

Rotary encoders—

absolute/incremental
Collection of data sheets

Bright ideas in the measurement of rotation:
... robust, precise, versatile.



The SIKO logo consists of the word "SIKO" in a bold, blue, sans-serif font, enclosed within a blue circular border.

Incremental encoder IG06

Hollow shaft

IG06 – the economical one! Compact incremental encoder with through hollow shaft, easy to handle and mount.

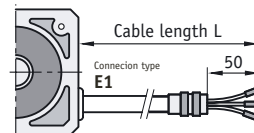
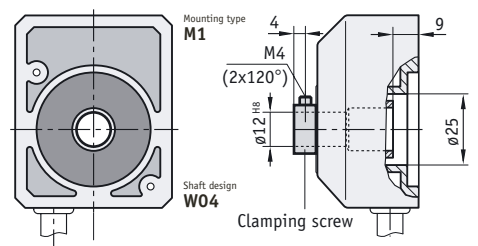
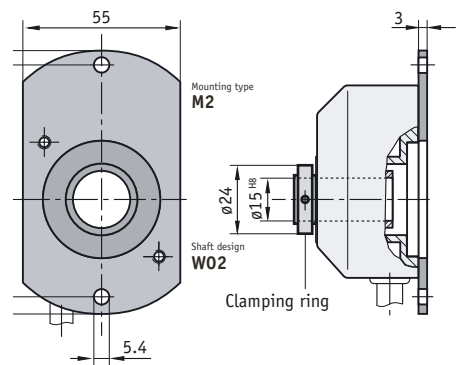
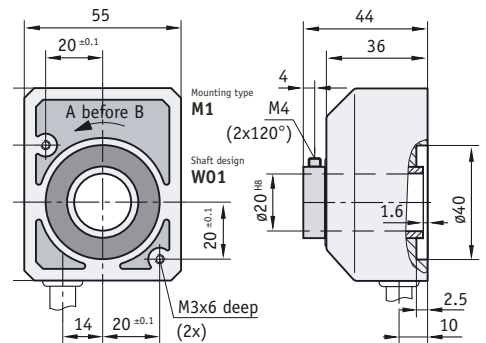


Features:

- resolution max. 1024 pulses/revolution
- economical design
- through hollow shaft up to diam. 20 mm
- housing made of shock-proof plastic

Options:

- Customer-specific versions are available on request



Feature	Order text	Technical data	Additional information
Output signals	A	sleeve bearing	ball bearing
	AXX	500	1024
	ABX	250	500
	AB0	220	250
	ABI	220	250
			max. pulses/revolution
			max. pulses/revolution
			max. pulses/revolution
			max. pulses/revolution
Pulses/revolution	...	2, 3, 5, 6, 8, 10 , 14, 15, 16, 17, 20, 24, 25 , 28, 30, 32, 35, 36, 40, 43, 44, 47, 48, 50 , 60, 70, 79, 80, 84, 85, 86, 90, 91, 93, 96, 100 , 103, 115, 117, 120, 121, 123, 125 , 127, 132, 140, 150, 153, 156, 157, 158, 160, 180, 197, 199, 200 , 202, 212, 220, 226, 240, 250 , 280, 300, 360 , 377, 381, 400, 500 , 600, 1000 , 1024 others on request	
Cable sheath	PVC	C	
Connection type	E1	D	stripped cable ends
	E6X		cable coupling
	E6		cable coupler with mating connector
Cable length L [m]	2.0	E	0.3 ... 40.0
			from 0.3 ... 40.0 in 0.1 steps
Cable length L2 [m] (only for E6)	2.0	F	0.3 ... 10.0
			from 0.3 ... 10.0 in 0.1 steps
Mounting type	M1	G	
	M2		with flange
	DS		torque support
Output circuit	PP	F	push-pull
	OC		open collector (NPN) current-sinking
Shaft design	W01	I	slide bearing/clamping screw
	W01N		slide bearing/clamping screw, Nirosta
	W02		ball bearing/clamping ring
	W04		ball bearing/clamping screw
Hollow shaft diameters [mm]	20	K	for W01
	14, 15		for W02
	10, 12		for W04
Mechanical data			
Max. speed (short-time)			6000 min ⁻¹ (W02,W04)
Rotor inertia moment			600 min ⁻¹ (W01, W01N)
Starting torque (20 °C)			9x10 ⁻⁶ kgm ² for W04, 9.5x10 ⁻⁶ kgm ² for W02
Load capacity of shaft			10.5 x 10 ⁻⁶ kgm ² for W01 and W01N
Weight			< 1.5 Ncm (W04), < 1.5 Ncm (W02)
Type of protection			< 15 Ncm (W01)
Operating temperature			radial 20N, axial 10N (W01)
Shaft			radial 50N, axial 25N (W02, W04)
Shock resistance			approx. 0.14 kg
Vibration resistance			IP 54
			0 °C ... +60 °C
			burnished steel
			200 g/6 ms
			10 g/50 Hz
			according to DIN-IEC 68-2-27
			according to DIN-IEC 68-2-6
Electrical data			
Phase position		PP	90 ° ± 30 °
Operating voltage		OC (NPN)	90 ° ± 30 °
Power cons. without load (typ.)			10 ... 30 V DC
Permitted load/channel (max.)			10 ... 30 V DC
Pulse frequency (max.)			50 mA
Signal level high (min.)			50 mA
Signal level low (max.)			40 mA*
Polarity protection on UB			25 kHz
			25 kHz
			UB - 2 V (20 mA)
			**
			1 V (20 mA)
			0.1 V
			yes
			yes
Other data			
Housing			reinforced plastic
Test mark			CE

* short-circuit proof, ** wiring-dependent

Your order data: - - - - - - - - - -

Incremental encoder IG07

Hollow shaft

IG07 – the sturdy one! An incremental encoder with through hollow shaft, which is nearly indestructible even under the roughest environmental conditions.

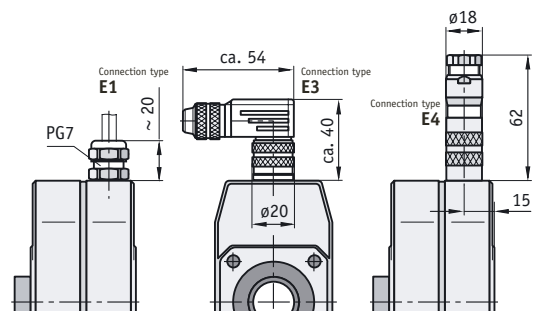
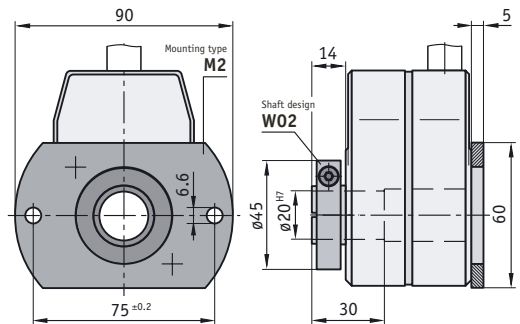
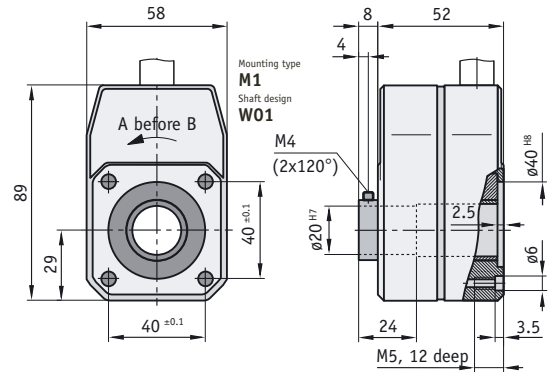


Features:

- resolution max. 1024 pulses/revolution
- PP, LD, LD24, OC output circuits
- housing made of zinc die cast
- high axial and radial load capacity of shaft
- through hollow shaft up to diam. 20 mm

Options:

