

TECHNICAL DATASHEET

Incremental Encoder E 9



GENERAL INFORMATION

- Ideal for position and speed sensing in small machines and actuators
- Low power standby mode is ideal for battery powered devices
- Max. output frequency: 200 kHz
- Resolution to 512 lines/rev



The type E9 incremental optical encoder provides high performance feedback for precision motion control in a very small package.

Its small envelope makes it ideal for instrument axes for position and speed control in mechanisms too small to accept standard encoders.

Its high performance, advanced features, and competitive pricing make it the encoder of choice for a broad range of applications.

The E9 optical encoders utilize a patentpending ASIC that integrates all encoder electronics, including the optoelectronic sensors, which enhances reliability and accuracy. Outputs are quadrature A and B channels with up to 512 lines per rev, an index pulse, unique up/down and rotation direction signals (version 2) or complementary CMOS compatible (version 1). The E9 also has a low-power standby mode to conserve power in battery-operated applications.

TECHNICAL DATA mechanical

Housing diameter	22 mm
Mounting depth	20 mm
Shaft diameter	1.5 mm / 2 mm / 2.5 mm / 3 mm / 4 mm / 1/8" / 0.156" (Hub shaft)
Hollow shaft tolerance	+0.010 / -0.000 mm
Axial endplay of mounting shaft (hubshaft)	± 0.076 mm + 0.127 mm / - 0.076 mm + 0.187 mm / - 0.076 mm
Radial runout of mating shaft (hubshaft)	± 0.0125 mm
Max. speed	max. 12 000 rpm
Moment of inertia	approx. 0.2 gcm ²
Operating temperature	-40 °C ... +100 °C
Storage temperature	-50 °C ... +125 °C
Relative humidity	90 %, non-condensing
Weight	5.07 g
Connection	10 pole header (Accessory: 30 cm ribbon cable with connector, ordering code CA0040012)
Recommended mating connector	Thomas & Betts, ordering code 622-1030 (on request)

TECHNICAL DATA electrical

Supply voltage	DC 5 V ±10 %
Max. current w/o load	10 mA
Standby current	50 µA
Code	Incremental, optical

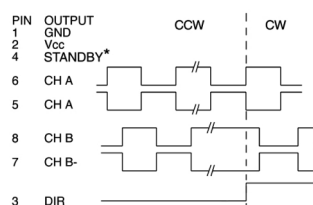
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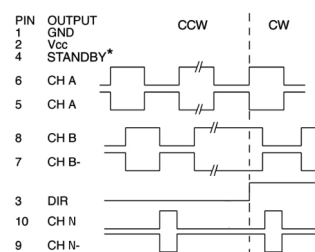
TECHNICAL DATA electrical (continued)

Max. pulse frequency	200 kHz
Index pulse width (N)	90° ± 36° electrical
Phasing	90° ± 18° electrical
Symmetry	180° ± 18° electrical
Number of pulses	100 ... 512
Output signals	min. 2.5 V high (VOH), max. 0.5 V low (VOL)
Output current	3 mA sink/source (25°C), 2 mA (100°C)
Pulse shape	Square wave

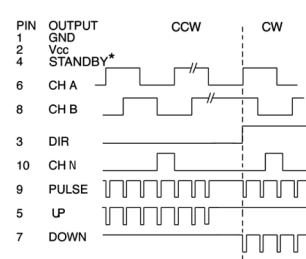
OUTPUT WAVEFORMS AND CONNECTIONS (Direction viewing encoder cover)



* For operation, connect STANDBY (4) to Vcc (2)



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* For operation, connect STANDBY (4) to Vcc (2)

Figure 1

Figure 2

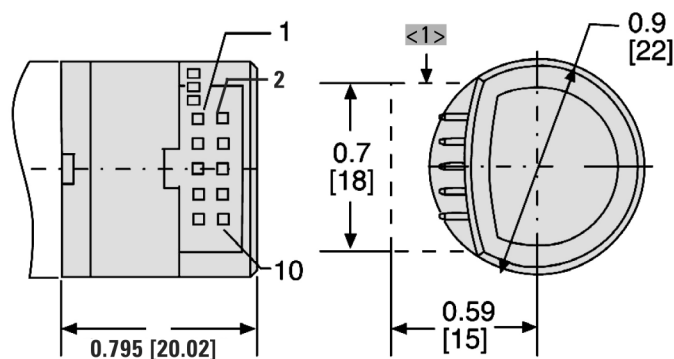
Figure 3

Code **00** for ordering information

Code **01** for ordering information

Code **02** for ordering information

DIMENSIONED DRAWINGS



<1> Thomas Betts #622-1030

Dimensions in inch [mm]

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ORDERING INFORMATION

Type	Number of pulses / poles	Shaft Ø	Output	Mounting ¹
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E9	0100 / 0 0144 / 0 0200 / 0 0256 / 0 0300 / 0 0360 / 0 0500 / 0 0512 / 0	1,5 1.5 mm 2,0 2.0 mm 2,5 2.5 mm 3,0 3.0 mm 125 0.125" 156 0.156"	00 see Fig. 1 01 see Fig. 2 02 see Fig. 3	0 No mounting base A 4 x M1,6 on 18,5 mm (0,728") B.C. C 2 x #2-56 on 19,05 mm (0,75") B.C. D 3 x #0-80 on 20,9 mm (0,823") B.C. E 2 x #2-56 on 46,02 mm (1,812") B.C.

¹ Further information (drawings and mounting) see homepage www.hengstler.com

Important:

To properly install type E9, a specialized **mounting kit** must be purchased. Only one kit is required to install any number of encoders with the same hub shaft size.



Please designate
hub shaft diameter.

Hub shaft
1.5 1.5 mm
2.0 2.0 mm
2.5 2.5 mm
3.0 3.0 mm
125 0.125 inch
156 0.156 inch

Example: Kit for installing encoders with 3.0 mm hub shaft = MK E9 3.0

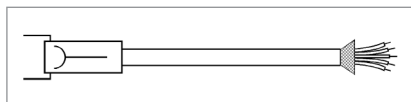
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Incremental Encoder E 9 Accessories

MOUNTING

	Ordering code
Mounting kit (E 9)	MK E9 + Hohlwellen-Ø

CONNECTING CABLES



Connecting cables with plug (socket) on one end	Ordering code
30 cm ribbon cable with connector	CA 0 040 012