O A C I S

Open **A**rchitecture **C**ontrol **I**ntegrated **S**ystem

Encoder Wiring Example with Heidenhain

Version 01.03

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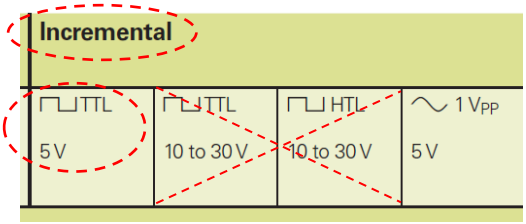
CONTENTS

I. MODEL SELECTION

A. Encoders

i. **Measuring Methods:** You should choose one **of "Incremental"** encoders. OACIS cannot be compatible with "Absolute type" signals and does not work properly.

ii. **Output Signals:** There are two options such as "TTL" and "Vpp". OACIS is compatible with **only "TTL (5V)" signal**. You should select one of "⊓⊔ TTL" output signal models.



iii. **If you use "Vpp" type (Sinusoidal) signal encoder,** you need to use a proper signal converter to change the signal to TTL. HEIDENHAIN Interface Electronics (IBV or EXE series) could be one of options.

A. 엔코더

i. **측정방법: "인크리멘탈"** 엔코더 가운데 하나를 선택해야 합니다. 오아시스는 "앱솔루트 타입" 신호와는 호환할 수 없고 정상적으로 작동하지 않습니다.

ii. **출력신호:** 두 가지 옵션 즉, "TTL"와 "Vpp"가 있습니다. 오아시스는 "TTL(5V)" 신호만 호환가능합니다. "⊓⊔ TTL" 출력신호 타입의 모델 가운데 하나를 선택해야 합니다.

iii. **만약에 "Vpp" 타입(정현파) 신호 엔코더를 사용한다면,** "TTL" 출력으로 바꿔주는 적절한 신호 변환기의 사용이 필요합니다. 하이덴하인 인터페이스장치(IBV 혹은 EXE 시리즈)가 옵션 중 하나가 될 수 있습니다.

II. EXAMPLE #1

A. Selected Model: HEIDENHAIN #ROD 270 18000 03S12-03

i. Measuring Method: “Incremental”
ii. Output Signals: “TTL”
iii. Line Count: “18000”
iv. Interpolation: “5-fold”

B. OACIS Input Signals: LINE RECEIVER

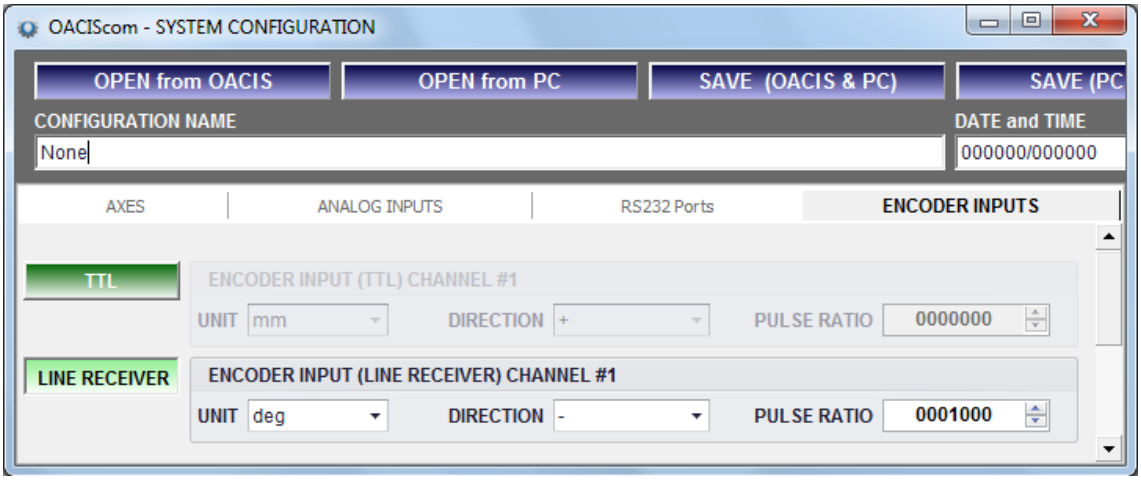
C. Pulse Ratio in the System Configuration: 1000 (= 18000 x 5 x 4 / 360)