- Customer-specific versions are available on request



Feature	Order text	Technical data	Additional information
Output signals	AXX A	ABX, ABO, ABI, AX0, AXI	
Pulses/revolution	... B	2, 3, 4, 5, 6, 8, 9, 10, 12, 13, 14, 15, 16, 17, 20, 21, 22, 24, 25, 27, 28, 30, 33, 35, 36, 37, 40, 43, 47, 50, 54, 57, 60, 63, 64, 66, 67, 70, 71, 77, 79, 80, 83, 84, 90, 91, 92, 96, 100, 103, 115, 117, 118, 120, 123, 125, 127, 132, 133, 140, 142, 150, 151, 152, 153, 156, 157, 158, 160, 165, 180, 185, 187, 197, 200, 202, 203, 212, 220, 226, 236, 250, 256, 266, 267, 280, 283, 300, 325, 326, 330, 350, 360, 375, 377, 381, 394, 400, 433, 450, 464, 471, 476, 480, 495, 500, 512, 585, 600, 625, 660, 667, 692, 698, 720, 750, 762, 785, 800, 900, 942, 1000, 1024 others on request	
Connection type	EX C E1 E3 E4	without cable stripped cable ends angle plug circular plug	
Cable length L [m]	2.0 D OK	0.3 ... 10.0, max. 50 without cable	from 0.3 to 10.0 in 0.1 steps
Mounting type	M1 E M2 DS	with flange torque support	
Output circuit	PP F OC LD LD24	push-pull open collector (NPN) current-sinking RS422, 5 V DC operating voltage RS422, 24 V DC operating voltage	
Shaft design/shaft diam. [mm]	W01 G W01/RH16 W02 W02N W03/15	20 W01/RH15, W01/RH14, W01/RH12 20 20 W03/14, W03/12	W01 = ball bearing/clamping screw e.g. RH16 = with reducing sleeve for shaft diam. 16 W02 = ball bearing/clamping ring W02N = ball bearing/clamping ring (Nirosta) W03 = ball bearing/collet chuck for e.g. shafts diam. 15
Bearing	MS H RS	IP64 IP65	
Mechanical data			
Max. speed (short-time)		6000 min ⁻¹ (IP64), 3000 min ⁻¹ (IP65)	
Rotor moment of inertia		28.5x10 ⁻⁶ kgm ² /W01, 58.5x10 ⁻⁶ kgm ² /W02	35.5 x 10 ⁻⁶ kgm ² /W03, 30.5 x 10 ⁻⁶ kgm ² /W01 with reducing sleeve
Starting torque (20 °C)		≤ 6 Ncm (IP64), ≤ 10Ncm (IP65)	
Load capacity of shaft		radial 5600N, axial 1400N	
Weight		approx. 0.75 kg	
Operating temperature		0 °C ... +60 °C	
Shaft		burnished steel	
Cable sheath		PVC	
Shock resistance		200 g/11 ms	according to DIN-IEC 68-2-27
Vibration resistance		20 g/5 ... 2000 Hz	according to DIN-IEC 68-2-6
Electrical data			
Phase position		PP 90 ° ± 30 ° OC (NPN) 90 ° ± 30 °	LD 90 ° ± 30 ° LD24 90 ° ± 30 °
Operating voltage		10 ... 30 V DC	5 V DC ±5% 10 ... 30 V DC
Power cons. without load (typ.)		40 mA	40 mA
Permitted load/channel (max.)		40 mA*	40 mA*
Pulse frequency (max.)		80 kHz	50 kHz
Signal level high (min.)		UB - 2 V	RS422-compatible
Signal level low (max.)		1.1 V (40 mA)	RS422-compatible
Polarity protection on UB		yes	no
Other data			
Housing		zinc, die cast	
Test mark		CE	

* short-circuit proof, ** wiring-dependent

Your order data: - - - - - - - -

Incremental encoder IG16

Solid shaft

IG16 – the economical one! Compact incremental encoder with solid shaft, easy to handle and mount.

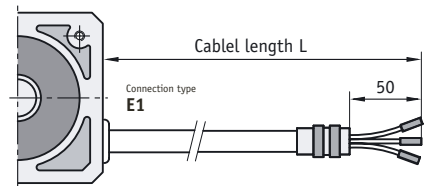
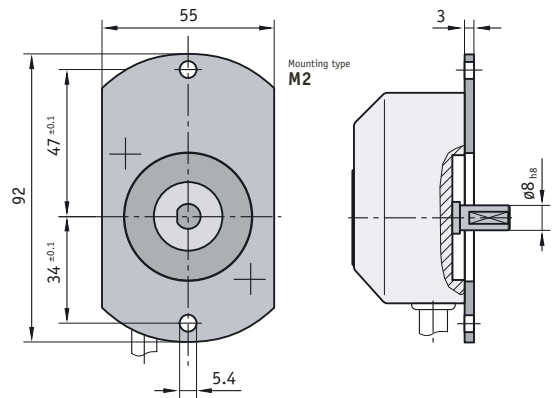
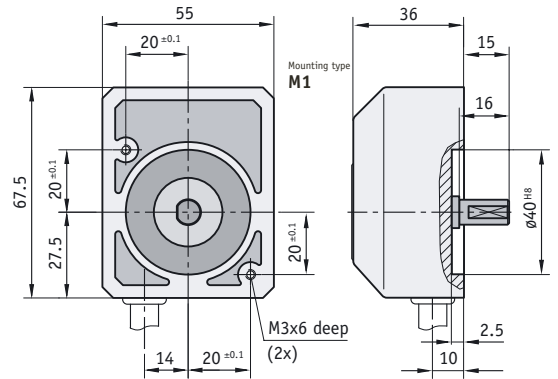


Features:

- max. 1024 pulses/revolution
- PP, OC output circuits
- shock-proof plastic housing
- economical design

Options:

- Customer-specific versions are available on request.



Feature	Order text	Technical data	Additional information
Output signals		slide bearing	ball bearing
	AXX	500	1024
	ABX	250	500
	AB0	220	250
	ABI	220	250
			max. pulses/revolution
			max. pulses/revolution
			max. pulses/revolution
			max. pulses/revolution
Pulses/revolution	...	2, 3, 5, 6, 8, 10 , 14, 15, 16, 17, 20, 24, 25 , 28, 30, 35, 36, 40, 43, 44, 47, 48, 50 , 60, 70, 75, 79, 80, 84, 85, 86, 90, 91, 93, 96, 100 , 115, 117, 120, 123, 125 , 127, 132, 140, 150, 153, 156, 157, 158, 160, 180, 197, 199, 200 , 202, 212, 220, 226, 250 , 265, 300, 360 , 377, 381, 500 , 600, 1000 , 1024 others on request	
Connection type	E1	stripped cable ends	
	E6X	coupling at end of cable	
	E6	coupling in cable with stripped cable ends	
Cable length L [m]	2.0	0.3 ... 10.0, max. 25	from 0.3 ... 10.0 in 0.1 steps
Cable length L2 [m] (only for E6)	2.0	0.3 ... 10.0	from 0.3 ... 10.0 in 0.1 steps
Mounting type	M1		
	M2		with flange
Output circuit	PP	push-pull	
	OC	open collector (NPN) current-sinking	
Solid shaft diam. [mm]	8		
	6		
Shaft design	W01	slide bearing/clamping screw	
Mechanical data			
Max. speed		12000 min ⁻¹	
Rotor moment of inertia		8.4 x 10 ⁻⁶ kgm ² at W01	
Load capacity of shaft		radial 20N, axial 10N (W01)	
Weight		approx. 0.12 kg	
Type of protection		IP 54	
Operating temperature		0 °C ... +60 °C	
Shaft		burnished steel	
Cable sheath		PVC	
Shock resistance		400 g/6 ms	according to DIN-IEC 68-2-27
Vibration resistance		10 g/50 Hz	according to DIN-IEC 68-2-6
Electrical data			
		PP	OC (NPN)
Phase position		90 ° ± 30 °	90 ° ± 30 °
Operating voltage		10 ... 30 V DC	10 ... 30 V DC
Power cons. without load (typ.)		50 mA	50 mA
Permitted load/channel (max.)		40 mA*	50 mA
Pulse frequency (max.)		25 kHz	25 kHz
Signal level high (min.)		UB - 2 V (20 mA)	**
Signal level low (max.)		1 V (20 mA)	0.1 V
Polarity protection on UB		yes	yes
Other data			
Housing		plastic reinforced	
Test mark		CE	

* short-circuit proof, ** wiring-dependent

Your order data: - - - - - - - - -

Incremental encoder IG17

Solid shaft

IG17 – the indestructible one! The solid shaft encoder for use under rough conditions. Thanks to its solid metal housing, it is particularly suitable when precision is required under high mechanical stress.

