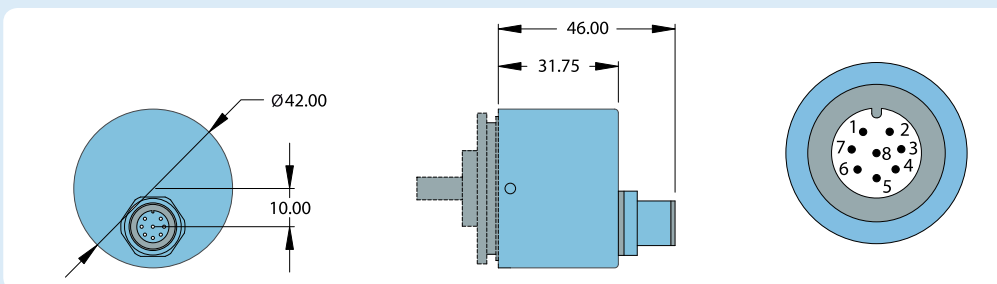
### 755 Cover & 5 Pin Binder Connector (5E05)



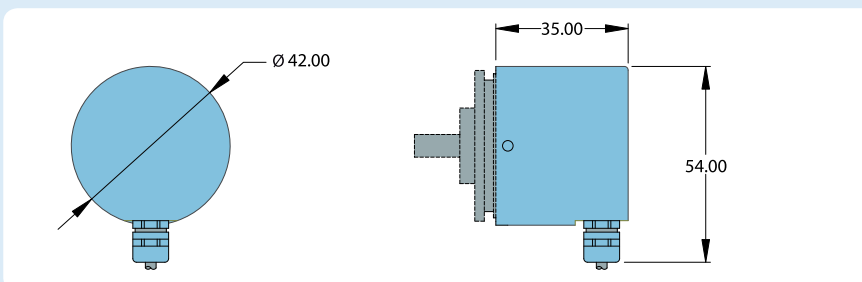
### 755 Cover & 6 Pin MS Connector (5E06)



### 755 Cover & 8 Pin EuroFast Connector (5E08)



### 755 Cover & M10 Gland + 2M Cable (5SG2)



Incremental Shaft Encoders

For specification assistance call Customer Service at +44 (0)1978 262100