



DFS2x

High-resolution, programmable 2 or 2.5 inch incremental encoder

SICK
Sensor Intelligence.



Technical data overview

Pulses per revolution	0 ... 65,536
Mechanical design	Solid shaft, Square flange Solid shaft, Servo flange Through hollow shaft Blind hollow shaft Solid shaft, face mount flange
Shaft diameter	1/4" 3/8" 6 mm 10 mm 1/2"
Connection type	Male connector, M12, 8-pin, radial Male connector, MS, 10-pin, radial Male connector, MS, 7-pin, radial Male connector, MS, 6-pin, radial Cable, 9-wire, radial Male connector, M12, 8-wire, radial Male connector, MS, 10-pin, axial Cable, 9-wire, axial Male connector, M12, 8-pin, axial Male connector, MS, 7-pin, axial Male connector, MS, 6-pin, axial
Communication interface	Incremental
Communication Interface detail	TTL / RS-422 HTL / Push pull Open Collector TTL / HTL
Supply voltage	4.5 ... 5.5 V 8 ... 30 V 4.75 ... 30 V
Enclosure rating	IP65 IP67
Programmable/configurable	- / ✓ (depending on type)
Output frequency	820 kHz 150 kHz (depending on type)
Operating temperature range	-30 °C ... +85 °C

Product description

The DFS2x family of products are high-resolution incremental encoders that provide industry standard 2 and 2.5-inch mechanical interfaces and are available as factory-configured or programmable devices. Factory-configured encoders can be ordered with TTL, HTL, or open-collector outputs as well as integer resolutions from 1 to 65,536 counts per revolution. Programmable encoders allow the user to select the integer resolution and either TTL or HTL outputs. DFS2x encoders incorporate rugged internal technology that allows them to operate over a wide temperature range and tolerate twice the shock and vibration levels of comparable encoders. The flexibility and reliability of these encoders allows you to confidently standardize on a single encoder platform for position sensing across a wide variety of applications while simultaneously reducing your spare part requirements.

At a glance

- Pulses per revolution: Up to 65,536
- Housing diameter: 2 inch and 2.5 inch
- Solid shaft, blind hollow shaft, through hollow shaft
- Enclosure rating: IP65 and IP67
- Communication interfaces: TTL/RS-422, HTL/Push Pull, Open Collector
- Connection type: M12 and MS male connector and cable
- High resolution, programmable, remote zero set possible