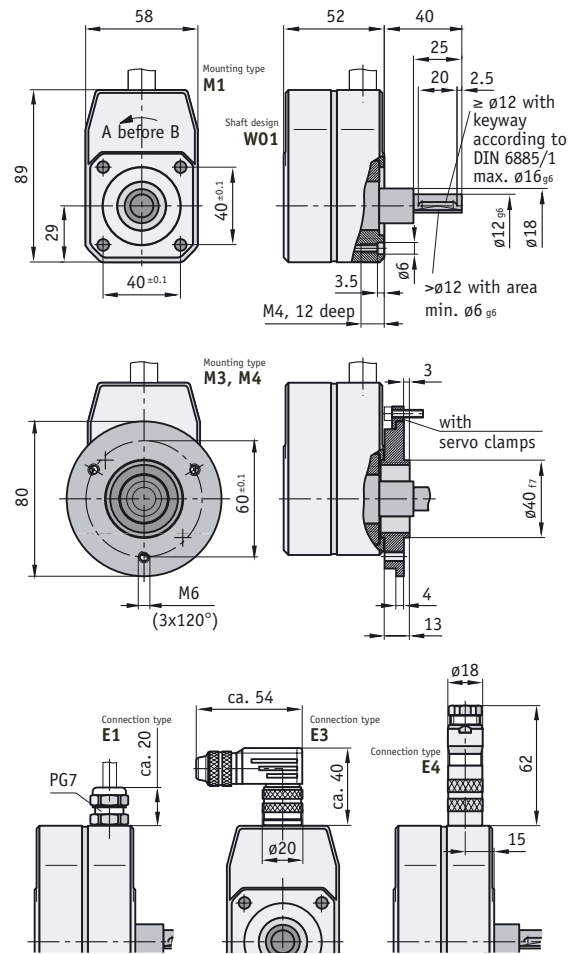


Features:

- resolution max. 1024 pulses/revolution
- PP, LD, LD24, OC output circuits
- sturdy zinc die cast housing
- high axial and radial load capacity of shaft
- solid shafts up to diam. 16 mm

Options:

- Customer-specific versions are available on request



Feature	Order text	Technical data	Additional information
Output signals	AXX A	ABX, ABO, ABI, AX0, AXI	
Pulses/revolution	... B	2, 3, 4, 5, 6, 8, 9, 10, 12, 14, 15, 16, 17, 20, 24, 25, 28, 30, 33, 35, 36, 37, 40, 44, 43, 47, 50, 54, 57, 60, 66, 70, 79, 80, 83, 84, 86, 90, 91, 96, 100, 115, 117, 118, 120, 123, 127, 132, 133, 140, 150, 152, 153, 156, 157, 158, 160, 180, 187, 197, 200, 202, 203, 212, 220, 226, 236, 250, 256, 266, 280, 300, 326, 330, 333, 350, 360, 375, 377, 381, 394, 400, 433, 450, 464, 471, 495, 500, 512, 585, 600, 625, 660, 667, 720, 724, 750, 762, 785, 800, 900, 1000, 1024 others on request	
Connection type	EX C E1 E3 E4	without cable stripped cable ends angle plug circular plug	
Cable length L [m]	2.0 D OK	0.5 ... 10.0, max. 60 without cable	from 0.5 ... 10.0 in 0.1 steps
Mounting type	M1 E M3 M4	with IP64 flange with IP65 flange	
Output circuit	PP F OC LD LD24	push-pull open collector (NPN) current-sinking RS422, 5 V DC operating voltage RS422, 24 V DC operating voltage	
Shaft diam. [mm]	12 G	15, 16, 10, 8, 7, 6 others on request	
Shaft design	W01 H W02		
Mechanical data			
Max. speed (short-time)		6000 min ⁻¹ (IP64), 3000 min ⁻¹ (IP65)	
Rotor moment of inertia		28.5x10 ⁻⁶ kgm ² /W01, 58.5x10 ⁻⁶ kgm ² /W02	35.5 x 10 ⁻⁶ kgm ² /W03, 30.5 x 10 ⁻⁶ kgm ² /W01 with reducing sleeve
Starting torque (20 °C)		≤ 6 Ncm (IP64), ≤ 10Ncm (IP65)	
Load capacity of shaft		radial 5600N, axial 1400N	
Weight		approx. 0.75 kg	
Type of protection		IP64, IP65	
Operating temperature		0 °C ... +60 °C	
Shaft		burnished steel	
Cable sheath		PVC	
Shock resistance		200 g/11 ms	according to DIN-IEC 68-2-27
Vibration resistance		20 g/5 ... 2000 Hz	according to DIN-IEC 68-2-6
Electrical data			
Phase position		PP 90 ° ± 30 ° OC (NPN) 90 ° ± 30 °	LD 90 ° ± 30 ° LD24 90 ° ± 30 °
Operating voltage		10 ... 30 V DC	5 V DC ±5% 10 ... 30 V DC
Power cons. without load (typ.)		40 mA	40 mA
Permitted load/channel (max.)		40 mA*	40 mA*
Pulse frequency (max.)		80 kHz	50 kHz
Signal level high (min.)		UB - 2 V	** RS422-compatible
Signal level low (max.)		1.1 V (40 mA)	1.5 V (10 mA) RS422-compatible
Polarity protection on UB		yes	no
Other data			
Housing		zinc, die cast	
Test mark		CE	

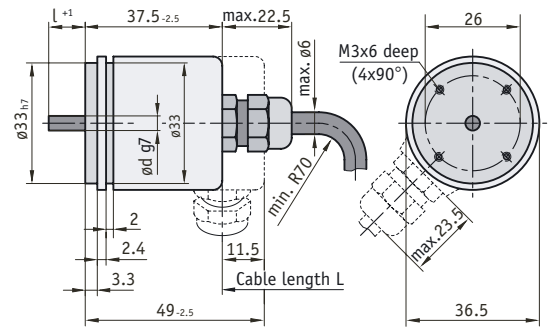
* short-circuit proof, ** wiring-dependent

Your order data: - - - - - - - -

Incremental encoder IV36

Solid shaft

IV36 - the little one! An incremental encoder with solid shaft for installation in the smallest space and to fulfil the highest demands.



Features:

- resolution max. 3600 pulses/revolution
- small, compact design
- IP65 type of protection
- shaft diam. 4 and 6 mm

Feature	Order text	Technical data	Additional information	
Pulses/revolution	...	A	15, 50, 60, 90, 100, 180, 200, 250, 300,	
			314, 360, 400, 500, 600, 625, 635, 720,	
			900, 1000, 1024, 1080, 1200, 1250, 1500,	
			1600, 2000, 2500, 3600	
Connection type	E1	B	stripped cable ends	
Position of electrical connection	A	C	axial	
			R	radial
Cable length L [m]	2.0	D	1.0, 2.0, 3.0, 5.0, 8.0, 10.0	
Output circuit	OP	E	push-pull with additional inverted signals	
			LD	RS422, 5 V DC operating voltage
			LD24	RS422, 24 V DC operating voltage
Shaft diam. x length [mm]	4 x 10	F	d x l	
			6 x 10	
Mechanical data				
Speed			max. 12000 min ⁻¹	
Rotor moment of inertia			approx. 0.27 x 10 ⁻⁶ kgm ²	
Starting torque			< 0.007 Nm	
Load capacity of shaft			radial 10N, axial 5N	
Weight			approx. 0.1 kg	
Type of protection			IP 65	according to EN 60 529
Working temperature			0 °C ... +70 °C	
Shaft			stainless steel	
Cable sheath			PVC	
Shock resistance			1000 m/s ² , 6 ms	according to DIN-IEC 68-2-27
Vibration resistance			100 m/s ² , 10 ... 2000 Hz	according to DIN-IEC 68-2-6
Electrical data				
		OP	LD	LD24
Output signals		AB0	AB0	AB0
Operating voltage		10 ... 30 V DC	5 V DC ±5%	10 ... 30 V DC
Power cons. without load (typ.)		80 mA	70 mA	70 mA
with inverting (max.)		150 mA	100 mA	100 mA
Permitted load/channel (max.)		± 30 mA	± 10 mA	± 10 mA
Pulse frequency (max.)		100 kHz	125 kHz	125 kHz
Signal level high (min.)		UB - 3 V	2.5 V	2.5 V
Signal level low (max.)		2.5 V	0.5 V	0.5 V
Rise time t _r (max.)		1 µs	200 ns	200 ns
Fall time t _f (max.)		1 µs	200 ns	200 ns
Short-circuit proof outputs		no	yes, only 1 channel *	yes, only 1 channel **
Other data				
Test mark		CE		

