



# HEIDENHAIN



Product Information

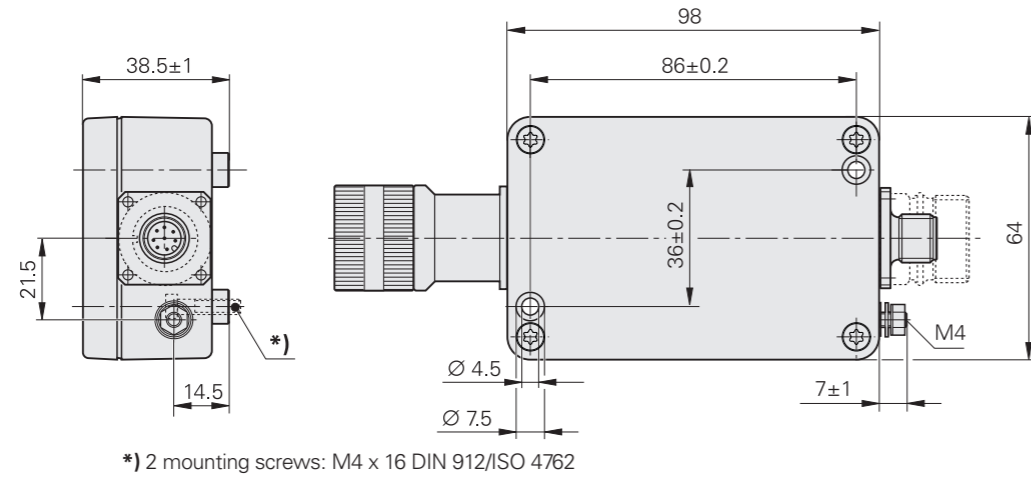
## EIB 192

Signal Converters for  
Incremental HEIDENHAIN  
Encoders

# EIB 192

- **Optional:** automatic adjustment of encoder signals (offset, phase, amplitude)
- **Integrated** 16384-fold subdivision
- **Input:** incremental encoders from HEIDENHAIN
- **Output:** position values as per EnDat 2.2, Fanuc Serial Interface, or Mitsubishi high speed interface

mm  
  
 Tolerancing ISO 8015  
 ISO 2768:1989-mH  
 ≤ 6 mm: ±0.2 mm



Specifications	EIB 192	EIB 192F	EIB 192M
<b>Input</b>	For HEIDENHAIN encoders		
Interface	~ 1 V <sub>PP</sub> ; input frequency ≤ 400 kHz		
Reference mark	One or distance-coded		
Electrical connection	12-pin M23 flange socket with coupling ring (female)		
Voltage supply for encoders	DC 5 V ±0.25 V (generated from voltage supply for EIB); ≤ 150 mA		
Cable length	≤ 6 m		
<b>Output</b>			
Interface	EnDat 2.2	Fanuc Serial Interface	Mitsubishi high speed interface
Ordering designation	EnDat22	Fanuc02	Mit02-4
Calculation time $t_{ca}$ /clock frequency	≤ 5 μs/≤ 16 MHz	–	–
Electrical connection	8-pin M12 flange socket (male)	17-pin M23 flange socket (male)	
Cable length (with HEIDENHAIN cable)	≤ 100 m <sup>1)</sup>	≤ 20 m <sup>2)</sup>	≤ 20 m <sup>2)</sup>
<b>Subdivision</b>	≤ 16384-fold (depending on encoder)		
<b>Supply voltage</b>	DC 3.6 V to 14 V		
Power consumption (max.)	3.6 V: < 2000 mW; 14 V: < 2000 mW (including I <sub>Mmax</sub> = 150 mA)		
Current consumption (typical, without load)	5 V: 130 mA + 1.5 · I <sub>Mtyp</sub>		
<b>Operating temperature</b> <b>Storage temperature</b>	0 °C to 70 °C –30 °C to 70 °C		
<b>Vibration</b> 55 Hz to 2000 Hz <b>Shock</b> 11 ms	100 m/s <sup>2</sup> (EN 60068-2-6) 300 m/s <sup>2</sup> (EN 60068-2-27)		
<b>Protection</b> EN 60529	IP65		
<b>Mass</b>	≈ 0.3 kg		

