

31

Short description:

- >> 3 short-circuit protected outputs
- >> IP 67 at housing
- >> 5 Vdc or 9...36 Vdc
- >> Shock and vibration protected
- >> Status output for warning indication

Suitable applications:

- >> Extra rugged design for harsh environments
- >> Forestry applications
- >> Space limited applications

General information

Encoder data	
Type	MSI 301
Operating temperature	-40°C .. +70°C
Storage temperature	-40°C .. +85°C
Ingress protection class	IP-67 according to IEC 60529
Vibration (55 to 2000Hz)	300 m/s ² according to IEC 60068-2-6
Shock (6ms)	5000 m/s ² according to IEC 60068-2-27
Cover material	Aluminium
Weight	Approx. 70g
Accuracy and resolution	
Line count	20, 25, 30, 50, 60, 80, 100, 125, 160, 200, 250, 400, 500,
Other line counts on request	512, 600, 625, 800, 1000, 1024, 1200, 1250
Dividing error	± 50 °el
Channel separation	90 ± 25 °el
Measuring steps	Max 4 x Line count

Flange option

Flange type	31
Outer diameter	ø30 mm
Mounting holes	3 x M3
Flange material	Aluminium

Shaft option

Shaft type	Ø6 with face
Axial shaft load	10N
Radial shaft load	10N
Mech. permissible speed	3000rpm (12000rpm)
Shaft material	Stainless steel
Moment of inertia	0,15 x 10 ⁻⁶ kgm ²



Connection option

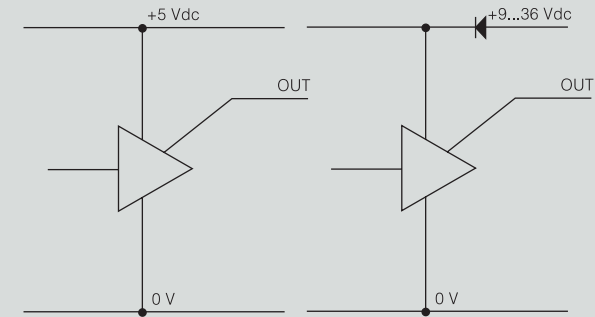
Connector type	Cable PUR 6x0,25mm ²	8 pin M12	4 pin M8
Function	Colour	PIN	PIN
S00	Yellow	4	4
S90	Green	3	3
Sref	Brown	2	NA
+E Volt	Red	8	1
0 Volt	Blue	7	2
STATUS	Grey	6	NA
Case	Shield	Chassis	Chassis
Connecting direction			
Axial	Yes	Yes	Yes
Radial	Yes	No	No

NA=Not Available

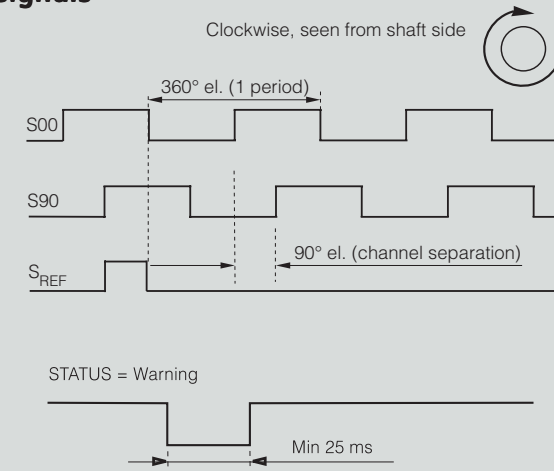
Electrical option

Power supply	5 V ±10%	9-36 V
Polarity protected	No	Yes
Output signals	TTL	HTL
Short circuit protected	Yes	Yes
Current consumption	30mA	10mA @ 24V
Max consumption	90mA	70mA
Output load (max)	± 20mA	
Frequency range	0...200kHz	
U _{high} at 10mA load	> 3.0V	> +EV - 2.0V
U _{low} at 10mA load	< 0.4V	< 1.15V
Cable length (max)	100m @ 50kHz	
STATUS output	Yes	Yes
High level	Encoder OK	Encoder OK
Low level	Warning/Failure	Warning/Failure

