

# Encoder Pinout

## Resolver Feedback

Encoder type: Resolver 2p 7V 10KHz

RESOLVER CONNECTION			
Function	M15-12+3p	M17-17p	M23-12p 20°
Ref+	10	10	10
Ref-	7	7	7
Cos+	2	2	2
Cos-	1	1	1
Sen+	11	11	11
Sen-	12	12	12
PTC / PT1000+	8	8	8
PTC / PT1000-	9	9	9

## TTL Encoder

TTL ENCODER CONNECTION			
Function	M15-12+3p - SIZE 0 <sup>41</sup>	M17-17p	M23-17p
+5VDC	B	10	10
GND	A	7	7
A+	11	1	1
A/	12	2	2
B+	1	11	11
B/	2	12	12
Z+	3	3	3
Z/	10	13	13
U+	4	4	4
U/	-	14	14
V+	6	5	5
V/	-	6	6
W+	5	16	16
W/	-	15	15
PTC / PT1000+	8	8	8
PTC / PT1000-	9	9	9

## BISS-C Encoder

Encoder types:

ELM35 :

<https://www.sick.com/at/de/catalog/produkte/motion-control-sensoren/motor-feedback-systeme/elsel-m35/c/g584054>

<b>BISS-C ENCODER CONNECTION ( additional BISS-B analogic signals in brackets)</b>			
<b>Function</b>	<b>M15 – 12+3p</b>	<b>M17 – 17p</b>	<b>M23 – 17p</b>
+5Vdc	10	10	10
GND	7	7	7
(A+)	1	1	1
(A-)	2	2	2
DATA+	3	3	3
CLOCK+	5	5	5
(B+)	11	11	11
(B-)	12	12	12
DATA-	4	13	13
CLOCK-	A	14	14
GND BAT (0V SENSE)	B	15	15
+VBAT (5V SENSE)	C	16	16
PTC / PT1000+	8	8	8
PTC / PT1000-	9	9	9

## Endat Encoder

Encoder types:

EQI1131 Endat 2.2: <https://www.heidenhain.com/service-support/infobase/1164811-05>

EQI1130 Endat 2.1: <https://www.heidenhain.com/service-support/infobase/1164813-04>

<b>ENDAT ENCODER CONNECTION 2.2 (2.1)</b>			
<b>Function</b>	<b>M15 – 12+3p</b>	<b>M17 – 17p</b>	<b>M23 – 17p</b>
+5Vdc	10	10	10
GND	7	7	7
(A+)	1	1	1
(A-)	2	2	2
DATA+	3	3	3
CLOCK+	5	5	5
(B+)	11	11	11
(B-)	12	12	12
DATA-	4	13	13
CLOCK-	A	14	14
0V SENSE	B	15	15
+5V SENSE	C	16	16
(PTC / PT1000+)*	8	8	8
(PTC / PT1000-)*	9	9	9

\*Thermal sensor pins are inserted into the connector only with Endat 2.1, with Endat 2.2 sensor must be read from encoder DATA

## SIN/COS 1Vpp Encoder

<i>SIN/COS 1Vpp ENCODER CONNECTION</i>	
<i>Function</i>	<i>M23 – 17p</i>
+5VDC	10
GND	7
A+	1
A-	2
R+	3
D-	4
C+	5
C-	6
B+	11
B-	12
R-	13
D+	14
OV SENSE	15
5V SENSE	16
PTC / PT1000+	8
PTC / PT1000-	9

## Hiperface Encoder

Encoder types:

SEL37 :

<https://www.sick.com/at/de/catalog/produkte/motion-control-sensoren/motor-feedback-systeme/seksel/c/g575659>

SKM36:

<https://www.sick.com/at/de/catalog/produkte/motion-control-sensoren/motor-feedback-systeme/skssk/m36/c/g215684>

SEM70:

<https://www.sick.com/at/de/catalog/produkte/motion-control-sensoren/motor-feedback-systeme/sesse/m/sem70-hn025ak22/p/p512349?tab=detail>

<i>HIPERFACE CONNECTION</i>			
<i>Function</i>	<i>M15 – 12p</i>	<i>M17 – 17p</i>	<i>M23 – 17p</i>
US	10	10	10
+ SIN	8	1	1
- SIN	4	2	2
+ COS	9	11	11
- COS	5	12	12
GND	11	7	7
+ DATA	6	3	3
- DATA	7	13	13
PTC / PT1000+	1	8	8
PTC / PT1000-	2	9	9

## DSL Encoder



Encoder types:

EKM36 :

<https://www.sick.com/ag/de/catalog/produkte/safety/sichere-motor-feedback-systeme/eksek36-s/ekm36-2kf0b020a/p/p478044>

EKS36:

<https://www.sick.com/ag/de/catalog/produkte/motion-control-sensoren/motor-feedback-systeme/eksek36/eks36-0kf0b018a/p/p477845>

DSL ENCODER CONNECTION		
Function	M15 – 4+5p	M23 – 4+5p
U phase motor	A	A
V phase motor	C	B
W phase motor	B	C
+24Vdc Brake	1	G
0V Brake	2	F
Earth		
DSL+	3	E
DSL-	4	H

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