* Short circuit towards other channels, 0V or +UB permitted
 ** Short circuit towards other channels, or 0V permitted

Your order data: - - - - - -

Feature	Order text	Technical data	Additional information
Output signals	AXX	A ABX, ABO	
	...		
Pulses/revolution	...	B 10, 20, 25, 30, 36, 50, 60, 64, 96, 100, 125, 200, 250, 300, 360, 400, 500, 512	
Connection type	E1	C stripped cable ends connector	
	E2		mating connector available as an accessory, art. no. 76454
Position of electrical connection	A	D axial radial	
	R		
Cable length L [m]	2.0	E 1.0, 2.0, 3.0, 5.0, 8.0, 10.0 without cable (only for E2)	
	OK		
Mounting type	M1	F clamping flange servo flange	
	M2		
Shaft diam. x length [mm]	6 x 10	G d x l 10 x 20	
	10 x 20		
Mechanical data			
Speed		max. 6000 min ⁻¹	
Rotor moment of inertia		approx. 0.6 x 10 ⁻⁶ kgm ²	
Starting torque		< 0.01 Nm	
Load capacity of shaft		radial 40N, axial 20N	
Weight		approx. 0.4 kg	
Type of protection		IP 64	according to EN 60 529
Working temperature		0 °C ... +50 °C	
Shaft		stainless steel	
Cable sheath		PVC	
Shock resistance		1000 m/s ² , 6 ms	according to DIN-IEC 68-2-27
Vibration resistance		100 m/s ² , 10 ... 2000 Hz	according to DIN-IEC 68-2-6
Electrical data			
Output circuit		PP- push-pull	
Operating voltage		10 ... 30 V DC	
Power cons. without load (typ.)		80 mA	
Permitted load/channel (max.)		± 30 mA	
Pulse frequency (max.)		20 kHz	
Signal level high (min.)		UB - 2.5 V	
Signal level low (max.)		1.5 V	
Rise time t _r (max.)		1 µs	
Fall time t _f (max.)		1 µs	
Short-circuit proof outputs		yes, polarity protection on UB	
Other data			
Test mark		CE	

Your order data: - - - - - - -

Feature	Order text	Technical data	Additional information	
Pulses/revolution	... A	10, 20, 25, 30, 50, 60, 100, 120, 125, 127, 150, 180, 200, 216, 240, 250, 254, 256, 300, 314, 360, 375, 400, 500, 512, 600, 625, 720, 745, 750, 762, 800, 900, 927, 1000, 1024, 1250, 1270, 1400, 1500, 1800, 2000, 2048, 2250, 2400, 2500, 3000, 3600, 4000, 4096, 5000, 9000, 10000, 18000, 25000, 36000		
Connection type	E1 B	stripped cable ends		
	E2	connector	mating connector available as an accessory, article no. 81273	
Position of electrical connection	A C	axial		
	R	radial		
Cable length L [m]	2.0 D	1.0, 2.0, 3.0, 5.0, 8.0, 10.0		
	OK	without cable (only E2)		
Mounting type	M1 E	clamping flange		
	M2	servo flange		
Output circuit	PP F	push-pull		
	OP	push-pull with additional inverted signals		
	LD	RS422, 5 V DC operating voltage		
	LD24	RS422, 24 V DC operating voltage		
Shaft diam. x length [mm]	6 x 10 G	d x l		
	10 x 20			
Type of protection	65 H	IP65	according to EN 60 529	
	66	IP66	according to EN 60 529	
Working temperature	T1 I	-20 °C ... +70 °C	PVC cable sheath	
	T2	-20 °C ... +85 °C	PUR cable sheath	
	T3	-20 °C ... +105 °C	TPE cable sheath	
Pulse frequency [in kHz]	300 K	600, 800		
Mechanical data				
Speed		max. 12000 min ⁻¹		
Rotor moment of inertia		approx. 1.8 x 10 ⁻⁶ kgm ²		
Starting torque		< 0.01 Nm		
Load capacity of shaft		radial 80N, axial 40N		
Weight		approx. 0.4 kg		
Shaft		stainless steel		
Shock resistance		1000 m/s ² , 6 ms	according to DIN-IEC 68-2-27	
Vibration resistance		100 m/s ² , 10 ... 2000 Hz	according to DIN-IEC 68-2-6	
Electrical data				
Output signals	PP	OP	LD	LD24
Operating voltage	AB0	AB0	AB0	AB0
Power cons. without load (typ.)	10 ... 30 V DC	10 ... 30 V DC	5 V DC ±5%	10 ... 30 V DC
without inverting max. 300 kHz	55 mA	80 mA	70 mA	70 mA
with inverting max. 300 kHz	125 mA			
without inverting max. 600 kHz		150 mA	100 mA	100 mA
with inverting max. 600 kHz	90 mA	115 mA		
without inverting max. 800 kHz	135 mA			
with inverting max. 800 kHz		160 mA		
Power cons. without load (typ.)			70 mA	70 mA
With inverting max. 800 kHz			100 mA	100 mA
Permitted load/channel (max.)	± 30 mA	± 30 mA	± 20 mA	± 20 mA
Signal level high (min.)	UB - 3 V	UB - 3 V	2.5 V	2.5 V
Signal level low (max.)	2.5 V	2.5 V	0.5 V	0.5 V
Rise time t _r (max.)	1 µs	1 µs	200 ns	200 ns
Fall time t _f (max.)	1 µs	1 µs	200 ns	200 ns
Short-circuit proof outputs	yes	yes	yes, only 1 channel *	yes, only 1 channel **
Polarity protection on UB	yes	yes	no	yes
Other data				
Test mark	CE			

* Short circuit towards other channels, 0V or +UB permitted

** Short circuit towards other channels, or 0V permitted

Your order data: - - - - - - - - - -

Incremental encoder IH58

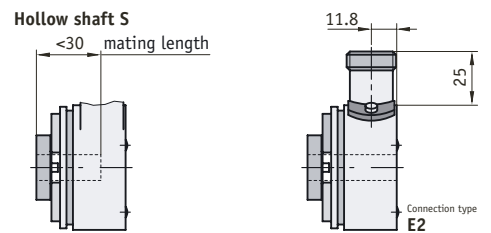
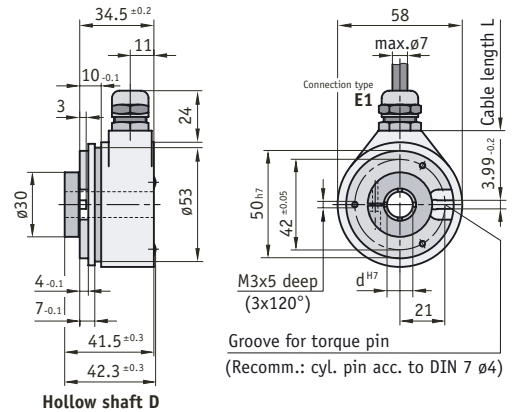
Hollow shaft

IH58 - the universal one! - As a result of its compact design, it makes possible not only quick but also universal mounting.



