

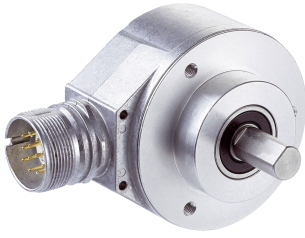


AFS/AFM60 SSI

Precise, flexible, versatile

ABSOLUTE ENCODERS

SICK
Sensor Intelligence.



Technical data overview

Encoder design	Multiturn / Singleturn (depending on type) (depending on type)								
Shaft type	Solid shaft, Servo flange Solid shaft, face mount flange Blind hollow shaft Through hollow shaft (depending on type)								
Shaft diameter	<table border="0"> <tr> <td style="padding-right: 20px;">Solid shaft, Servo flange</td> <td>6 mm</td> </tr> <tr> <td style="padding-right: 20px;">Solid shaft, face mount flange</td> <td>10 mm</td> </tr> <tr> <td style="padding-right: 20px;">Blind hollow shaft</td> <td>12 mm 8 mm 3/8" 10 mm 1/2" 14 mm 15 mm 5/8"¹⁾ (depending on type)</td> </tr> <tr> <td style="padding-right: 20px;">Through hollow shaft</td> <td>8 mm 3/8" 10 mm 12 mm 1/2" 14 mm 15 mm 5/8"¹⁾ (depending on type)</td> </tr> </table>	Solid shaft, Servo flange	6 mm	Solid shaft, face mount flange	10 mm	Blind hollow shaft	12 mm 8 mm 3/8" 10 mm 1/2" 14 mm 15 mm 5/8" ¹⁾ (depending on type)	Through hollow shaft	8 mm 3/8" 10 mm 12 mm 1/2" 14 mm 15 mm 5/8" ¹⁾ (depending on type)
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Through hollow shaft	8 mm 3/8" 10 mm 12 mm 1/2" 14 mm 15 mm 5/8" ¹⁾ (depending on type)								
Connection type	Male connector, M23, 12-pin, radial Male connector, M12, 8-pin, radial Cable, 8-wire, universal Cable, 12-wire, radial Cable, 12-wire, universal Cable, M12, 8-pin, radial (depending on type)								
Communication interface	SSI								
Communication Interface detail	SSI + incremental HTL TTL SSI + Sin/Cos (depending on type)								
Number of steps per revolution (max. resolution)	<table border="0"> <tr> <td style="padding-right: 20px;">SSI, non programmable</td> <td>4,096 (12 bit) 262,144 (18 bit) 32,768 (15 bit) 65,536 (16 bit) 8,192 (13 bit) 512 (9 bit) 2,048 (11 bit) 360 1,024 (10 bit) 131,072 (17 bit) 16,384 (14 bit) 31,680 3,600 256 (8 bit) 1,080</td> </tr> </table>	SSI, non programmable	4,096 (12 bit) 262,144 (18 bit) 32,768 (15 bit) 65,536 (16 bit) 8,192 (13 bit) 512 (9 bit) 2,048 (11 bit) 360 1,024 (10 bit) 131,072 (17 bit) 16,384 (14 bit) 31,680 3,600 256 (8 bit) 1,080						
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¹⁾ 5/8" not available with multiturn.

	7,200 720 36,000 600 18,000 (depending on type)
SSI, programmable	262,144 (18 bit) 32,768 (15 bit) 18,000 (depending on type)
Max. resolution (number of steps per revolution x number of revolutions)	
SSI, non programmable	9 bit x 12 bit (512 x 4,096) 10 bit x 12 bit (1,024 x 4,096) 12 bit x 12 bit (4,096 x 4,096) 15 bit x 12 bit (32,768 x 4,096) 13 bit x 12 bit (8,192 x 4,096) 14 bit x 12 bit (16,384 x 4,096) 16 bit x 12 bit (65,536 x 4,096) 18 bit x 12 bit (262,144 x 4,096) 10 bit x 12 bit (4,096) 11 bit x 12 bit (2,048 x 4,096) 8 bit x 12 bit (256 x 4,096) 17 bit x 12 bit (131,072 x 4,096) (depending on type)
SSI, programmable	18 bit x 12 bit (262,144 x 4,096) 15 bit x 12 bit (32,768 x 4,096) (depending on type)
SSI, SSI + incremental, non programmable HTL	18 bit x 12 bit (262,144 x 4,096) 12 bit x 12 bit (4,096 x 4,096) 13 bit x 12 bit (8,192 x 4,096) 9 bit x 12 bit (512 x 4,096) 11 bit x 12 bit (2,048 x 4,096) 10 bit x 12 bit (1,024 x 4,096) 15 bit x 12 bit (32,768 x 4,096) 17 bit x 12 bit (131,072 x 4,096) (depending on type)
SSI, SSI + incremental, non programmable TTL	18 bit x 12 bit (262,144 x 4,096) 12 bit x 12 bit (4,096 x 4,096) 9 bit x 12 bit (512 x 4,096) 10 bit x 12 bit (1,024 x 4,096) 14 bit x 12 bit (16,384 x 4,096) 16 bit x 12 bit (65,536 x 4,096) 13 bit x 12 bit (8,192 x 4,096) 15 bit x 12 bit (32,768 x 4,096) (depending on type)
SSI, SSI + Sin/Cos, non programmable	16 bit x 12 bit (65,536 x 4,096) 18 bit x 12 bit (262,144 x 4,096) 15 bit x 12 bit (32,768 x 4,096) 12 bit x 12 bit (4,096 x 4,096) 11 bit x 12 bit (2,048 x 4,096) 13 bit x 12 bit (8,192 x 4,096) 10 bit x 12 bit (1,024 x 4,096) 9 bit x 12 bit (512 x 4,096) 14 bit x 12 bit (16,384 x 4,096) (depending on type)
SSI, SSI + incremental, programmable	18 bit x 12 bit (262,144 x 4,096) 15 bit x 12 bit (32,768 x 4,096) 13 bit x 12 bit (8,192 x 4,096) (depending on type)
SSI, SSI + Sin/Cos, programmable	18 bit x 12 bit (262,144 x 4,096) 15 bit x 12 bit (32,768 x 4,096)