<sup>1)</sup> Supply voltage at the EIB must be maintained

<sup>2)</sup> I<sub>Encoder</sub> ≤ 150 mA; greater cable lengths upon request

## Electrical connection

### Pin layout of EIB input

12-pin M23 flange socket												
	Power supply				Incremental signals						Limit pos. sign.	
	12	2	10	11	5	6	8	1	3	4	7	9
	U <sub>P</sub>	Sensor U <sub>P</sub>	0V	Sensor 0V	A+	A–	B+	B–	R+	R–	H/L1 <sup>1)</sup>	L/L2 <sup>1)</sup>
	Brown/Green	Blue	White/Green	White	Brown	Green	Gray	Pink	Red	Black	Violet	Yellow

### Pin layout of EIB output

8-pin M12 flange socket					17-pin M23 flange socket			
	Power supply				Serial data transmission			
	8	2	5	1	3	4	7	6
EIB 192	U <sub>P</sub>	Sensor U <sub>P</sub>	0V	Sensor 0V	DATA	DATA	CLOCK	CLOCK
EIB 192F					Serial Data	Serial Data	Request	Request
EIB 192M							Request Frame	Request Frame
	Brown/Green	Blue	White/Green	White	Gray	Pink	Violet	Yellow

**Shield** on housing; **U<sub>P</sub>** = Power supply voltage

**Sensor:** The sense line is connected internally with the corresponding power line.

Vacant pins or wires must not be used!

<sup>1)</sup> For adjustment purposes only; do not assign in normal operation

# Configuration of the EIB 192

In order for the EIB 192 to operate correctly with the encoder, certain encoder parameters must be stored in the EIB 192 (e.g., the number of signal periods, the nominal increment of the reference marks, or the encoder ID). This programming can be done only by HEIDENHAIN.

## Line count or signal period

Important in the case of rotary encoders is the number of signal periods per revolution, and in the case of linear encoders, the signal period in micrometers.

If the connected encoder has distance-coded reference marks, then the **nominal increment N of the reference marks** must be provided in signal periods.

## Connection information

### Establishing the absolute reference

After switch-on, the EIB 192 delivers relative position values starting with the switch-on position because the device is connected to incremental encoders. The absolute reference is not established until the reference marks have been traversed.

### Please note:

For encoders with distance-coded reference marks, two successive reference marks must be traversed without a change in direction.

### Requirements for the control

EnDat 2.2 continuously provides the relative position as Position 1. When the absolute reference is found, the RM bit is set in the EnDat additional data, and the absolute position value is transmitted as Position 2. Before you use the EIB 192, please check whether the downstream electronics support this EnDat 2.2 device profile for incremental encoders.

### Electronic ID label

With the EnDat interface, the configuration can be read out via the interface.

The **encoder ID** indicates the type of encoder that can be connected (e.g., EnDat22):

- 00 Incremental linear encoder without distance-coded reference marks
- 10 Incremental linear encoder with distance-coded reference marks
- 80 Incremental rotary or angle encoder without distance-coded reference marks
- 90 Incremental rotary or angle encoder with distance-coded reference marks

For the EnDat interface, this value is stored in word 14 of the EnDat 2.1 parameters.

### Please note:

It is not possible to combine the EIB 192 and interface electronics with the DRIVE-CLiQ interface (e.g., EIB 2391 S or EIB 3391 S), because these interface electronics accept only absolute encoders.

### Online diagnostics

The EIB 192 supports the online diagnostics of EnDat 2.2 and provides valuation numbers for the incremental track.

## HEIDENHAIN

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This Product Information document supersedes all previous editions, which thereby become invalid. The basis for ordering from HEIDENHAIN is always the Product Information document edition valid when the order is placed.



### More information:

To ensure proper and intended use, comply with the specifications in the following documents:

- Brochure: *Interfaces of HEIDENHAIN Encoders* 1078628-xx
- Brochure: *Cables and Connectors* 1206103-xx
- Product Overview: *Signal Converters* 598160-xx

For brochures and Product Information documents, visit: [www.heidenhain.com](http://www.heidenhain.com)