

Incremental Rotary Encoders

Hollow Shaft Optical Incremental Encoder

The incremental encoder is the sensor that tracks the increase (variation) in relation to a position taken as a reference point.

This occurs regardless of the direction of rotation.

The incremental encoder senses speed, rotation, and acceleration by counting the number of pulses sent by the output circuit. Zero point of the machine must be reset at every new start.



Hollow Shaft Optical Incremental Eltra Encoder

The main series of optical incremental Eltra Encoder (hollow shaft):

- EF 36K
- EH / EF 80 C/P/K
- EH / EL 88P
- EH 50 FA/FP
- EH 80PU
- EH 88 PE/PET
- EH 99P
- EL / EF 49 C/P
- EL / ER 38 F/G
- EH/EL/ER 53 A/B
- EL / ER 58 F/G
- EL/ER 63 F/G
- EL 120P
- EL / ER 72 A/B
- EL 48 C/P
- EL 63 FB/GB/PB/PBF/PC/PCF

Eltra incremental encoders are produced with through or blind hollow shaft and can be used for motor feedback, servo motors, small, middle or big size motors.



Blind/Hollow Shaft Incremental Optical Encoders

> Performance



> Size

Key features:

- Resolution: 1 - 24 000 ppr.
- OptoASIC technology
- Power supply range: 5 V DC, 8 - 24 V DC, 5 - 30 V DC, 8 - 30 V DC
- Rotation speed: 3000 or 6000 rpm.
- External diameter: 36 - 120 mm
- Shaft/bore diameter: 8 - 60 mm
- Operating temperature: -40 .. +85 °C
- Enclosure protection: IP54/IP66.
- Cable or connector output type with axial or radial shaft load.

Types of mounting:

- rear fixing,
- synchronous flange,
- anti-rotation pin,
- spring,
- stator coupling,
- collar clamping,
- torque arm fixing,
- elastic couplings

Incremental encoder with special features:

For heavy duty application with high mechanical resistance requirements (EH 99P, EL 53 A-B, ER 53 A-B, EL 58 F-G, ER 58 F-G, EL 63 F-G, ER 63 F-G, EL 72 A-B, ER 72 A-B)

With high temperature resistance (EF 36 K, EH 80 C-K-P)

With small dimensions (EH 80 C-K-P, EF 36 K, EH 80PU, EF 80 C-K-P, EL - ER 49 C-P, EL 63FB-GB-PB-PBF-PC-PCF)

Miniaturized encoders (EL 38 F-G, ER 38 F-G)

Encoder with optical generation of "hall effect phases" (communication signals) (EF 36K, EF 80 C/K/P, EF 49 C/P).

Encoders **to be mounted directly on motors** (EL 53 A-B, ER 53 A-B, EL 72 A-B, EH 53 A-B, ER 72 A-B)





Hollow Shaft Optical Incremental Encoders

Series	Shaft type	key features							
		External diameter (max)	Shaft/bore diameter (max)	Resolution (min) ppr	Resolution (max) ppr	Rotation speed (max) rpm	Output frequency (max)	Operating temperature (°C)	Enclosure rating (max)
EF 36K	blind hollow shaft	36	10	500	1024	6000	150 kHz	-10..+85	IP40
EH 80C	blind hollow shaft	80	15	200	2048	6000	105 kHz	-20..+85	IP54
EH 80K	blind hollow shaft	80	15	200	2048	6000	105 kHz	-20..+85	IP54
EH 80P	through hollow shaft	80	15	200	2048	3000	105 kHz	-20..+85	IP54
EF 80C	blind hollow shaft	80	15	200	2048	6000	105 kHz	-20..+85	IP54
EF 80K	blind hollow shaft	80	15	200	2048	6000	105 kHz	-20..+85	IP54
EF 80P	through hollow shaft	80	15	200	2048	3000	105 kHz	-20..+85	IP54
EH 88P	through hollow shaft	88	30	250	2500	3000	105 kHz	-25..+85	IP65
EL 88P	through hollow shaft	88	30	2	2048	3000	105 kHz	-25..+85	IP65
EH 50FA	through hollow shaft	50	10	100	1024	6000	105 kHz	-40..+100	IP65
EH 50FP	through hollow shaft	50	10	100	1024	6000	105 kHz	-40..+100	IP65
EH 80PU	through hollow shaft	80	15	1000	2048	3000	105 kHz	-20..+85	IP54
EH 88PE	through hollow shaft	88	40	500	2500	3000	105 kHz	-30..+85	IP54
EH 88PET	through hollow shaft	88	30	500	2500	3000	105 kHz	-30..+85	IP54
EH 99P	blind hollow shaft	99	16	1000	2048	3000	105 kHz	-40..+85	IP67
EL 49C	blind hollow shaft	49	12,7	100	2048	6000	150 kHz	-20..+85	IP40
EL 49P	through hollow shaft	49	12,7	100	2048	6000	150 kHz	-20..+85	IP40
EF 49C	blind hollow shaft	49	12,7	100	2048	6000	150 kHz	-20..+85	IP40
EF 49P	through hollow shaft	49	12,7	100	2048	6000	150 kHz	-20..+85	IP40
EL 38F	blind hollow shaft	39,5	10	1	14400	3000	150 kHz	-10..+60	IP65
EL 38G	blind hollow shaft	39,5	10	1	14400	3000	150 kHz	-10..+60	IP65
ER 38F	blind hollow shaft	39,5	10	1	14400	3000	220 kHz	-20..+85	IP65
ER 38G	blind hollow shaft	39,5	10	1	14400	3000	220 kHz	-20..+85	IP65
EL 53A	blind hollow shaft	53,5	10	1	10000	3000	500 kHz	-10..+60	IP64
EL 53B	blind hollow shaft	53,5	10	1	10000	3000	500 kHz	-10..+60	IP64
ER 53A	blind hollow shaft	53,5	10	1	10000	3000	500 kHz	-25..+85	IP64
ER 53B	blind hollow shaft	53,5	10	1	10000	3000	500 kHz	-25..+85	IP64
EH 53A	blind hollow shaft	53,5	10	1	10000	6000	500 kHz	-10..+60	IP54