¹⁾ 5/8" not available with multeturn.

	(depending on type)
Programmable/configurable	Over handheld programming tool Over SOPAS

¹⁾ 5/8" not available with multiturn.

Product description

With a high resolution of 18 bits (AFS60) or 30 bits (AFM60) and a large selection of programmable parameters, the AFS60 absolute singleturn encoder and the AFM60 absolute multiturn encoder set new standards when it comes to rotary encoders. The high resolution combined with the high IP protection class enables use in a multitude of industrial applications. Both encoders are equipped with the SSI interface while the AFM60 is also available with the SSI + Incremental and SSI + Sin/Cos combined interfaces. A shaft bearing distance of 30 mm means the AFS60/AFM60 product family has significantly better rotation accuracy than encoders with blocked ball bearings. Yet despite their large bearing distance, the AFS60/AFM60 have a compact design. The AFS and AFM60 SSI can be programmed via the same PC-based programming tool (PGT-08-S) or the hand-held PGT-10-Pro programming tool.

At a glance

- High-resolution absolute encoder with up to 30 bits (AFM60) or 18 bits (AFS60)
- Face mount flange, servo flange, blind hollow shaft or through hollow shaft
- SSI, SSI + incremental or SSI + sin/cos interface
- Resolution, offset, etc. can be programmed (depending on the type)
- Connectivity: M12 or M23 male connector or cable connection
- Enclosure rating: IP67 (housing), IP65 (shaft)
- Operating temperature: -40 °C ... +100 °C (depending on the type)

