

Encoders

Optical Incremental Encoders

- Features:**
 32 to 1250 cycles per revolution
 2 or 3 Channels
 TTL Digital output

Series E2

		E2	E2-...I	E2-...I	
Cycles per revolution	N	50 - 540	50 - 512	720 - 1 250	
Signal output, square wave		2	2+1 index	2+1 index	channels
Supply voltage	V_{CC}	4,5 to 5,5	4,5 to 5,5	4,5 to 5,5	V DC
Current consumption, typical ($V_{CC} = 5$ V DC)	I_{CC}	40	57 to 85	27 + 57	mA
Pulse width	P	180 ± 45	180 ± 35	180 ± 45	$^{\circ}e$
Phase shift, channel A to B	Φ	90 ± 20	90 ± 15	90 ± 15	$^{\circ}e$
Logic state width	S	90 ± 45	90 ± 35	90 ± 45	$^{\circ}e$
Cycle	C	$360 \pm 5,5$	$360 \pm 5,5$	$360 \pm 7,5$	$^{\circ}e$
Signal rise/fall time, typical	tr/tf	10 / 70	10 / 70	10 / 70	ns
Frequency range ¹⁾	f	up to 100	up to 100	up to 100	kHz
Inertia of code disc	J	0,6			gcm ²
Operating temperature range		- 40 to +100	- 40 to +100	- 40 to +100	$^{\circ}C$
Encoder module		HEDS	HEDS	EM1	

¹⁾ Velocity (rpm) = f (Hz) x 60/N

Ordering information

Encoder type	Module	Cycles per revolution (CPR)	For combination with:
2 Channel			
E2- XXXX	EM1	1000 1024	DC-Micromotors and DC-Motor-Tach 2224 2232 2342
E2- XXXX	HEDS	50 96 100 192 200 250 256 360 400 500 512 540	2642 2657 3242 3257 3863
3 Channel			Brushless DC-Servomotors Series
E2-XXXX...I	EM1	32 720 900 1000 1024 1250	2036 2057 2444 3056 3564
E2-XXXX...I	HEDS	50 96 100 192 200 250 256 360 400 500 512	4490

Note: XXXX = number of cycles per revolution

These incremental shaft encoders in combination with the FAULHABER DC-Micromotors are designed for indication and control of both, shaft velocity and direction of rotation as well as for positioning.

A LED source and lens system transmits collimated light through a low inertia mylar disc with machined aluminum hub, to give two channels with 90° phase shift.

A body adapter is available to set orientation $\pm 15^{\circ}$ some models available with thru shaft option.

An optional DIFFERENTIAL LINE DRIVER (RS-422) is designed to attach to the E2 encoder to provide long haul cable distances from 2 m to 300 m length. The miniature PC4 and PC5 circuit boards are optional

cable connectors and can be configured with custom length cabling.

The single 5 volt supply and the two or three channel digital output signals are interfaced with a 5-pin connector or 5-pin locking connector (sold separately).

Base and cover constructed of rugged 20% glass filled polycarbonate.

Ball bearings are recommended for continuous operation at low and high speeds and for elevated radial shaft load.

Details for the DC-Micromotors and suitable reduction gearheads are on separate catalog pages.



