

CE The CE-Mark certifies that our products have met the requirement of the CE Guideline 89/336/EEG (EMC Guideline):

- EN 61 326-2-3 (Emission and Noise Immunity)

Emission Tests:

RF Emission: EN 55011:1997+A1

Immunity Tests:

Static Electricity (ESD):

EN 61 000-4-2, Severity Level 3

Elektromagnetic Fields (RFI):

EN 61 000-4-3, Severity Level 3

Fast Transients (BURST):

EN 61 000-4-4, Severity Level 4

Line-fed disturbances by high-frequency fields

EN 61 000-4-6, Severity Level 3

Safety Advisory

Series BRG encoders are used for electrical detection of mechanical positions (e.g. tool revolvers, drill heads) and may only be used for these or similar purposes.

Installation and Operation:

Installation and Operation should be carried out by trained personnel only. Unauthorized handling and use will lead to loss of warranty and liability claims. When mounting and wiring, carefully read the corresponding sections of this guide.

Use and Checking:

Follow all relevant safety procedures when using this product. Take all steps necessary to ensure that failure of this product will not cause danger to persons or equipment (e.g. limit switches, safety devices). Regularly check the functionality of the encoder and all associated components.

Fault Conditions:

When it is suspected that the encoder is faulty, take it out of service and take measures to ensure that it is not used.

Scope:

This description pertains to encoders in Balluff Series BRGA3-...-K/KA/S/SR/SA10/SA13.

Technical Data

Outputs	9 data + 1 home position short circuit protected
Resolution max.	360 (480 - SA10/SA13)
Accuracy	$\pm 1/2$ bit (at 24 V DC)
Repeatability	$\pm 45^\circ$ el.
Switching frequency	≤ 25 kHz (LSB)
Supply voltage V_s	10 ... 30 V DC
Ripple	$\leq 10\%$
Output voltage V_o	$\geq U_B - 3,5$ V (without load)
No-load current I_R	typ. 100 mA (bei $V_o = 24$ V DC)
Output current I_o	< 100 mA (bei $V_o = 24$ V DC)
Load Capacitance C	100 nF (incl. cable capacity)
Housing material	aluminium
Mounting method	clamps
Operating temperature	0 bis 60 °C
Storage temperature	-20 bis +80 °C
Enclosure	IP 67 IEC 529
RPM	max. 6000/min
shaft loading	$F_{AX} \leq 25$ N; $F_{RAD} \leq 40$ N
Vibration	10 g, 10...150 Hz (IEC 68: 2-6)
Shock	50 g/ 11 ms (IEC 68: Teil 2-27)

Identifying the Encoder

Ordering Code

Example: BRG A 3-WDA 180-00-G-R-K-02

Type	
Series	
Version	
Coding	
No. of Positions	
Parity	
EP = even	
OP = odd	
00 = no	
Outputs	
G = push-pull (see Fig. 3)	
Rotation (looking at shaft end)	
L = left (CCW)	
R = right (CW)	
Connection type	
K = Radial cable (Standard)	
KA = Axial cable	
SR = Radial connector	
S = Axial connector (Standard)	