Features:

- resolution max. 5000 pulses/revolution
- easy installation
- high type of protection: IP66
- through hollow shaft up to diam. 15 mm
- compact design



Feature	Order text	Technical data	Additional information		
Pulses/revolution	...	A	10, 20, 25, 30, 50, 60, 100, 120, 125, 127,		
			150, 180, 200, 216, 240, 250, 254, 256,		
			300, 314, 360, 375, 400, 500, 512, 600,		
			625, 720, 745, 750, 762, 800, 900, 927,		
			1000, 1024, 1250, 1270, 1400, 1500, 1800,		
			2000, 2048, 2250, 2400, 2500, 3000, 3600,		
		4000, 4096, 5000			
		others on request			
Connection type	E1	B	stripped cable ends		
	E2		connector	mating connector available as an accessory, article no. 81273	
Cable length L [m]	2.0	C	1.0, 2.0, 3.0, 5.0, 8.0, 10.0		
	OK		without cable (only E2)		
Output circuit	PP	D	push-pull		
	OP		push-pull with additional inverted signals		
	LD		RS422, 5 V DC operating voltage		
	LD24		RS422, 24 V DC operating voltage		
Hollow shaft	D	E	through		
	S		blind hole	not with Hollow shaft diam. 14 and 15	
Hollow shaft diam. [mm]	6	F	d		
			8, 10, 12, 14, 15		
Type of protection	66	G	IP66	according to EN 60 529	
	40		IP40	according to EN 60 529	
Working temperature	T1	H	-20 °C ... +70 °C	PVC cable sheath	
	T2		-20 °C ... +85 °C	PVC cable sheath	
	T3		-20 °C ... +105 °C	TPE cable sheath	
	T4		-20 °C ... +80 °C	PVC cable sheath	
	T5		-20 °C ... +90 °C	TPE cable sheath	
Mechanical data					
Speed			IP40 max. 12000 min ⁻¹ , IP66 max. 6000 min ⁻¹		
Rotor moment of inertia			approx. 6 x 10 ⁻⁶ kgm ²		
Starting torque			IP40 < 0.01 Nm, IP66 < 0.05 Nm		
Weight			approx. 0.4 kg		
Shaft			stainless steel		
Shock resistance			2000 m/s ² , 6 ms	according to DIN-IEC 68-2-27	
Vibration resistance			100 m/s ² , 10 ... 2000 Hz	according to DIN-IEC 68-2-6	
Electrical data					
Output signals		PP	OP	LD	LD24
Operating voltage		ABO	ABO	ABO	ABO
Power cons. without load (typ.)		10 ... 30 V DC	10 ... 30 V DC	5 V DC ±5%	10 ... 30 V DC
without inverting (max.)		55 mA			
Power cons. without load (typ.)		125 mA			
with inverting (max.)			80 mA	70 mA	70 mA
Permitted load/channel (max.)			150 mA	100 mA	100 mA
Pulse frequency (max.)		± 30 mA	± 30 mA	± 20 mA	± 20 mA
Signal level high (min.)		300 kHz	300 kHz	300 kHz	300 kHz
Signal level low (max.)		UB - 3 V	UB - 3 V	2.5 V	2.5 V
Rise time t _r (max.)		2.5 V	2.5 V	0.5 V	0.5 V
Fall time t _f (max.)		1 μs	1 μs	200 ns	200 ns
Short-circuit proof outputs		1 μs	1 μs	200 ns	200 ns
Polarity protection on UB		yes	yes	yes, only 1 channel *	yes, only 1 channel **
		yes	yes	no	yes
Other data					
Test mark		CE			

* Short circuit towards other channels, 0V or +UB permitted
 ** Short circuit towards other channels, or 0V permitted

Your order data: - - - - - - - -

Incremental encoder IH100

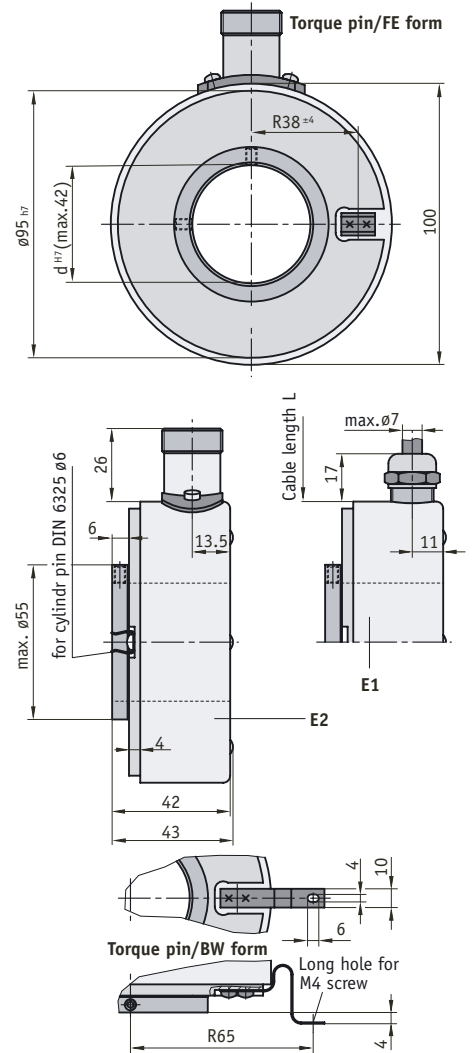
Hollow shaft

IH100 - the big one! - Versatile incremental encoder with through hollow shaft. For the accommodation of large shaft diameters.



Features:

- resolution max. 5000 pulses/revolution
- easy installation
- through hollow shafts with diam. 24 - 42 mm
- high type of protection: IP65



Feature	Order text	Technical data	Additional information			
Pulses/revolution	...	A 360, 1000, 1024, 2048, 2500, 5000				
Connection type	E1	B stripped cable ends				
	E2	connector	mating connector available as an accessory, article no. 81273			
Cable length L [m]	2.0	C 1.0, 2.0, 3.0, 5.0, 8.0, 10.0				
	OK	without cable (only E2)				
Output circuit	PP	D push-pull				
	OP	push-pull with additional inverted signals				
	LD	RS422, 5 V DC operating voltage				
	LD24	RS422, 24 V DC operating voltage				
Torque support	FE	E short spring element				
	BW	angle bracket				
Hollow shaft diam. [mm]	24	F d in				
		25, 28, 38, 42				
Mechanical data						
Speed		max. 1500 min ⁻¹				
Rotor moment of inertia		approx. 65 x 10 ⁻⁶ kgm ²				
Starting torque		< 0.2 Nm				
Weight		approx. 0.7 kg				
Type of protection		IP 65	according to EN 60 529			
Working temperature		-20 °C ... +70 °C				
Shaft		stainless steel				
Cable sheath		PVC				
Shock resistance		2000 m/s ² , 6 ms	according to DIN-IEC 68-2-27			
Vibration resistance		100 m/s ² , 10 ... 2000 Hz	according to DIN-IEC 68-2-6			
Electrical data						
		PP	OP	LD	LD24	
Output signals		ABO	ABO	ABO	ABO	
Operating voltage		10 ... 30 V DC	10 ... 30 V DC	5 V DC ±5%	10 ... 30 V DC	
Power cons. without load (typ.)		55 mA				
without inverting (max.)		125 mA				
Power cons. without load (typ.)			80 mA	70 mA	70 mA	
with inverting (max.)			150 mA	100 mA	100 mA	
Permitted load/channel (max.)		± 30 mA	± 30 mA	± 20 mA	± 20 mA	
Pulse frequency (max.)		300 kHz	300 kHz	300 kHz	300 kHz	
Signal level high (min.)		UB - 3 V	UB - 3 V	2.5 V	2.5 V	
Signal level low (max.)		2.5 V	2.5 V	0.5 V	0.5 V	
Rise time t _r (max.)		1 μs	1 μs	200 ns	200 ns	
Fall time t _f (max.)		1 μs	1 μs	200 ns	200 ns	
Short-circuit proof outputs		yes	yes	yes, only 1 channel *	yes, only 1 channel **	
Polarity protection on UB		yes	yes	no	yes	
Other data						
Test mark		CE				