Your benefits

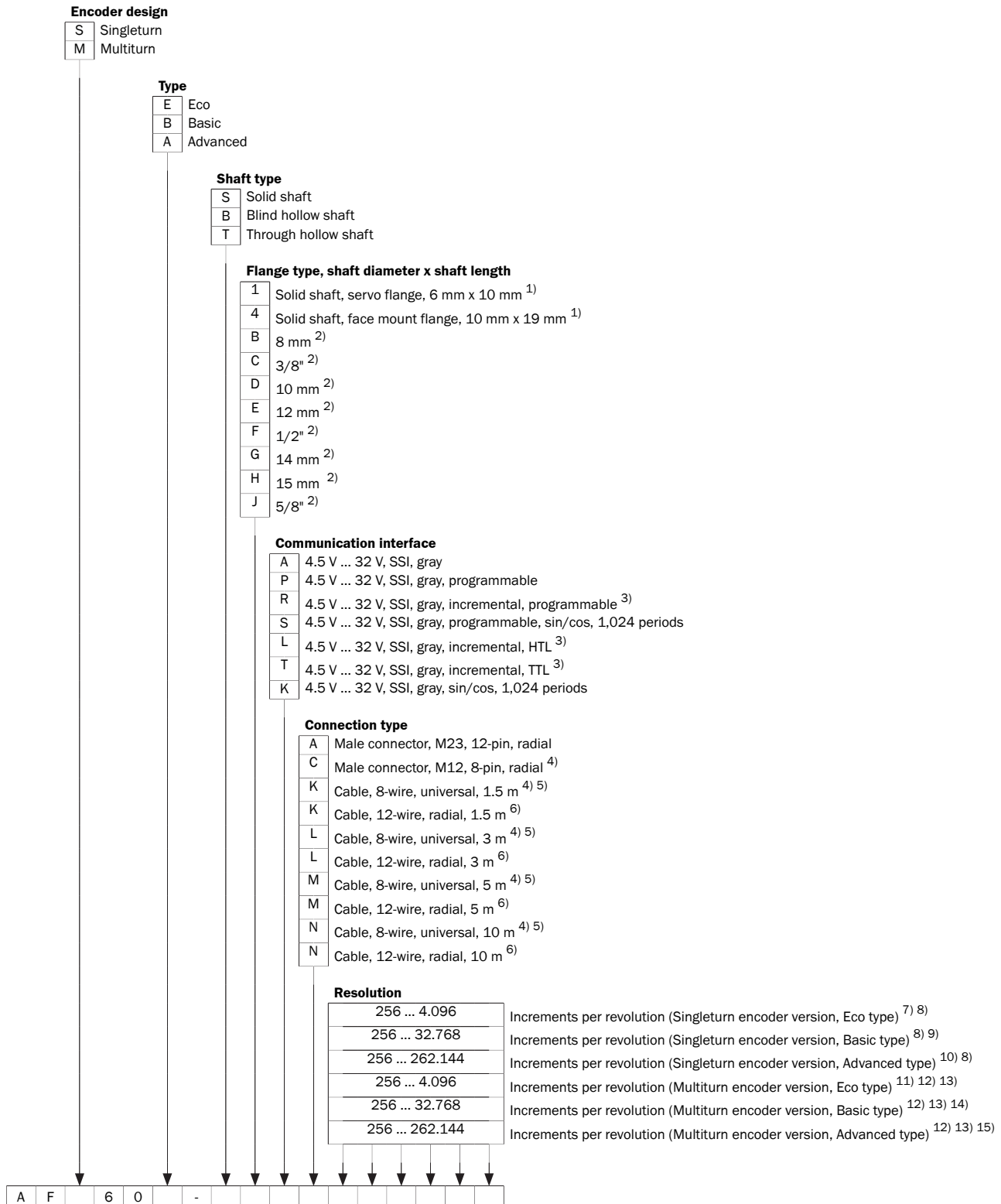
- The programmability of the encoder results in reduced storage, high machine availability, and easy installation
- Precise positioning thanks to high resolutions
- Large selection of mechanical interfaces and electrical contacting options: suitable for all applications
- Suitable for applications with limited space (extremely short installation depth of 30 mm)
- Excellent concentricity properties due to long bearing distance
- Suitable programming tools are available as accessories for every application

Fields of application

- Measurement of absolute position using one or more revolutions in various machines and systems such as tool machines, packaging systems, wood processing machines, presses, printing machines

Type code

Other models and accessories → www.sick.com/AFS_AFM60_SSI



¹⁾ Only for solid shaft type.

- 2) Only for blind hollow shaft and through hollow shaft type.
- 3) Incremental number of lines is always 1/4 of the SSI/gray number of steps.
- 4) Only for A and P communication interface.
- 5) The universal cable outlet is positioned so that it is possible to lay it without bends in a radial or axial direction.
- 6) Only for R, S, L, T and K communication interface.
- 7) See "Number of steps per revolution" table.
- 8) Other number of steps per revolution upon request.
- 9) See "Number of steps per revolution" table. Programmable (P and R communication interface): Increments per revolution 256 ... 32,768, set to 32,768 at the factory.
- 10) See "Number of steps per revolution" table. Programmable (P and R communication interface): Increments per revolution 256 ... 262,144, set to 262,144 at the factory.
- 11) See "Resolution" table.
- 12) Other resolutions upon request.
- 13) Number of revolutions: 4.096 (12 bit).
- 14) See "Resolution" table. Programmable (P and R communication interface): Resolution 8x12 ... 15x12, set to 15x12 at the factory.
- 15) See "Resolution" table. Programmable (P and R communication interface): Resolution 8x12 ... 18x12, set to 18x12 at the factory.

Number of steps per revolution (more upon request)

	AFS60E / AFM60E	AFS60B / AFM60B	AFS60A / AFM60A
Non-programmable	00256	00256	00256
	00512	00512	00360
	01024	01024	00512
	02048	02048	00720
	04096	04096	01024
	-	08192	02048
	-	16384	03600
	-	32768	04096
	-	-	08192
	-	-	16384
Programmable	-	00256 ... 32768	00256 ... 262144

Resolution (available upon request)

	AFS60E / AFM60E	AFS60B / AFM60B	AFS60A / AFM60A
Non-programmable	08x12	08x12	08x12
	09x12	09x12	09x12
	10x12	10x12	10x12
	11x12	11x12	11x12
	12x12	12x12	12x12
	-	14x12	13x12
	-	15x12	14x12
	-	-	15x12
	-	-	16x12
	-	-	17x12
	-	-	18x12
Programmable	-	08x12 ... 15x12	08x12 ... 18x12

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

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