



HEIDENHAIN



Preliminary
Product Information

MKV 1630

MKV 9630

Multi-Head Processing Units

MKV 1630, MKV 9630

- Multi-head processing for up to four scanning heads
- Single-cable solution with the EnDat 3 interface
- Scale compensation data stored in the MKV

Application

The MKV 1630 and MKV 9630 units for multi-head processing make it possible to connect up to two AK LIP 609 *Dplus* scanning heads or four AK LIP 608 *Dplus* scanning heads to a control via the EnDat 3 interface. Based on the individual position values, the MKV can calculate up to three degrees of freedom within a MULTI-DOF application. For example, with two LIP 609 *Dplus* scanning heads and one LIP 6001 *Dplus* scale, three degrees of freedom can be determined (X, Y and rotation about the Z axis).

Benefits in the application

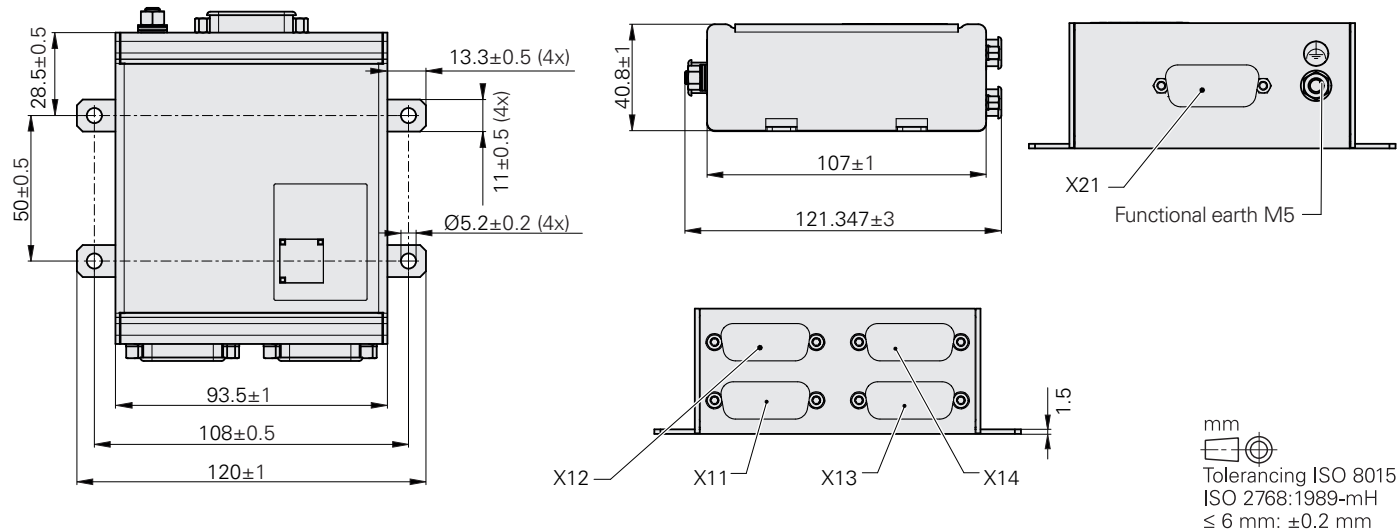
Because the interface being used is EnDat 3, all degrees of freedom calculated in the MKV can be transmitted over a single cable, thus reducing the number of cables within the application. The position values can also be converted into a unified coordinate system, and scale compensation data that has been stored in the MKV can be taken into account as well. As a result, designers can realize complex metrology systems with only a few cables as well as implement position value calculation outside of the control. This saves time, space and expense while increasing the process reliability and dynamic performance of the motion system.

