

## BTL Micropulse Displacement Transducer Rod Type with Analogue Output

- High accuracy
- High cycle life
- High resolution
- R series and G series compatibility options
- 0-10V,  $\pm 10V$  or 4-20mA output versions (SSI & Fieldbus on separate datasheet)



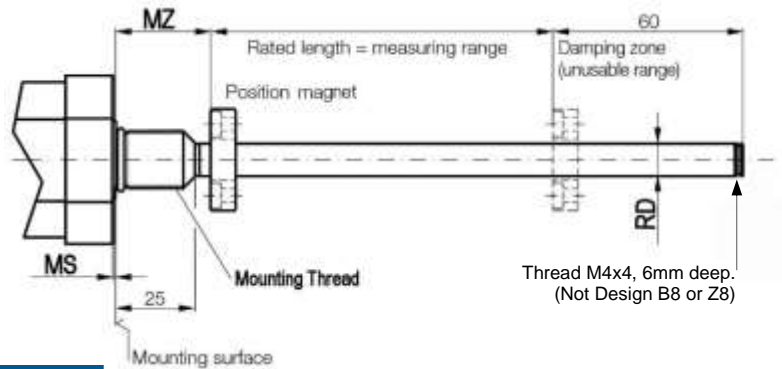
These transducers are for displacement / position measurement. They make an accurate measurement of the position of a magnet with respect to the transducer rod.

They use the magnetostrictive principle which involves timing the mechanical response to the interaction of an electrical pulse with the position magnet, rather like electronic sonar but it happens inside the welded rod of the transducer. The result is a very accurate output of Voltage or 4-20mA which is proportional to the distance of the magnet along the rod.

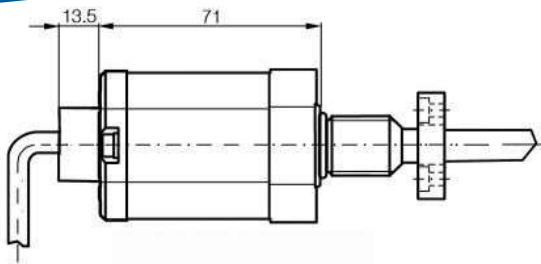
Transducers can be used with the rod inside a hydraulic cylinder or in general liner measurement applications outside a cylinder.

### Rod and Flange Design

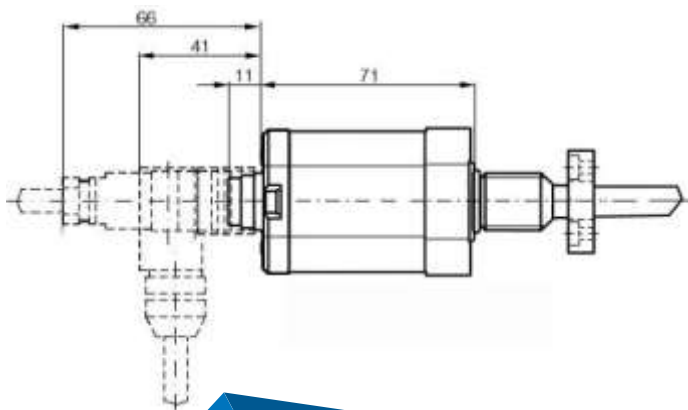
Design	Mounting Surface (MS)	Mounting Thread	Mounting Zone (MZ)	Rod Diameter (RD)
A	0 (Flat)	M18 x 1.5	30mm*	10.2mm
B	0.5mm, $\varnothing 25$ mm	M18 x 1.5	30mm*	10.2mm
B8	0.5mm, $\varnothing 25$ mm	M18 x 1.5	30mm*	8mm
Y	0 (Flat)	$\frac{3}{4}$ " 16 UNF	50.8	10.2mm
Z	0.5mm, $\varnothing 25$ mm	$\frac{3}{4}$ " 16 UNF	50.8	10.2mm
Z8	0.5mm, $\varnothing 25$ mm	$\frac{3}{4}$ " 16 UNF	50.8	8mm
*	Options MA311 or SA311 change this to 50.8mm			



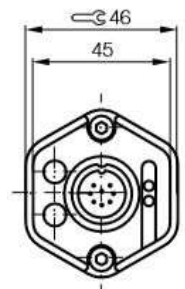
### Electrical Termination



Axial Integral Cable (Connection KA)  
1 to 50m in 1m increments



M12 connector (S115) or M16 (S135)  
Shown with M12 straight/right angled cable fitted  
Connector dimensions different for M16 (S135).  
See page 3 for options.