* Short circuit towards other channels, 0V or +UB permitted

** Short circuit towards other channels, or 0V permitted

Your order data: IH100 - - - - - -

Absolute encoder WK02/1

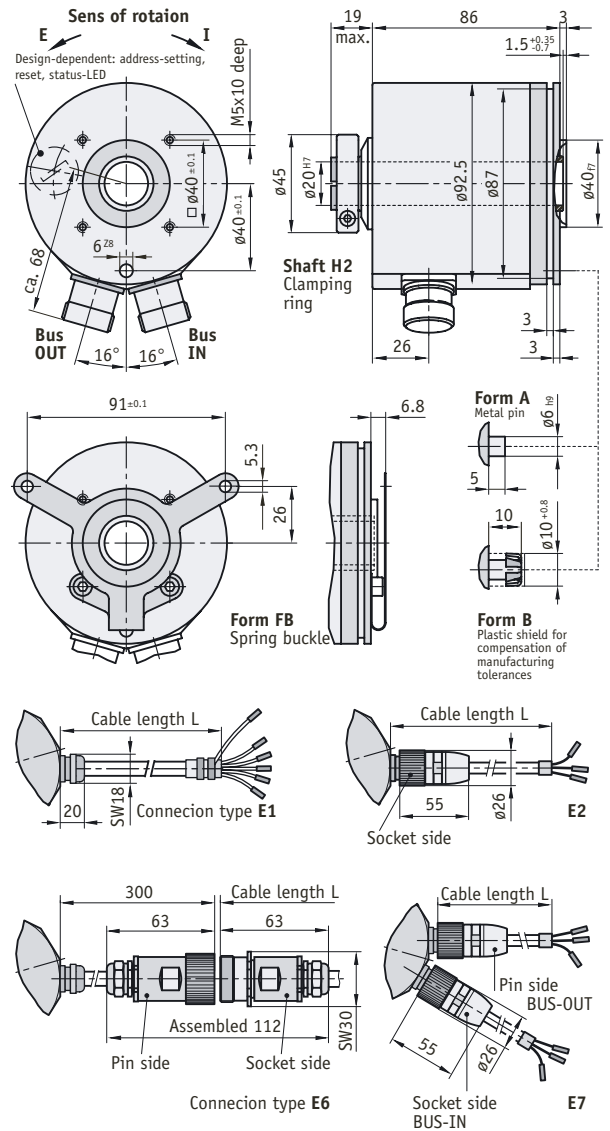
Hollow shaft

WK02/1 - robust single-turn angle encoder with through hollow shaft and 8192 steps (13 bit) resolution per revolution.



Features:

- up to 8192 steps/revolution
- parallel PP (push pull), serial RS485 interfaces
- SSI interface, InterBus-S with K3 ENCOM profile
- Profibus, class 1 encoder profile
- Gray or binary output code
- programmable, easy installation thanks to hollow shaft



Feature	Order text	Technical data	Additional information		
Interface/protocol	P1	parallel PP, short-circuit proof, max. 13 bit			
	S6/04	A RS422/SSI	100 kHz ... 1 MHz clock speed, dependent on cable length		
	IB3	Interbus-S	with ENCOM profile K3		
	PB	Profibus	class 1 encoder profile		
Connection type	E1	B parallel			
	E2	SSI			
	E6	parallel			
	E7	InterBus-S, Profibus			
Cable length L [m]	2.0	C 0.3 ... 10.0	from 0.3 to 10.0 in 0.1 steps		
	OK	without cable			
Steps/revolution	8192	D max. 13 bit			
	...	4096, 2048, 1024, 512, 360, 256, 720			
Output code	B	E binary code			
	G	Gray code			
Sense of rotation (ascending)	E	F counter-clockwise			
	I	clockwise			
Type of protection	54	G IP54	according to DIN VDE 0470		
	65	IP65	according to DIN VDE 0470		
Torque support	A	H A type			
	B	B type			
	FB	spring buckle			
	0	without torque support			
Shaft diameter [mm]	16	I hollow shaft 16			
	20	hollow shaft 20			
Mechanical data					
Shaft load		max. 120 N radial, 400 N axial			
Operating speed [rpm]		max. 3000 (IP54)	max. 2000 (IP65)		
Shaft inertia moment		$1 \times 10^{-4} \text{ kgm}^2$			
Angular acceleration		$2 \times 10^5 \text{ rad/s}^2$			
Starting torque		approx. 5 Ncm (IP54) at 20 °C	approx. 15 Ncm (IP65) at 20 °C		
Weight		approx. 1.2 kg			
Temperature range		working temperature 0 °C ... +50 °C	storage temperature -20 °C ... +85 °C		
Air humidity		condensation not permissible			
Shaft		burnished steel	2-fold ball-bearing		
Service life of bearing		min. 400 x 10 ⁶ revolutions	10 ⁹ at 20 N shaft load		
Shock resistance		30 g (13 ms)	according to DIN-IEC 68-2-27		
Vibration resistance [g]		10 (5 ... 150 Hz), 20 (100 ... 2000 Hz)	according to DIN IEC 68-2-6		
Electrical data					
		SSI	Parallel	Interbus-S	Profibus
Operating voltage		24 V DC ±20%	24 V DC ±20%		
Output driver		RS 485	push-pull		
Power consumption		< 1.3 W	< 1.5 W	< 3.5 W	< 3.0 W
Permitted load/channel (max.)		1 MHz	± 30 mA		
SSI clock speed min./max.		100 kHz/500 kHz			
Bit change rate			300 kHz		
Signal level high		typ. 3.8 V	UB - 0.7 V (30 mA)		
Signal level low		typ. 1.3 V (20 mA)	< 0.7 V (30 mA)		
Ramp-up time t _r (max.)		100 ns*	400 ns*		
Ramp-down time t _f (max.)		100 ns*	400 ns*		
Short-circuit proof outputs		yes, only 1 channel **	yes		
Polarity protection on UB		yes	yes		
Other data					
Scanning		opto-electronical			
Accuracy		± 1 LSB			
Housing and flange		aluminium			
Test mark		CE			

* without cable, ** short circuit toward 0V permissible at UB = 24 V DC ±20%.

Your order data: WK02/1 - - - - - - - - - - -

Absolute encoder WK50/1

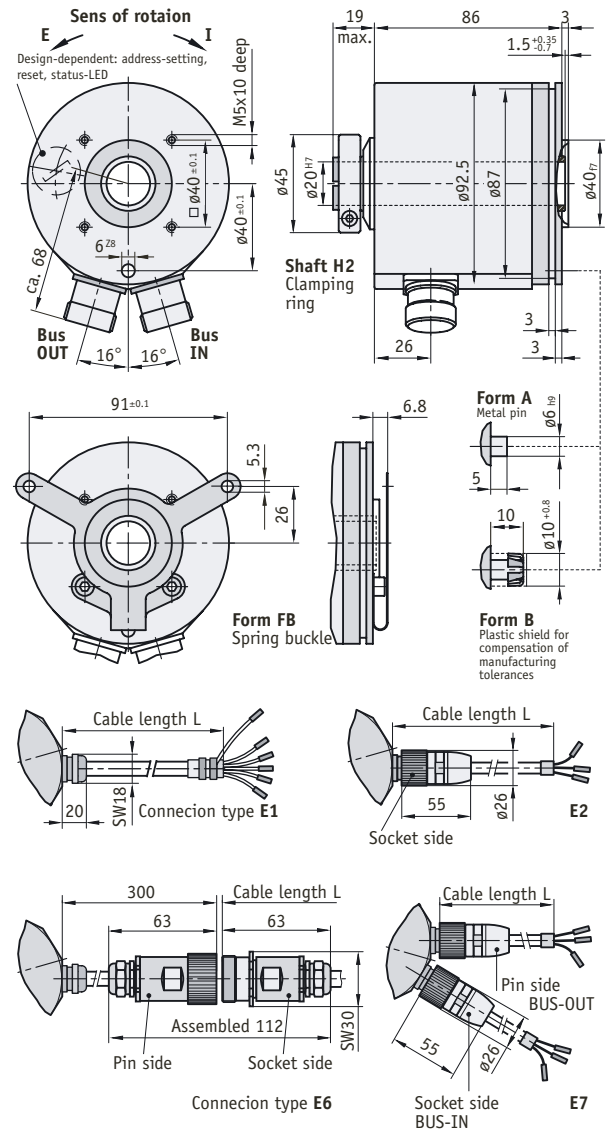
Hollow shaft

WK50/1 - robust multi-turn angle encoder with through hollow shaft. Absolute 8192 steps encoding (13 bit) per revolution and 4096 revolutions (12 bit).



