

Signal converters

Signal converters from HEIDENHAIN enable the flexible adaptation of interfaces for encoder signals to the requirements of your application. Depending on the application, additional signals (such as from temperature sensors) may be processed and transmitted to the downstream electronics:

- Adaptation of the interfaces
- Angular measurement with increased accuracy
- Temperature measurement on direct-drive motors
- Computer-aided measured-value acquisition

Incremental signals

~ 1 V_{PP} > □ TTL

~ 11 μA_{PP} > □ TTL

Incremental signals > position values

~ 1 V_{PP} > EnDat

~ 1 V_{PP} > Fanuc Serial Interface

~ 1 V_{PP} > Mitsubishi high speed Interface

Position values

EnDat > DRIVE-CLiQ

EnDat > Fanuc

EnDat > Yaskawa Serial Interface

Adaptation of the interfaces

Signal converters from HEIDENHAIN for the adaptation of the encoder signals to the interface increase compatibility with the downstream electronics. Signals can be interpolated, and various versions (e.g., housing version, connector version or cable version) can be selected for greater flexibility in the application.

IBV 600, IBV 100, IBV 3000, EXE 100 series

In addition to performing signal conversion, the signal converters also interpolate the sinusoidal encoder signals. This permits finer measuring steps, resulting in higher control quality and superior positioning behavior.

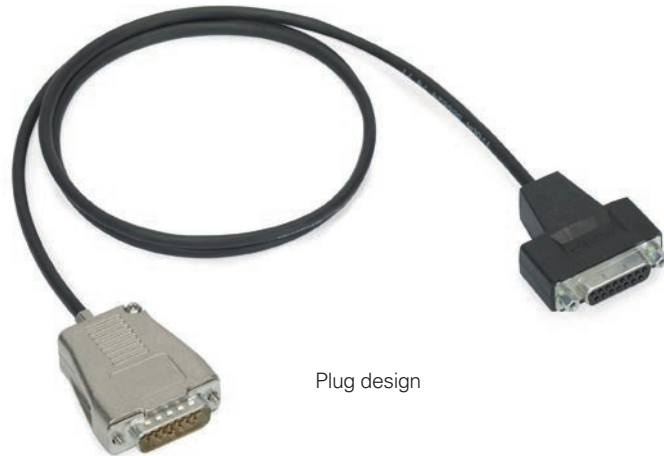
- Incremental interface at the input (1 V_{PP} or 11 μA_{PP})
- Incremental interface at the output (TTL)

IBV 6000 series

- Incremental interface at the input (1 V_{PP})
- Multiple outputs (1 V_{PP} or TTL)

Signal converters from HEIDENHAIN are available in various designs:

- Box design
- Plug design
- Cable design
- Version for integration



Plug design

EIB 100, EIB 3000 series

These signal converters can interpolate the input signals and also feature an integrated counting function. As soon as the reference marks are traversed, an absolute position value is generated and output to the downstream electronics.

- Incremental interface at the input (1 V_{PP})
- Serial interface at the output (EnDat 2.2, Fanuc Serial Interface, Mitsubishi high speed serial interface)

EIB 2391 S, EIB 3392 S, EIB 3392 F, EIB 3391 Y series

These signal converters adapt the encoder information, such as position, temperature, or diagnostics, to the format of the output interface.

- Serial interface at the input (EnDat 2.2)
- Serial interface at the output (DRIVE-CLiQ/Fanuc/Yaskawa)



Temperature measurement on direct-drive motors

Monitoring of all three windings for increased cost-effectiveness and protection of the direct-drive motor from overloading: optimized temperature measurement of up to three temperature sensors and compensation of the transmission timing behavior of the temperature measurement for ETEL direct-drive motors.

EIB 5000 series

- Fewer cables required
- Protection of the direct-drive motor from overloading
- Faster response behavior in the event of temperature exceedance
- Increased cost efficiency



Angular measurement with increased accuracy

Position calculation using two scanning heads from rotatory HEIDENHAIN encoders in real time without negative effects on the control loop: deviations such as eccentric mounting of the graduation of a modular angle encoder, or radial runout deviations of the shaft, can be compensated for with the EIB 1500.

EIB 1500 series

- Input: Incremental rotatory HEIDENHAIN encoder with two scanning heads and distance-coded reference marks (mounting of the scanning heads relative to each other: $180^\circ \pm 5^\circ$)
- Output: EnDat 2.2, Fanuc Serial Interface or Mitsubishi high speed interface



Computer-aided measured-value acquisition

The signal converters enable the connection of encoders to computer-supported applications that, at the same time, require high resolution of the encoder signals and fast measurement: as an evaluation unit for inspection stations and multi-gauging fixtures.

EIB 700 series

- Signal converters for high-resolution encoder signals and fast measurement
- Connection of multiple evaluation units via Ethernet transmission and, for example, WLAN transmission
- Encoder inputs: 1 V_{PP}, 11 μA_{PP}, EnDat 2.1, EnDat 2.2 or SSI
- Connection of up to four HEIDENHAIN encoders

IK 220 series

- Signal converters for high-resolution encoder signals and fast measurement
- PCI counter card
- Encoder inputs: 1 V_{PP}, EnDat 2.1, EnDat 2.2 or 11 μA_{PP}
- Connectivity for up to two HEIDENHAIN encoders



Outputs		Inputs		Design – IP rating	Interpolation ¹⁾ or subdivision	Model
Interface	Quantity	Interface	Quantity			
 TTL	1	 1 V _{PP}	1	Box design (IP65)	5/10-fold	IBV 101
					20/25/50/100-fold	IBV 102
					Without interpolation	IBV 600
					25/50/100/200/400-fold	IBV 660B
				Plug design (IP40)	5/10-fold	IBV 3171
					20/25/50/100-fold	IBV 3271
		 11 µA _{PP}	1	Box design (IP65)	5/10-fold	EXE 101
					20/25/50/100-fold	EXE 102
 TTL/  1 V _{PP} (adjustable)	2	 1 V _{PP}	1	Box design (IP65)	2-fold	IBV 6072
					5/10-fold	IBV 6172
					5/10-fold and 20/25/50/100-fold	IBV 6272
EnDat 2.2	1	 1 V _{PP}	1	Box design (IP65)	≤ 16 384-fold subdivision	EIB 192
				Plug design (IP40)	≤ 16 384-fold subdivision	EIB 3011
			2	Box design (IP65)	≤ 16 384-fold subdivision	EIB 1512
DRIVE-CLiQ	1	EnDat 2.2	1	Box design (IP65)	–	EIB 2391S
				Cable design (IP65)	–	EIB 3392S
Fanuc Serial Interface	1	 1 V _{PP}	1	Box design (IP65)	≤ 16 384-fold subdivision	EIB 192F
				Plug design (IP40)	≤ 16 384-fold subdivision	EIB 3091F
			2	Box design (IP65)	≤ 16 384-fold subdivision	EIB 1592F
	1	EnDat 2.2	1	Cable design (IP65)	–	EIB 3392F
Mitsubishi high speed interface	1	 1 V _{PP}	1	Box design (IP65)	≤ 16 384-fold subdivision	EIB 192M
				Plug design (IP40)	≤ 16 384-fold subdivision	EIB 3091M
			2	Box design (IP65)	≤ 16 384-fold subdivision	EIB 1592M
Yaskawa Serial Interface	1	EnDat 2.2	1	Plug design (IP40)	–	EIB 3391Y

¹⁾ Switchable