Series	Shaft type	key features							
		External diameter (max)	Shaft/bore diameter (max)	Resolution (min) ppr	Resolution (max) ppr	Rotation speed (max) rpm	Output frequency (max)	Operating temperature (°C)	Enclosure rating (max)
EH 53B	blind hollow shaft	53,5	10	1	10000	6000	500 kHz	-10..+60	IP54
EL 58F	blind hollow shaft	58	15	1	24000	3000	500 kHz	-10..+60	IP66
EL 58G	blind hollow shaft	58	15	1	24000	3000	500 kHz	-10..+60	IP66
ER 58F	blind hollow shaft	58	15	1	24000	3000	500 kHz	-20..+70	IP66
ER 58G	blind hollow shaft	58	15	1	24000	3000	500 kHz	-20..+70	IP66
EL 63F	blind hollow shaft	63,5	15	1	24000	3000	500 kHz	-10..+60	IP66
EL 63G	blind hollow shaft	63,5	15	1	24000	3000	500 kHz	-10..+60	IP66
ER 63F	blind hollow shaft	63,5	15	1	24000	3000	500 kHz	-20..+70	IP66
ER 63G	blind hollow shaft	63,5	15	1	24000	3000	500 kHz	-20..+70	IP66
EL 120P	through hollow shaft	120	60	400	2048	3000	105 kHz	-25..+70	IP54
EL 72A	blind hollow shaft	72	10	1	24000	6000	500 kHz	-10..+60	IP66
EL 72B	blind hollow shaft	72	10	1	24000	6000	500 kHz	-10..+60	IP66
ER 72A	blind hollow shaft	72	10	1	24000	6000	500 kHz	-25..+85	IP66
ER 72B	blind hollow shaft	72	10	1	24000	6000	500 kHz	-25..+85	IP66
EL 48C	blind hollow shaft	48	8	100	2048	6000	150 kHz	-20..+85	IP40
EL 48P	through hollow shaft	48	8	100	2048	6000	150 kHz	-20..+85	IP40
EL 63FB	blind hollow shaft	63,5	15	1	2500	3000	300 kHz	-10..+60	IP54
EL 63GB	blind hollow shaft	63,5	15	1	2500	3000	300 kHz	-10..+60	IP54
EL 63PB	through hollow shaft	63,5	15	1	2500	3000	300 kHz	-10..+60	IP54
EL 63PBF	through hollow shaft	63,5	15	1	2500	3000	300 kHz	-10..+60	IP54
EL 63PC	through hollow shaft	63,5	15	1	2500	3000	300 kHz	-10..+60	IP54
EL 63PCF	through hollow shaft	63,5	15	1	2500	3000	300 kHz	-10..+60	IP54

Series	special features						Mounting Type
	Heavy Duty (high mechanical resistance)	high temperature resistance	small dimentions	miniaturized	Hall effect phases	to be mounted directly on motors	
EF 36K		+	+		+		Rear fixing
EH 80C		+	+				synchronous flange
EH 80K		+	+				synchronous flange, Rear fixing
EH 80P		+	+				anti-rotation pin
EF 80C		+	+		+		synchronous flange
EF 80K		+	+		+		synchronous flange, Rear fixing
EF 80P		+	+		+		anti-rotation pin
EH 88P							with spring
EL 88P							with spring
EH 50FA							stator coupling, Rear fixing
EH 50FP							stator coupling, Front fixing
EH 80PU			+				collar clamping
EH 88PE							with spring
EH 88PET							torque arm fixing
EH 99P	+						torque arm fixing
EL 49C		+	+				
EL 49P		+	+				
EF 49C		+	+		+		
EF 49P		+	+		+		
EL 38F				+			stator coupling
EL 38G				+			anti-rotation pin
ER 38F				+			stator coupling
ER 38G				+			anti-rotation pin
EL 53A	+					+	elastic couplings
EL 53B	+					+	elastic couplings
ER 53A	+					+	elastic couplings
ER 53B	+					+	elastic couplings
EH 53A						+	elastic couplings