Installation

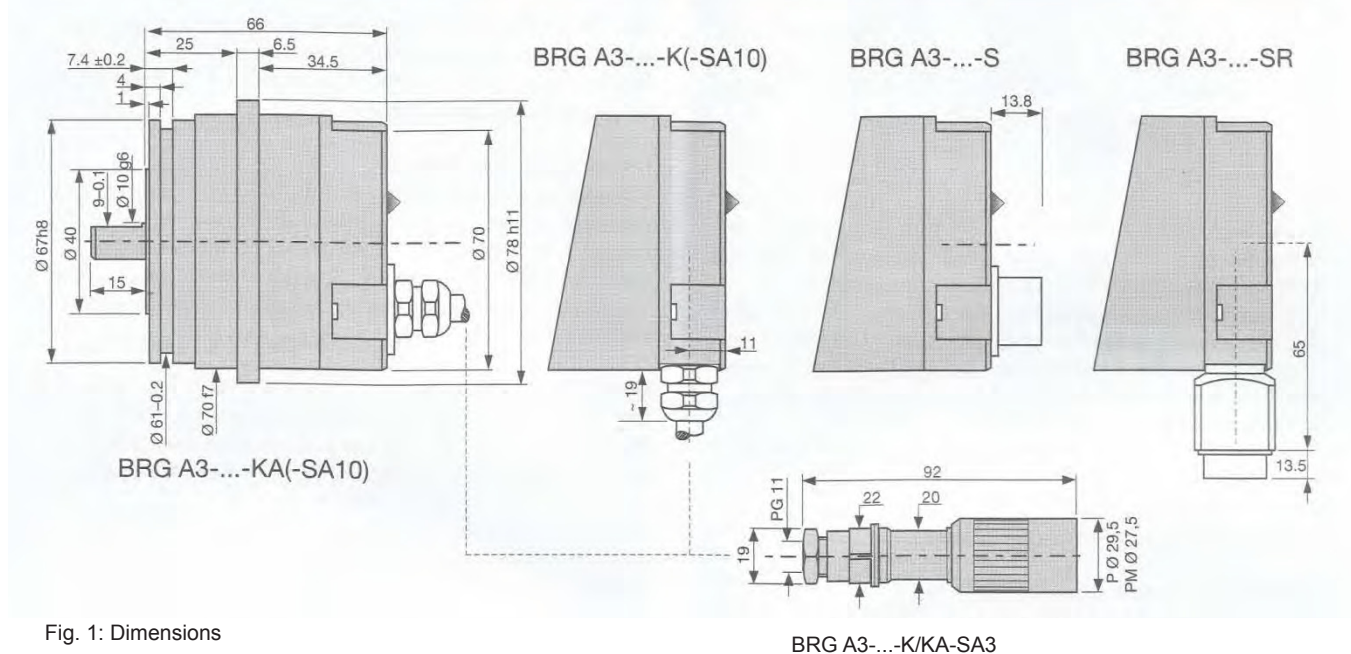


Fig. 1: Dimensions

Please note the following:

- Never use force (e.g. hammer or blows) to install or align the encoder.
- Do not exceed the bad tolerances given for the encoder shaft (see technical data).
- Never step on the encoder, cord seal, or connector.

Using the coupling:

- Attach the encoder to the drive rigidly at one point only: either flange to flange or shaft to shaft. Use the couplings.
- Be sure that the encoder shaft and the drive are on the same axis. Check the data sheet for the coupling to find the permissible axial or radial offset and the maximum angle error of the two shafts.

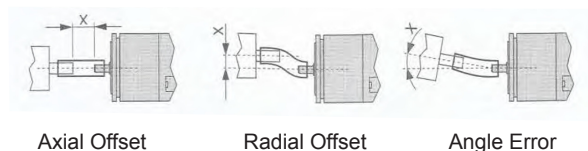


Fig. 2

- Be sure not to damage or bend the coupling excessively while installing and aligning it.
- Tighten all mounting screws very carefully.

Elektrical Connections

Note the following:

- Connect all cable according to the table at lower right.
- Isolate all unused grounds (to avoid short circuit).
- Make sure that self-wired connectors are sealed properly. Oil or water entering along the cable can enter the electronics area and destroy the unit.
- The IP 67 rating can be assured only if your connections, especially in the case of short cables, meet the IP 67 specification also.
- Do not route the BRG encoder cable parallel to AC lines, in order to avoid noise coupling.
- Use shielded cable only, in order to avoid noise coupling.
- Ground the shield on the control side only.
- Plug or unplug the encoder connector only after power has been turned off.
- Turn power on and off to the encoder and the input device at the same time only.

Output Driver:

At overload all outputs will be switched off. Switch off supply voltage and after the fault has been removed, turn power on.

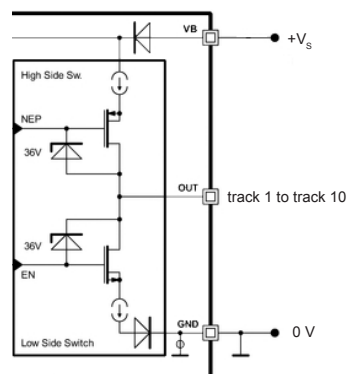


Fig. 3: Output circuit

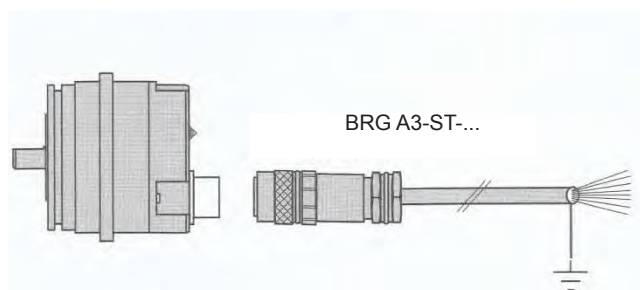
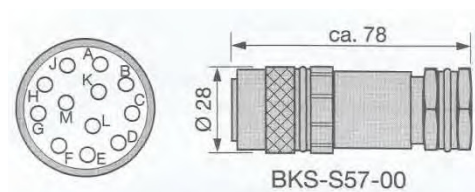
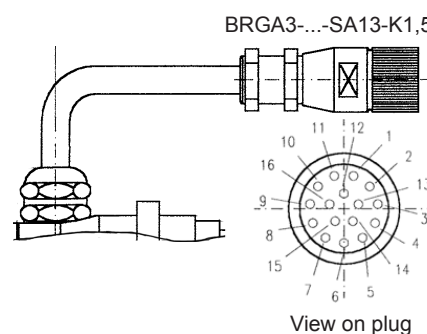


Fig. 4: Cable/connector assembly for BRGA3-...-S



Pin Configuration: Solder side view of the connector

Fig. 5: Connector for BRGA3-...S/SR

Pin Configuration

Track	Pin	Cable		SA13
+V _s	A	BN	brown	1
0V	B	BU	blue	2
1	C	BK	black	3
2	D	WH	white	4
3	E	YE	yellow	5
4	F	GN	green	6
5	G	VI	violet	7
6	H	PK	pink	8
7	J	GY	grey	9
8	K	RD	red	10
9	L	GY/PK	grey/pink	11
10	M	RD/BU	red/blue	12
Shield	-		transparent	