Features:

- up to 8192 steps/revolution and 4096 revolutions
- parallel PP (push pull) interface, max. 20 bit
- serial RS485 interface
- SSI interface, InterBus-S with K3 ENCOM profile
- Profibus, class 1 encoder profile
- Gray or binary output codes
- programmable, easy installation thanks to hollow shaft



Feature	Order text	Technical data	Additional information
Interface/protocol	P1	A	parallel PP, short-circuit proof, max. 20 Bit
	S6/04	A	RS422/SSI
	IB3		Interbus-S
	PB		Profibus
Connection type	E1	B	parallel
	E2	B	SSI
	E6		parallel
	E7		InterBus-S, Profibus
Cable length L [m]	2.0	C	0.5 ... 10.0, 12.0, 15.0
	OK	C	without cable
Steps/revolution	8192	D	max. 13 bit
	...	D	4096, 2048, 1024, 512, 256
Number of revolutions	4096	E	max. 12 bit
	...	E	1024, 256
Output code	B	F	binary code
	G	F	Gray code
Sense of rotation (ascending)	E	G	counter-clockwise
	I	G	clockwise
Type of protection	54	H	IP54
	65	H	IP65
Torque support	A	I	A type
	B	I	B type
	FB		spring buckle
	0		without
Shaft diameter [mm]	16	K	hollow shaft 16
	20	K	hollow shaft 20
Mechanical Data			
Shaft load			max. 120 N radial, 400 N axial
Operating speed [rpm]			max. 3000 (IP54)
Shaft moment of inertia			1 x 10 ⁻⁴ kgm ²
Angular acceleration			2 x 10 ⁵ rad/s ²
Starting torque			approx. 5 Ncm (IP54) at 20 °C
Weight			approx. 1.2 kg
Temperature range			working temperature 0 °C ... +50 °C
Air humidity			condensation not permissible
Shaft			burnished steel
Service life of bearing			min. 400 x 10 ⁶ revolutions
Shock resistance			30 g (13 ms)
Vibration resistance [g]			10 (5 ... 150 Hz), 20(100 ... 2000 Hz)
			approx. 15 Ncm (IP65) bei 20 °C
			storage temperature -20 °C ... +85 °C
			2-fold ball-bearing
			10 ⁹ at 20 N shaft load
			according to DIN-IEC 68-2-27
			according to DIN IEC 68-2-6
Electrical data			
		SSI	Parallel
Operating voltage		24 V DC ±20%	24 V DC ±20%
Output driver		RS 485	push-pull
Power consumption		< 1.3 W	< 1.5 W
Permitted load/channel (max.)			< 3.5 W
SSI clock speed min./max.		100 kHz/500 kHz	
Bit change rate			< 3.0 W
Signal level high		typ. 3.8 V	UB - 0.7 V (30 mA)
Signal level low		typ. 1.3 V (20 mA)	< 0.7 V (30 mA)
Ramp-up time t _r (max.)		100 ns*	400 ns*
Ramp-down time t _f (max.)		100 ns*	400 ns*
Short-circuit proof outputs		yes, only 1 channel **	yes
Polarity protection on UB		yes	yes
Other data			
Scanning		opto-electronical, magnetic	
Accuracy		± 1 LSB	
Housing and flange		aluminium	
Test mark		CE	

* 80 °C for E1 type of connection, 70 °C for 14-bit version, ** short circuit toward 0V permissible at UB = 24 V DC ±20%.

Your order data: - - - - - - - - - - - -

Absolute encoder SV58

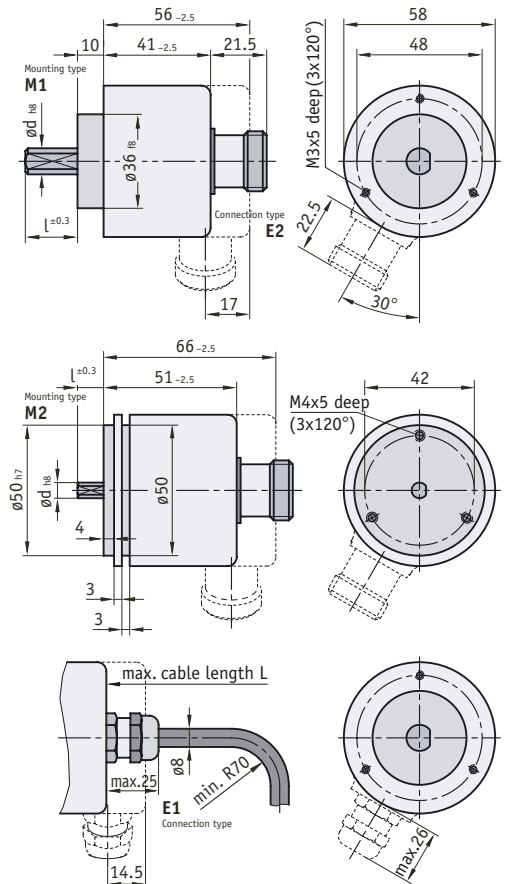
Solid shaft

SV58 - absolute, programmable single-turn encoder with solid shaft and 58 mm flange as standard



Features:

- resolution max. 14 bit/revolution
- only 66 mm installation depth
- solid shaft diam. 6 and 10 mm
- 58 mm size diam.
- SSI interface
- IP65 type of protection
- shock-proof up to 250 g



Feature	Order text	Technical data	Additional information
Interface/protocol	P1	A parallel	
	S6/04	RS422/SSI	
Connection type	E1	B cable	
	E2	connector	mating connectors available: 12-pole, art.no. 81273, 17-pole no. 81294
Position of el. connection	A	C axial	
	R	radial	
Cable length L [m]	1.0	D 2.0, 3.0, 5.0, 8.0, 10.0	
	OK	without cable	
Steps/revolution	360	E 16384, 8192, 4096, 3600, 1024, 1000, 720	
Output code	B	F binary	
	G	Gray	
	E	Excess-Gray	
Mounting type	M1	G clamping flange	
	M2	servo flange	
Shaft diam. x length [mm]	6 x 10	H d x l	
	10 x 20		
Option	0	I without	
	S	SET input	
	L	LATCH input	
	SL	SET+LATCH inputs	
	D	reversal of sense of rotation	
Mechanical data			
Speed		max. 12000 min ⁻¹	
Rotor moment of inertia		approx. 1.8 x 10 ⁻⁶ kgm ²	
Starting torque		< 0.01 N	
Load capacity of shaft		radial 80 N	axial 40 N
Weight		approx. 0.4 kg	
Type of protection		IP 65	according to EN 60 529
Working temperature		-20 °C ... +85 °C *	
Shaft		stainless steel	
Cable sheath		PVC	
Shock resistance		2500 m/s ² , 6 ms	according to DIN-IEC 68-2-27
Vibration resistance		100 m/s ² , 10 ... 2000 Hz	according to DIN-IEC 68-2-6
Electrical data			
		SSI	Parallel
Operating voltage		10 ... 30 V DC	10 ... 30 V DC
Output driver		RS 485	push-pull
Power cons. without load		typ. 89 mA	109 mA
Permitted load/channel (max.)		± 20 mA	± 10 mA
SSI clock speed min./max.		100 kHz/500 kHz	
Signal level high (min.)		typ. 3.8 V	UB - 2.8 V
Signal level low (max.)		typ. 1.3 V (20 mA)	1.8 V (10 mA)
Ramp-up time t _r (max.)		100 ns**	1 µs**
Ramp-down time t _f (max.)		100 ns**	1 µs**
Short-circuit proof outputs		yes, only 1 channel **	yes
Polarity protection on UB		yes	yes
Other data			
Test mark		CE	

* 80 °C for E1 type of connection, 70 °C for 14-bit version, ** short circuit toward 0V permissible at UB = 24 V DC ±20%.

Your order data: - - - - - - - - -

Absolute encoder MV58

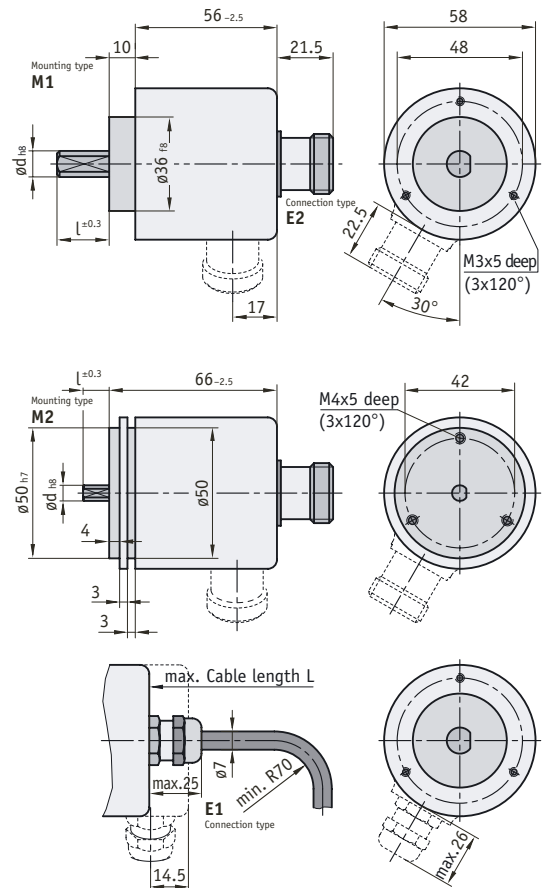
Solid shaft

MV58 - absolute, programmable multi-turn encoder with a small installation depth and 58 mm flange as standard.