Hardware variants

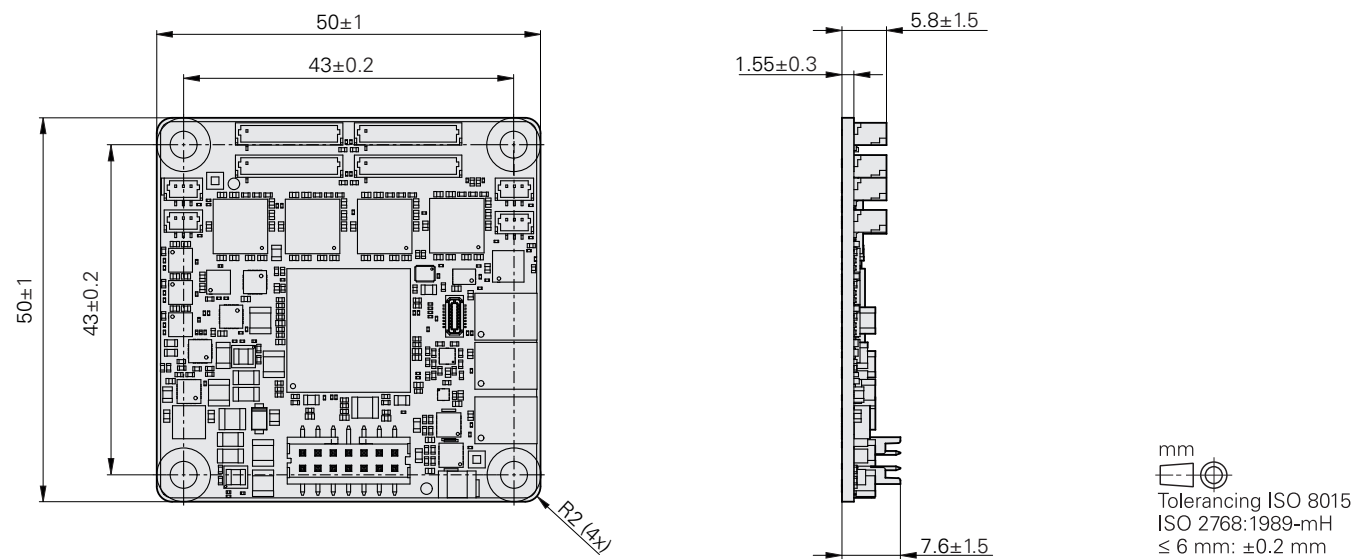
The MKV comes in two versions: with a housing, as well as just the circuit board. Enclosed in a housing, the MKV 1630 enables an easy introduction to MULTI-DOF applications. An alternative PCB version, the MKV 9630, integrates decentralized multi-head processing directly into a motion system. Its compact form factor also minimizes the amount of mass under motion.



MKV 1630: with housing



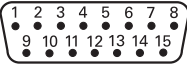

MKV 9630: PCB version



Specifications	MKV 1630	MKV 9630
Input		
Interface	1 V _{PP}	
Input frequency	1 MHz	
Electrical connection	Four 15-pin D-sub connectors or Two 26-pin D-sub connectors or One 15-pin D-sub connector and One 26-pin D-sub connector	Four 12-in PCB connectors
Supply voltage of encoder	3.3 V to 5.25 V	
Cable length	≤ 3 m	
Output		
Interface	EnDat 3	
Ordering designation	E30-RB	
Interpolation	16384-fold (14 bits)	
Availability of the position value	Degree of freedom 1: < 11 μs (at 12.5 Mbit/s); < 8.2 μs (at 25 Mbit/s) Degree of freedom 2: < 18.7 μs (at 12.5 Mbit/s); < 12.1 μs (at 25 Mbit/s) Degree of freedom 3: < 26.4 μs (at 12.5 Mbit/s); < 16.0 μs (at 25 Mbit/s)	
Data rate	12.5 Mbit/s; 25 Mbit/s	
Electrical connection	One 15-pin D-sub connector	14-pin PCB connector (Minitek SHR)
Cable length	100 m	
General information		
Supply voltage	3.6 V to 14 V	
Power consumption	1300 mW	
Operating temperature	-10 °C to 70 °C	
Vibration (55 Hz to 2000 Hz) Shock (11 ms)	100 m/s ² (EN 60068-2-6) 300 m/s ² (EN 60068-2-27)	
Protection (EN 60529)	IP20	IP00
Mass	480 g	15 g

Pin layout

MKV 1630

15-pin D-sub connector															
															
	Power supply				Other signals							Serial data transfer			
	4	12	2	10	1	9	3	11	14	7	6	5	13	8	15
	U _P	Sensor U _P	0V	Sensor 0V	Vacant	Vacant	Vacant	Vacant	Vacant	Vacant	Vacant	SD+ _NEXT	SD- _NEXT	SD+	SD-
1) 	Brown/ Green	Blue	White/ Green	White	/	/	/	/	/	/	/	Gray	Pink	Violet	Yellow

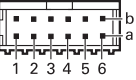
1) Color assignment of the connecting cable

Shield on housing; **U_P** = Voltage supply

Sensor: The sense line is connected in the encoder with the corresponding power supply line.

Vacant pins or wires must not be used.

MKV 9630

12-pin PCB connector														
														
	Power supply				Other signals						Serial data transmission			
	3a	4a	3b	4b	1a	2a	1b	2b	7a	7b	5b	6b	5a	6a
	U _P	Sensor U _P	0V	Sensor 0V	Vacant	Vacant	Vacant	Vacant	Vacant	Vacant	SD+ _NEXT	SD- _NEXT	SD+	SD-

Shield on housing; **U_P** = Power supply voltage

Sensor: The sense line is connected in the encoder with the corresponding power supply line.

Vacant pins or wires must not be used.

In-depth descriptions of cables and connectors can be found in the *Cables and Connectors* brochure.

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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.



Further information:

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

- Brochure, Product Information, and Mounting Instructions of the connected encoder
- Operating Instructions

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