Series	special features						Mounting Type
	Heavy Duty (high mechanical resistance)	high temperature resistance	small dimentions	miniaturized	Hall effect phases	to be mounted directly on motors	
EH 53B						+	elastic couplings
EL 58F	+						stator coupling
EL 58G	+						anti-rotation pin
ER 58F	+						stator coupling
ER 58G	+						anti/rotation pin
EL 63F	+						with spring
EL 63G	+						anti-rotation pin
ER 63F	+						with spring
ER 63G	+						anti/rotation pin
EL 120P							with spring
EL 72A	+					+	elastic couplings
EL 72B	+					+	elastic couplings
ER 72A	+					+	elastic couplings
ER 72B	+					+	elastic couplings
EL 48C							stator coupling
EL 48P							stator coupling
EL 63FB			+				with spring
EL 63GB			+				anti-rotation pin
EL 63PB			+				anti-rotation pin
EL 63PBF			+				with spring
EL 63PC			+				anti-rotation pin
EL 63PCF			+				with spring

Series	Type of motor					Output type	
	for motor feedback	for servo motors	for small size AC/DC motors	for middle size motors	for big size motors	cable output type	connector output type
EF 36K	+	+				+	
EH 80C	+	+					
EH 80K	+	+					
EH 80P	+	+					
EF 80C	+	+					
EF 80K	+	+					
EF 80P	+	+				+	
EH 88P				+		+	
EL 88P				+		+	
EH 50FA	+		+			+	
EH 50FP	+		+			+	
EH 80PU	+	+		+		+	
EH 88PE						+	
EH 88PET						+	
EH 99P						+	
EL 49C	+	+					
EL 49P	+	+					
EF 49C	+	+					
EF 49P	+	+					
EL 38F			+			+	
EL 38G			+			+	
ER 38F			+			+	
ER 38G			+			+	
EL 53A						+	+
EL 53B						+	+
ER 53A						+	+
ER 53B						+	+
EH 53A						+	

Series	Type of motor					Output type	
	for motor feedback	for servo motors	for small size AC/DC motors	for middle size motors	for big size motors	cable output type	connector output type
EH 53B						+	
EL 58F						+	+
EL 58G						+	+
ER 58F						+	+
ER 58G						+	+
EL 63F						+	+
EL 63G						+	+
ER 63F						+	+
ER 63G						+	+
EL 120P				+	+	+	
EL 72A						+	+
EL 72B						+	+
ER 72A						+	+
ER 72B						+	+
EL 48C						+	
EL 48P						+	
EL 63FB			+			+	
EL 63GB			+			+	
EL 63PB			+			+	
EL 63PBF			+			+	
EL 63PC			+			+	
EL 63PCF			+			+	

Series	Power supply					Type of shaft load	
	5 V DC	8...24 V DC	5...28 V DC	5...30 V DC	8...30 V DC	Axial shaft loads	Radial shaft loads
EF 36K	+						+
EH 80C	+	+	+				+
EH 80K	+	+	+				+
EH 80P	+	+	+				+
EF 80C	+						+
EF 80K	+						+
EF 80P	+						+
EH 88P	+	+	+				+
EL 88P	+	+	+				+
EH 50FA				+			+
EH 50FP				+			+
EH 80PU				+			+
EH 88PE	+	+	+				+
EH 88PET	+	+	+				+
EH 99P	+				+		+
EL 49C	+	+					
EL 49P	+	+					
EF 49C	+	+					
EF 49P	+	+					
EL 38F	+	+	+				+
EL 38G	+	+	+				+
ER 38F	+	+	+				+
ER 38G	+	+	+				+
EL 53A	+	+	+			+	+
EL 53B	+	+	+			+	+
ER 53A	+	+	+			+	+
ER 53B	+	+	+			+	+
EH 53A	+	+					+

Series	Power supply					Type of shaft load	
	5 V DC	8...24 V DC	5...28 V DC	5...30 V DC	8...30 V DC	Axial shaft loads	Radial shaft loads
EH 53B	+	+					+
EL 58F	+	+	+			+	+
EL 58G	+	+	+			+	+
ER 58F	+	+	+			+	+
ER 58G	+	+	+			+	+
EL 63F	+	+	+			+	+
EL 63G	+	+	+			+	+
ER 63F	+	+	+			+	+
ER 63G	+	+	+			+	+
EL 120P	+	+	+				+
EL 72A	+	+	+			+	+
EL 72B	+	+	+			+	+
ER 72A	+	+	+			+	+
ER 72B	+	+	+			+	+
EL 48C	+	+					+
EL 48P	+	+					+
EL 63FB	+	+	+				
EL 63GB	+	+	+				
EL 63PB	+	+	+				
EL 63PBF	+	+	+				
EL 63PC	+	+	+				
EL 63PCF	+	+	+				