Rear view (connector version)

- Torque
- Position
- Pressure
- Load Cells
- Displacement
- Instrumentation
- Special Custom Designs

# Specification

Shock	150g/6ms per EN 60068-2-27
Vibration	20g at 10 to 200Hz per EN 60068-2-6
Reverse polarity protected	Yes
Overvoltage protection	TransZorb protection diodes
Dielectric strength	500Vac (GND to housing)
Ingress protection	IP68 (with integral cable) IP67 (S115 version with connector mated)
Material	Head = anodised aluminium Flange = 1.3952 stainless steel Rod = 1.4571 stainless steel.
Pressure rating (installed in cylinder)	600 bar (for 10.2mm diameter rod) or 250 bar (for 8mm diameter rod)
Load current (Outputs A or G)	5mA max
Residual ripple (Outputs A or G)	5mVpp max
Load resistance (Outputs E or C)	500 Ω max
Resolution	≤ 0.33mV (for Outputs A or G) or ≤ 0.66µA (for Outputs E)
Hysteresis	5µm max
Repeatability	Equal to resolution or 2µm, whichever is greater
Update rate	Depends on range, 4kHz at best
Linearity	±50µm (ranges 25 to 500mm) ±0.01%FS (ranges 501 to 5500mm) ±0.02%FS (ranges 5501 to 7620mm)
Temperature Coefficient	≤ 30ppm/K
Supply voltage	10 to 30Vdc
Current consumption at 24Vdc	150mA max
Operating temperature	-40 to +85°C



# Ordering Guide

BTL7-	Output	- MXXXX = Range	- Design -	Option (Leave blank if no option needed)	- Connection
A510	0..10 & 10.. 0V	0025..7620* in 1mm increments	A	MA000 Compatible with existing R-Series or G-Series magnet	S115 8-pin M12 connector
G510	-10..+10 & +10..-10V		B		MA311 Mounting zone changed from 30 to 50.8mm and compatible with existing R or G-Series magnet
E500	4..20mA	*1016 max for B8 or Z8	B8	SA311 Mounting zone changed from 30mm to 50.8mm and compatible with new BTA-Series magnet	
E570	20..4mA		Y		No code If no option code is present, the transducer is defined by the other elements of the part number and is compatible with magnets shown on Page 3
			Z		

Example  
Scope of supply :  
Order separately:

BTL7-E500-M1000-A-KA03 is a 4-20mA output, 1000mm range, design A and 3m integral cable.  
Transducer with 'O' ring fitted, summary user guide, calibration tool.  
Position magnet or float, electrical connector, nut for mounting thread.

# Mounting Nuts

BTA-BAM0118	BTA-BAM0117
M18 X 1.5	3/4"-16 UNF
	

Torque  
Position  
Pressure  
Load Cells  
Displacement  
Instrumentation  
Special Custom Designs

# Position Magnets/Floats



Order Code	BTA-BAM01CE	BTA-BAM013Y	BTA-BAM013H
Material	Aluminium	Aluminium	Ferrite bound in PA
Op. Temp.	-40..+100°C	-40..+100°C	-40..+100°C
Weight		68 grams	1.5 grams
Position Magnet			

Order Code	BTA-BAM013L	BTA-BAM013P	BTA-BAM013J	BTA-BAM013R
Material	Aluminium	Aluminium	Aluminium	Aluminium
Op. Temp.	-40..+100°C	-40..+100°C	-40..+100°C	-40..+100°C
Weight	12 grams	12 grams	12 grams	10 grams
Position Magnet				

Order Code	BTA-BAM01ZE	BTA-BAM024J	BTA-BAM0146	BTA-BAM014C	BTA-BAM0149
Material	Stainless 1.4404	Stainless 1.4404	Stainless 1.4404	Stainless 1.4404	Stainless 1.4404
Environment	-20..+130°C, 60bar	-20..+120°C, 24bar	-20..+120°C, 20bar	-20..+120°C, 15bar	-20..+120°C, 40bar
Weight	9 grams	20 grams	34 grams	69 grams	35 grams
Draft (H <sub>2</sub> O)	30mm	35mm	31mm	41mm	26mm
Float					

Torque  
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Order Code	BTA-BCC00YE	2m	BTA-BCC00YU	2m	BTA-BCC00YA (No cable fitted)	BTA-BCC04ME (No cable fitted)
	BTA-BCC00YF	5m	BTA-BCC00YW	5m		
	BTA-BCC00YH	10m	BTA-BCC00YY	10m		
	BTA-BCC00YJ	15m	BTA-BCC00YZ	15m		
	BTA-BCC00YK	20m	BTA-BCC00Z0	20m		
	BTA-BCC00YL	25m	BTA-BCC00Z1	25m		
	BTA-BCC00YM	50m	BTA-BCC00Z2	50m		
Material	PUR		PUR		Nickel plated CuZn	Various
Cable Dia	6.6 ±0.2mm		6.6 ±0.2mm		6 to 8mm	6 to 8mm
Connection S115 M12, 8-PIN						

Order Code	SEN1060 (No cable fitted)	SEN1061 (No cable fitted)
Material	Zink Nickel Plated	Zink Nickel Plated
Cable Dia	6 to 8mm (PG9)	6 to 8mm (PG9)
Connection S135 M16		

Due to our policy of on-going development, specifications may change without notice. Any modification may affect some or all of the specifications for our equipment. All dimensions and specifications are nominal.



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