Output circuit



Output signals

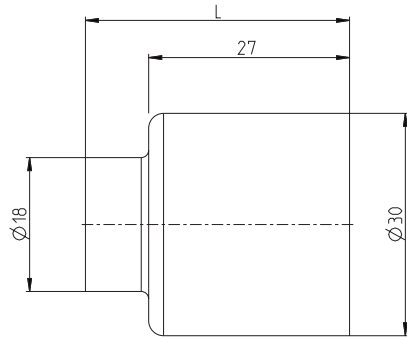


301 — Miniature Shaft encoder, Incremental



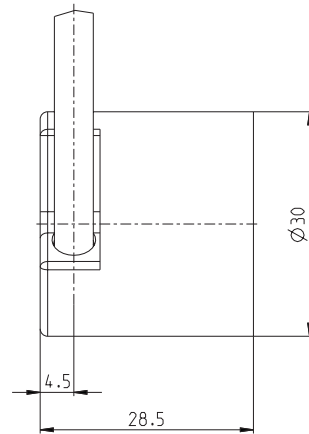
Dimensions

Axial connections



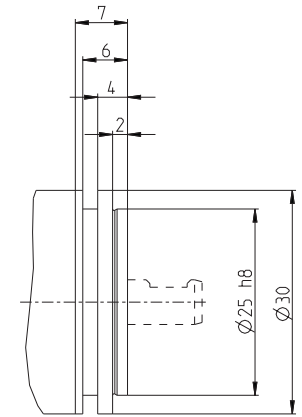
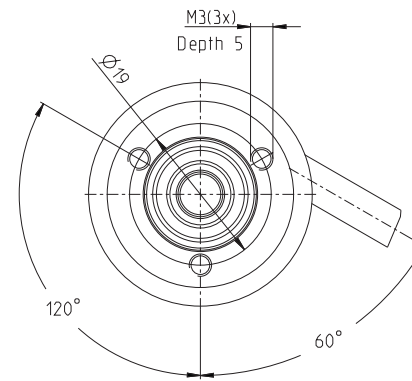
	L
Cable	28.5
4pM8	32
8pM12	35

Radial connections



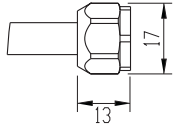
Flanges

31

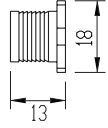


Connectors

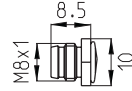
Cable 6x0,25 shielded



8pin M12

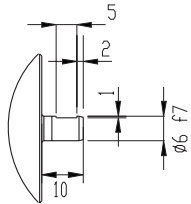


4pin M8



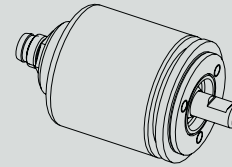
Shafts

6 mm with face

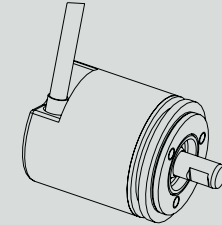


Various combinations/example

MSI 301 31
6 mm with face, axial M8



MSI 301 31
6 mm with face, radial cable



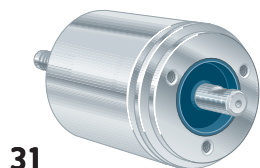
Ordering information Tick your choice

Type	MSI 301		
Flange	31		
Shaft	Ø6 with face		
Electronics ⁽¹⁾	Supply	5Vdc	9-36Vdc
	Output	TTL	HTL
Connection	Cable	8 pin M12	4 pin M8
Connecting direction	Axial/Radial	Axial	Axial
Line count	1..1250		

⁽¹⁾ Possible combinations: 5Vdc/TTL, 9-36Vdc/HTL

Please, specify line count and cable length when ordering

Ordering example: MSI 301 31 Ø6wf 5Vdc 1024ppr TTL 8 pin M12 Axial



Short description:

- >> 6 short-circuit protected outputs
- >> IP 67 at housing
- >> 5 Vdc or 9...36 Vdc
- >> Shock and vibration protected
- >> Status output for warning indication

Suitable applications:

- >> Standard to demanding industrial applications
- >> Space limited applications

General information

Encoder data	
Type	MSI 303
Operating temperature	-40°C .. +70°C
Storage temperature	-40°C .. +85°C
Ingress protection class	IP-67 according to IEC 60529
Vibration (55 to 2000Hz)	200m/s ² according to IEC 60068-2-6
Shock (6ms)	3000m/s ² according to IEC 60068-2-27
Cover material	Aluminium
Weight	Approx. 70g
Accuracy and resolution	
Line count	20, 25, 30, 50, 60, 80, 100, 125, 160, 200, 250, 400, 500,
Other line counts on request	512, 600, 625, 800, 1000, 1024, 1200, 1250
Dividing error	± 50 °el
Channel separation	90 ± 25 °el
Measuring steps	4 x Line count

Flange option

Flange type	31
Outer diameter	ø30 mm
Mounting holes	3 x M3
Flange material	Aluminium

Shaft option

Shaft type	Ø6 with face
Axial shaft load	10N
Radial shaft load	10N
Mech. permissible speed	3000rpm (12000rpm)
Shaft material	Stainless steel
Moment of inertia	0,15 x 10 ⁻⁶ kgm ²



Connection option

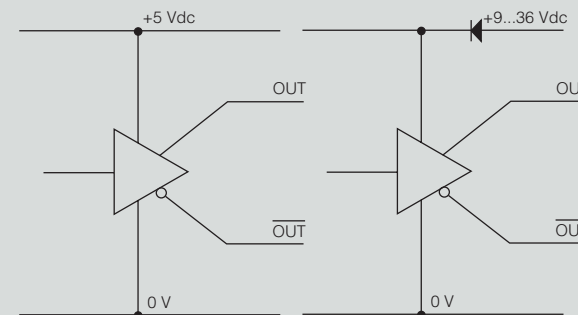
Connector type	Cable PVC 5x2x0,25mm ²	8 pin M12
Function	Colour	PIN
S00	Yellow	4
S00 inverted	Black	5
S90	Green	3
S90 inverted	White	1
Sref	Brown	2
Sref inverted	Violet	6
+E Volt	Red	8
0 Volt	Blue	7
STATUS	Grey	NA
Case	Shield	Chassis
Connecting direction		
Axial	Yes	Yes
Radial	No	No

