

HEAG 160

Precision interpolator / splitter, precision sine multiplier

Converting of SinCos encoder signals into multiplied SinCos output signals and HTL or TTL output signals

Overview

- Converting of SinCos signals into multiplied SinCos signals
- Additional interpolation of HTL or TTL signals (multiplying or dividing)
- Oversampling with 24 MHz
- Digitally pre-filter
- Very high output frequency possible



Technical data

Technical data - electrical ratings

Voltage supply	5 VDC \pm 5 % 10...30 VDC
Consumption	\leq 500 mA (5 VDC) \leq 300 mA (10...30 VDC)
Inputs	SinCos 2x SinCos
Input signals	A+, A-, B+, B-, R+, R-
Outputs	SinCos + TTL SinCos + HTL Error output
Output signals	A+, B+, R+, A-, B-, R- Option: A+, B+, R+, A-, B-, R-, Error-
Output frequency	\leq 2 MHz (HTL) \leq 5 MHz (TTL) \leq 600 kHz (SinCos)
Amplitude resolution	12 bit
Interpolation factor for SinCos output (multiplying)	1...128
Interpolation factor for HTL output (multiplying)	1...2048

Technical data - electrical ratings

Interpolation factor for HTL output (dividing)	1/2...1/2048
Interpolation factor for TTL output (multiplying)	1...2048
Interpolation factor for TTL output (dividing)	1/2...1/2048
Technical data - mechanical design	
Dimensions W x H x L	122 x 122 x 80 mm
Protection EN 60529	IP 65
Operating temperature	0...+50 °C
Resistance	IEC 60068-2-6 Vibration 1 g, 50-2000 Hz IEC 60068-2-27 Shock 30 g, 11 ms
Weight approx.	1 kg
Connection	Connector M23, 12-pin Connector, 3-pin, external voltage supply

Optional

- Internal pre-amplifier
- Two sine inputs for compensating radial runout of the connected encoder
- Error output, external voltage supply

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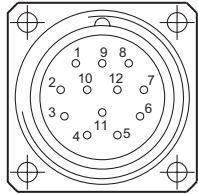
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Terminal assignment

View A (see dimension)

Input encoder signals

Assignment flange connector



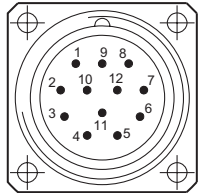
Flange connector M23, female, 12-pin, counter-clockwise (CCW)

Pin	Assignment
1	B-
2	5 VDC
3	R+
4	R-
5	A+
6	A-
7	dnu
8	B+
9	dnu
10	0V (⊥)
11	0V (⊥)
12	5 VDC

View B (see dimension)

SinCos output

Assignment flange connector



Flange connector M23, male, 12-pin, counter-clockwise (CCW)

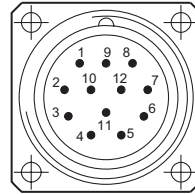
Pin	Assignment
1	B _{MULT}
2	5 VDC (with external voltage supply: dnu)
3	R _{MULT}
4	R _{MULT}
5	A _{MULT}
6	A _{MULT}
7	dnu (with error output: Err-)
8	B _{MULT}
9	dnu
10	0V (⊥)
11	0V (⊥)
12	5 VDC (with external voltage supply: dnu)

Terminal assignment

View C (see dimension)

HTL or TTL output

Assignment flange connector

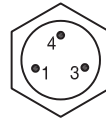


Flange connector M23, male, 12-pin, counter-clockwise (CCW)

Pin	Assignment
1	B _{HTL or TTL}
2	dnu
3	R _{HTL or TTL}
4	R _{HTL or TTL}
5	A _{HTL or TTL}
6	A _{HTL or TTL}
7	dnu
8	B _{HTL or TTL}
9	dnu
10	0V (⊥)
11	0V (⊥)
12	dnu

View D (see dimension)

External power supply



male, 3-pin, counter-clockwise (CCW)

Pin	Assignment
1	10...30 VDC
3	⊥ (0 V)
4	Shield

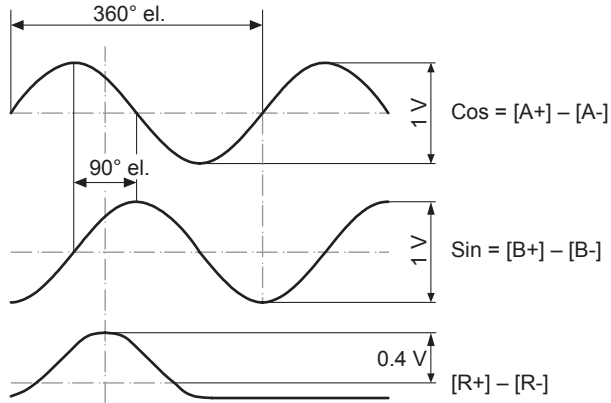
Terminal significance

... VDC	Voltage supply
0V (⊥)	Ground
A+	Output signal channel 1
A-	Output signal channel 1 inverted
B+	Output signal channel 2 (offset by 90° to channel 1)
B-	Output signal channel 2 inverted
R+	Zero pulse (reference signal)
R-	Zero pulse inverted
Err-	Error output
dnu	Do not use