Features:

- only 66 mm installation depth
- solid shaft diam. 6 and 10 mm
- 58 mm size diam.
- SSI interface
- IP 65 type of protection
- shock-proof up to 250 g



Feature	Order text	Technical data	Additional information
Interface/protocol	S6/04 A	RS422/SSI	
Connection type	E1 B	cable	
	E2	connector	mating connector available as art. no. 81273
Position of el. connection	A C	axial	
	R	radial	
Cable length L in [m]	1.0 D	2.0, 3.0, 5.0, 8.0, 10.0	
	OK	without cable	
Steps/revolution	8192 E	4096	
Number of revolutions	4096 F		
Output code	B G	binary	
	G	Gray	
Mounting type	M1 H	clamping flange	
	M2	servo flange	
Shaft diam. x length [mm]	6 x 10 I	d x l	
	10 x 20		
Mechanical data			
Speed		max. 6000 min ⁻¹	
Rotor moment of inertia		approx. 1.8 x 10 ⁻⁶ kgm ²	
Starting torque		< 0.01 N	
Load capacity of shaft		radial 80 N, axial 40 N	
Weight		approx. 0.4 kg	
Type of protection		IP 65	according to EN 60 529
Working temperature		-20 °C ... +70 °C	
Shaft		stainless steel	
Cable sheath		PVC	
Shock resistance		2500 m/s ² , 6 ms	according to DIN-IEC 68-2-27
Vibration resistance		100 m/s ² , 10 ... 2000 Hz	according to DIN-IEC 68-2-6
Electrical data		SSI	
Operating voltage		5 ... 30 V DC	
Output driver		RS 485	
Power consumption without load		typ. 89 mA	
Permitted load/channel (max.)		± 20 mA	
SSI clock speed min./max.		100 kHz/500 kHz	
Signal level high		typ. 3.8 V	
Signal level low		typ. 1.3 V (20 mA)	
Ramp-up time t _r (max.)		100 ns*	
Ramp-down time t _f (max.)		100 ns*	
Short-circuit proof outputs		yes, only one channel **	
Polarity protection on UB		yes	
Other data			
Test mark		CE	

* without cable, ** short circuit permitted towards 0V and +UB outputs at UB = 5 V DC . Short circuit permitted towards 0V output at UB = >5 V DC.

Your order data: - - - - - - - - -

Absolute encoder MH58

Hollow shaft

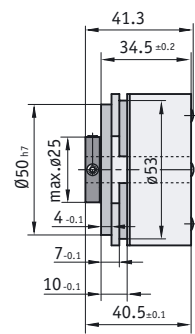
MH58 - absolute, programmable multi-turn encoder with through hollow shaft and an installation depth of only 41 mm!



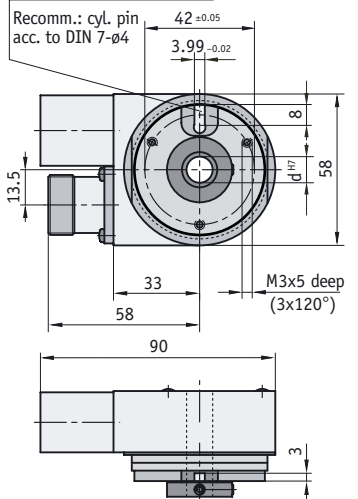
Features:

- hollow shaft up to diam. 12 mm
- 58 mm size diam.
- SSI interface
- easy installation
- IP 65 type of protection
- shock-proof up to 250 g

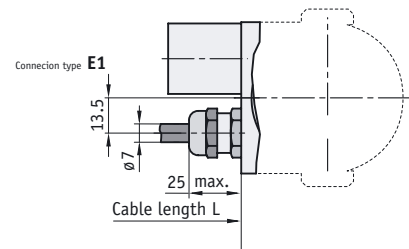
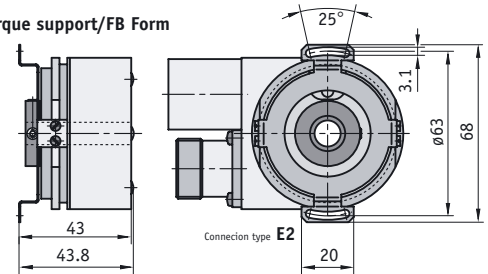
Torque support/N Form



Groove for Torque pin



Torque support/FB Form



Feature	Order text	Technical data	Additional information
Interface/protocol	S6/04 A	RS422/SSI	
Connection type	E1 B	cable	
	E2	connector	mating connector available as art. no. 81273
Position of el. connection	R C	radial	
Cable length L [m]	1.0 D	2.0, 3.0, 5.0, 8.0, 10.0	
	OK	without cable	
Steps/revolution	8192 E	4096	
Number of revolutions	4096 F		
Output code	B G	binary	
	G	Gray	
Torque support/type	N H	groove for cylindrical pin	
	FB	spring buckle	
Hollow shaft diameter [mm]	10 I		
	12		
Mechanical data			
Speed		max. 6000 min ⁻¹	3000 min ⁻¹ at continuous operation
Rotor moment of inertia		approx. 6 x 10 ⁻⁶ kgm ²	
Starting torque		< 0.01 N	
Weight		approx. 0.5 kg	
Type of protection		IP 65	according to EN 60 529
Temperature range		working temperature -20 °C ... +70 °C ²⁾	storage temperature -20 °C ... +80 °C
Air humidity		condensation not permissible	
Shaft		stainless steel	
Shock resistance		2500 m/s ² , 6 ms	according to DIN-IEC 68-2-27
Vibration resistance		100 m/s ² , 10 ... 2000 Hz	according to DIN-IEC 68-2-6
Electrical data			
Operating voltage		SSI, 5 ... 30 VDC	
Output driver		RS 485	
Power consumption without load		typ. 89 mA	
Permitted load/channel (max.)		± 20 mA	
SSI clock speed min./max.		100 kHz/500 kHz	
Signal level high		typ. 3.8 V	
Signal level low		typ. 1.3 V (20 mA)	
Ramp-up time t _r (max.)		100 ns*	
Ramp-down time t _f (max.)		100 ns*	
Short-circuit proof outputs		yes**	with correctly applied supply voltage
Polarity protection on U _B		yes	
Other data			
Test mark		CE	

* without cable, ** short circuit permitted towards 0V and +UB outputs at UB = 5 V DC . Short circuit permitted towards 0V output at UB = >5 V DC.

Your order data: - - - - - - - - -

Technical Leadership and Competence:

Discover and develop new markets with product ideas.

New Developments at SIKO.



At SIKO strategic thinking combined with an instinct for future market tendencies provide opportunities for product development. Customer requirements and impulses from the industry continue to give direction to SIKO's further breakthroughs. Over four decades of experience in distance and angle measuring technology – together with in-house research and development form the basis. However, responsible for the innovations that promise success and SIKO's

A typical example is the drive engineering department with its AG01 product. It is the answer to the economical interests of the industry and their wish for set-up time reduction. Utility and economy were optimised by SIKO's extensive experience in the miniaturization of electro-mechanical components and the possibility of networking.

The DIN ISO 9001 quality assurance standard accompanies SIKO products in every process they pass through. All through development

durability. Only when the results withstand the high requirements, do we view ourselves as a competent partner for quality products and customers.

Environmental compatibility is not just a catchword at SIKO but a normal basis for doing business. Products, fabrication and logistics – the careful handling of raw materials is essential and applicable for further development of products with the use of innovative materials and processes. Optimized material management makes possible the use of high quality raw materials while maintaining good availability. By means of this equilibrium, SIKO products are available world-wide from about 40 sales partners.

High functionality, precision to the last detail and consistent quality management is the reason for the world-wide success of SIKO products and uniquely positions the company – as your competent partner!



position in today's market is the synthesis of competence, experience and openness for new ways of thinking.

experience values are taken into consideration and new technologies investigated for advantages and

The set-up operation can be automated and accelerated with the new AG01/ AG02. By means of hollow shaft attachment, the unit can be mounted easily.



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- Technical advice on SIKO products
- Visit of a SIKO sales representative
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- CD with brochures on the complete SIKO product range



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