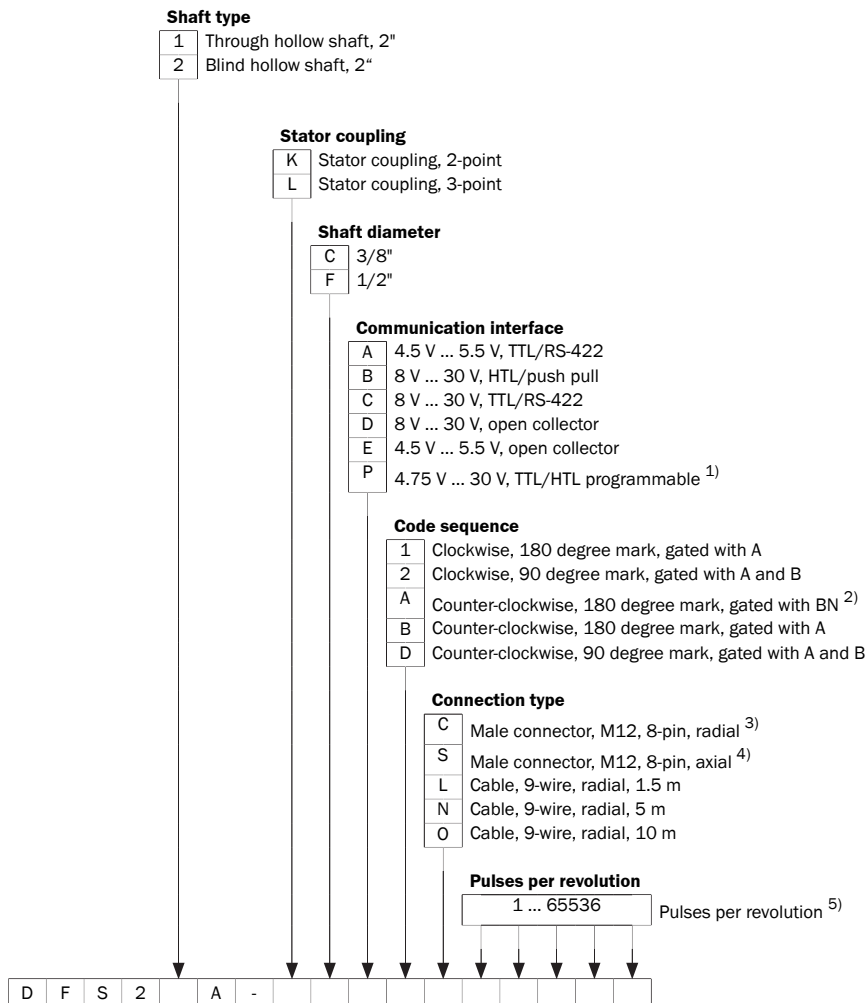
Your benefits

- Wide operating temperature range and high tolerance of shock and vibration reduce machine downtime
- High resolution provides more precise positioning for applications that require high accuracy
- Programmable DFS2x encoders simplify machine designs by allowing the same model encoder to be used for different applications
- Spare parts inventory requirements are reduced because a single programmable DFS2x encoder can be used across a variety of applications
- Flexible electrical interface configurations reduces the risk that the selected encoder will be incompatible with input electronics

Type code

Other models and accessories → www.sick.com/DFS2x

Hollow shaft



¹⁾ The P electronic interface option offers an output type (5 V or 8 V ... 30 V line driver) which can be selected by the user, pulses per revolution and counting direction. The default setting set at the factory is 5 V line driver outputs, 0 pulse width.

²⁾ Direction of rotation / Marking position A (counter-clockwise, 180 degree mark with BN switching) is not available for the P communication interface (5 V ... 30 V DC power supply, 5 V or 8 V ... 30 V line driver outputs can be selected by the user).

³⁾ Zero set possible, not for programmable devices.

⁴⁾ Only for Shaft type 1.

⁵⁾ The P electronic interface option offers an output type (5 V or 8 V ... 30 V line driver) which can be selected by the user, pulses per revolution and counting direction. The default setting set at the factory is 5 V line driver outputs, 0 pulse width.

The following features can be programmed using PGT-11-S programming tool (only for programmable encoders):

- Pulses per revolution of 1 ... 65536
- Electrical zero pulse width 90°, 180°, 270°
- Mechanical zero pulse width 1° ... 359°
- Electric output current circuit 5 V (TTL) or 8 V ... 30 V (HTL) - line driver
- Direction of rotation for A leads B (CW or CCW)

Solid shaft



¹⁾ Only for mechanical version 0.
²⁾ Only for mechanical version 5.

- 3) The P electronic interface option offers an output type (5 V or 8 V ... 30 V line driver) which can be selected by the user, pulses per revolution and counting direction. The default setting set at the factory is 5 V line driver outputs, 0 pulse width.
- 4) Direction of rotation / Marking position A (counter-clockwise, 180 degree mark with BN switching) is not available for the P communication interface (5 V ... 30 V DC power supply, 5 V or 8 V ... 30 V line driver outputs can be selected by the user).
- 5) Zero set possible, not for programmable devices.
- 6) Not with communication interface P.
- 7) Zero set possible.
- 8) Only for mechanical version 5 and not with communication interface P.
- 9) The P electronic interface option offers an output type (5 V or 8 V ... 30 V line driver) which can be selected by the user, pulses per revolution and counting direction. The default setting set at the factory is 5 V line driver outputs, 0 pulse width.

The following features can be programmed using PGT-11-S programming tool (only for programmable encoders):

Pulses per revolution of 1 ... 65536
Electrical zero pulse width 90°, 180°, 270°
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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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