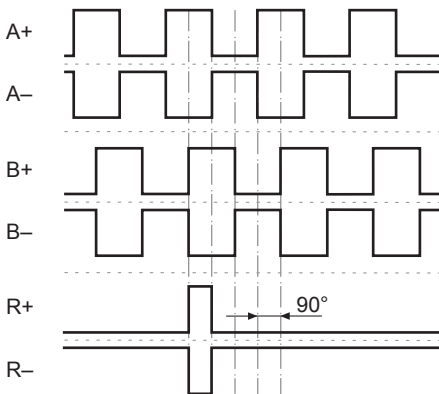
Output signals

SinCos

Multiplied sine signals



HTL/TTL

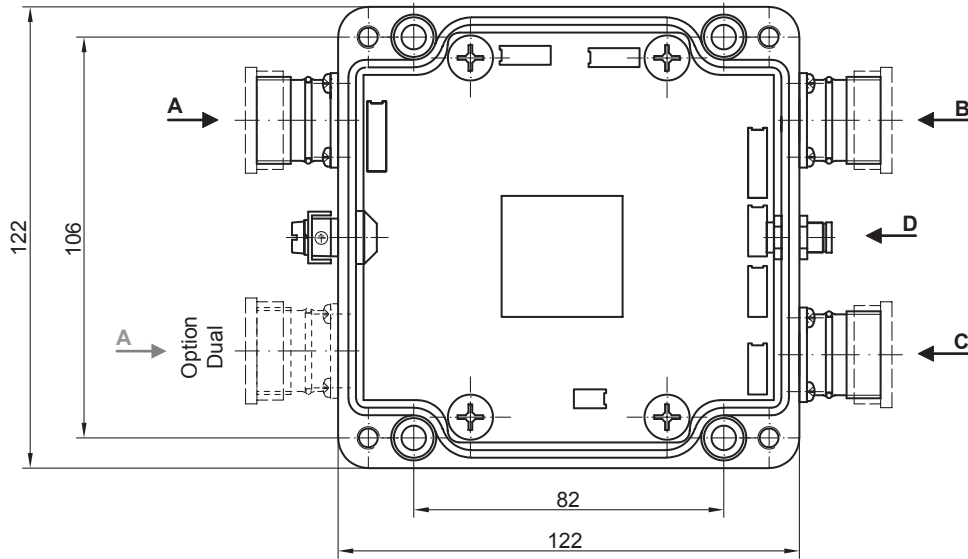


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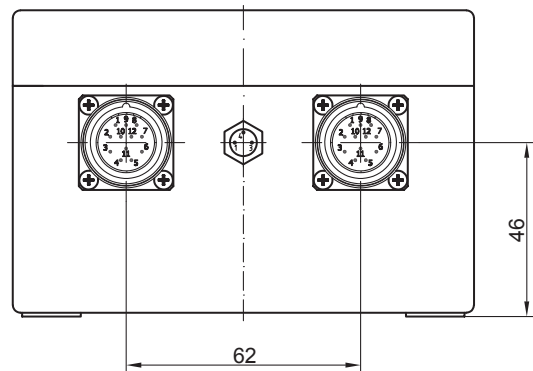
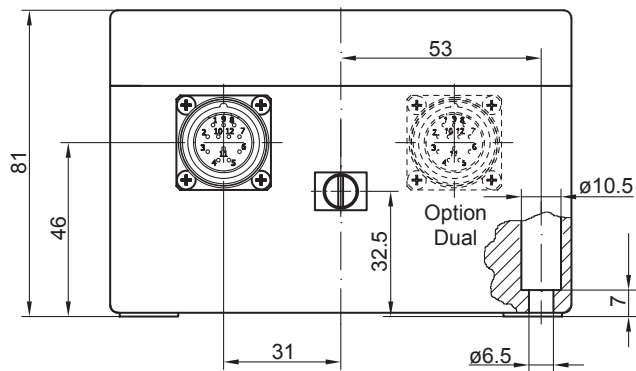
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Dimensions



View A

View B/C/D



HM04M26712

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Ordering reference

	HEAG160	-	#	#	-	###	-	#	#####	-	##	-	##
Product	HEAG160												
Signal Processing	HEAG160												
Internal pre-amplifier													
Without integrated pre-amplifier						-							
With integrated pre-amplifier						V							
Dual sine input													
One sine input (standard)						-							
Two sine inputs for compensating radial runout of the connected encoder						D							
Interpolation factor for SinCos output													
1									1				
2									2				
4									4				
8									8				
16									16				
32									32				
64									64				
128									128				
Logic level													
HTL									H				
TTL									T				
Interpolation factor for HTL/TTL output													
1									1				
2									2				
4									4				
8									8				
16									16				
32									32				
64									64				
128									128				
256									256				
512									512				
1024									1024				
2048									2048				
1/2									1/2				
1/4									1/4				
1/8									1/8				
1/16									1/16				
1/32									1/32				
1/64									1/64				
1/128									1/128				
1/256									1/256				
1/512									1/512				
1/1024									1/1024				
1/2048									1/2048				
Error output													
Without error output													-
With error output													ER
External voltage supply													
Without external supply													-
With external supply													EXT