NA=Not Available

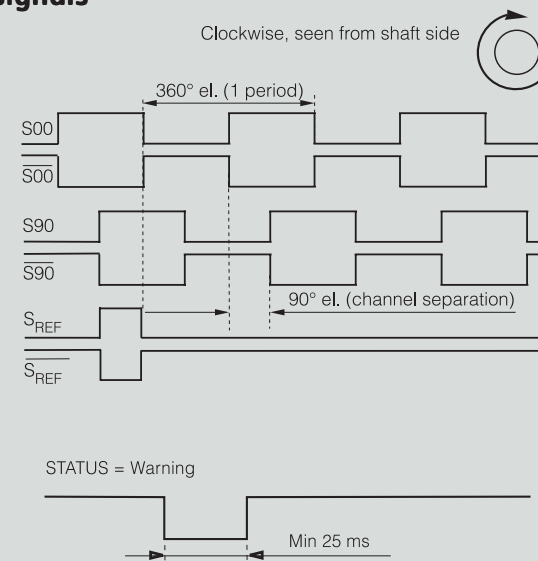
Electrical option

Power supply	5 V ±10%	9-36 V
Polarity protected	No	Yes
Output signals	TTL	HTL
Short circuit protected	Yes	Yes
Current consumption	30mA	10mA @ 24V
Max consumption	90mA	70mA
Output load (max)	± 20mA	
Frequency range	0...200kHz	
U _{high} at 10mA load	> 3.0V	> +EV - 2.0V
U _{low} at 10mA load	< 0.4V	< 1.15V
Cable length (max)	100m @ 50kHz	
STATUS output	Yes	Yes
High level	Encoder OK	Encoder OK
Low level	Warning/Failure	Warning/Failure

Output circuit



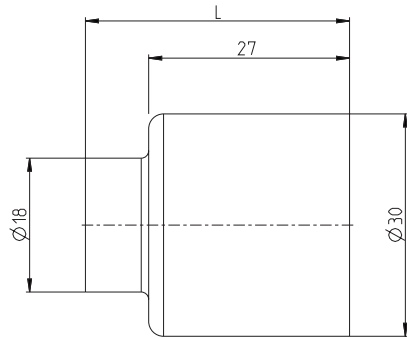
Output signals



303 — Miniature Shaft encoder, Incremental

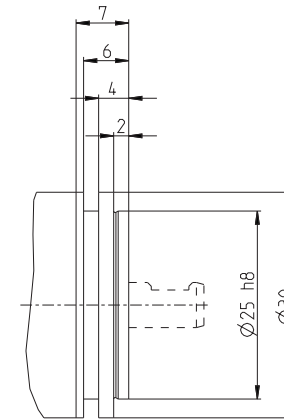
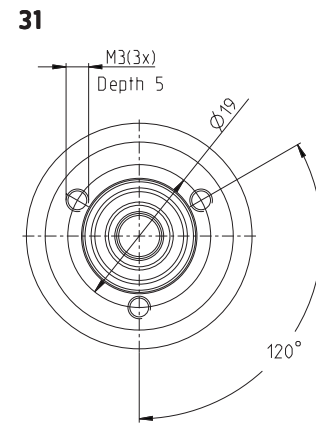


Dimensions



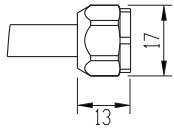
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Cable	28.5
8pM12	35

Flanges

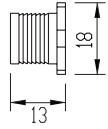


Connectors

Cable
5x2x0,25 shielded

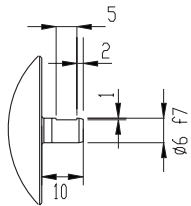


8pin M12



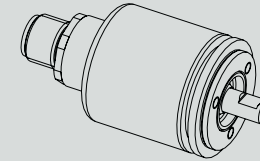
Shafts

6 mm with face

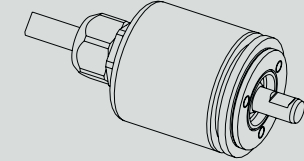


Various combinations/example

MSI 303 31
6 mm with face, axial M12



MSI 303 31
6 mm with face, axial cable



Ordering information Tick your choice

Type	MSI 303		
Shaft	Ø6 with face		
Flange	31		
Electronics ⁽¹⁾	Supply	5Vdc	9-30Vdc
	Output	TTL	HTL
Connection	Cable	8 pin M12	
Connecting direction	Axial	Axial	
Line count	1..1250		

⁽¹⁾ Possible combinations: 5Vdc/TTL, 9-30Vdc/HTL

Please, specify line count and cable length when ordering

Ordering example: MSI 303 31 Ø6wf 5Vdc 1024ppr TTL 8 pin M12 Axial