D. Pin Map

OACIS DK Channel (DSUB 9PIN)		HEIDENHAIN #ROD 270 (12-pin connector)	
Pin #	**Description**	**Pin #**	**Description**
1	+Vcc (5V)	12 (BROWN/GREEN) 2 (BLUE)	Up Sensor Up
2	0V	10 (WHITE/GREEN) 11 (WHITE)	0V Sensor 0V
3	A	5 (BROWN)	Ua1
4	/A	6 (GREEN)	/Ua1
5	B	8 (GRAY)	Ua2
6	/B	1 (PINK)	/Ua2
7	Z	3 (RED)	Ua0
8	/Z	4 (BLACK)	/Ua0
9	Shield	Shield	Shield

i. HEIDENHAIN “/Uas”(Pin#7) is not to be connected.
ii. Different HEIDENHAIN connector has different Pin Number. You need to see the description carefully. Above example is for #02S12-03 or #03S12-03.

E. Set Encoder Inputs in System Configuration



III. EXAMPLE #2

A. Selected Model: HEIDENHAIN #ROD 270 18000 03S12-03

i. Measuring Method: “Incremental”
ii. Output Signals: “TTL”
iii. Line Count: “18000”
iv. Interpolation: “10-fold”

B. OACIS Input Signals: LINE RECEIVER

C. Pulse Ratio in the System Configuration: 2000 (= 18000 x 10 x 4 / 360)

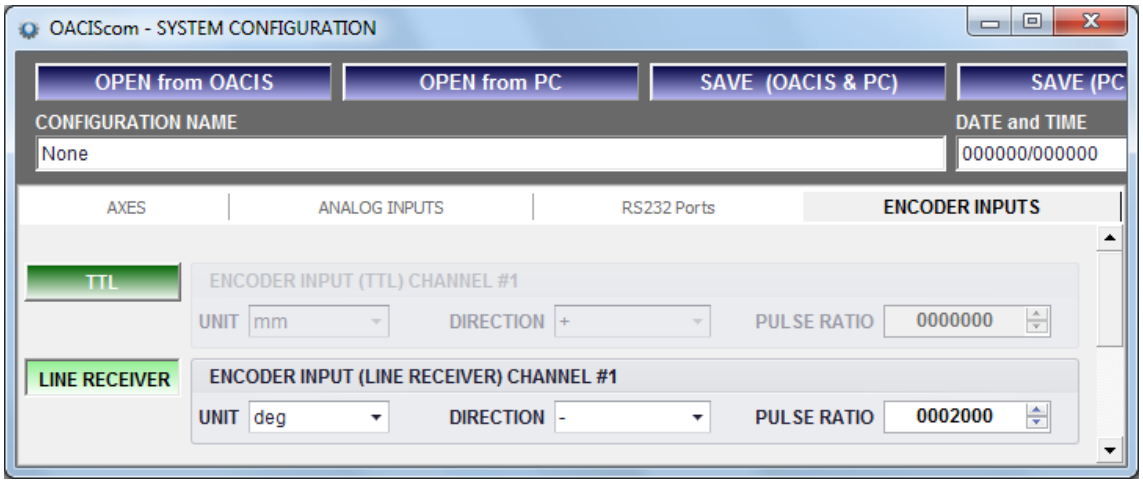
D. Pin Map

OACIS DK Channel (DSUB 9PIN)		HEIDENHAIN #ROD 270 (12-pin connector)	
Pin #	**Description**	**Pin #**	**Description**
1	+Vcc (5V)	12 (BROWN/GREEN) 2 (BLUE)	Up Sensor Up
2	0V	10 (WHITE/GREEN) 11 (WHITE)	0V Sensor 0V
3	A	5 (BROWN)	Ua1
4	/A	6 (GREEN)	/Ua1
5	B	8 (GRAY)	Ua2
6	/B	1 (PINK)	/Ua2
7	Z	3 (RED)	Ua0
8	/Z	4 (BLACK)	/Ua0
9	Shield	Shield	Shield

E. HEIDENHAIN “/Uas”(Pin#7) is not to be connected.

i. Different HEIDENHAIN connector has different Pin Number. You need to see the description carefully. Above example is for #02S12-03 or #03S12-03.

F. Set Encoder Inputs in System Configuration



IV. EXAMPLE #3

A. Selected Model: HEIDENHAIN #ST 1278

i. Measuring Method: “Incremental”
ii. Output Signals: “TTL”
iii. Signal period: “4 um”
iv. Interpolation: “None”

B. OACIS Input Signals: LINE RECEIVER

C. Pulse Ratio in the System Configuration: 1000 (= 1 / 0.004 x 4)

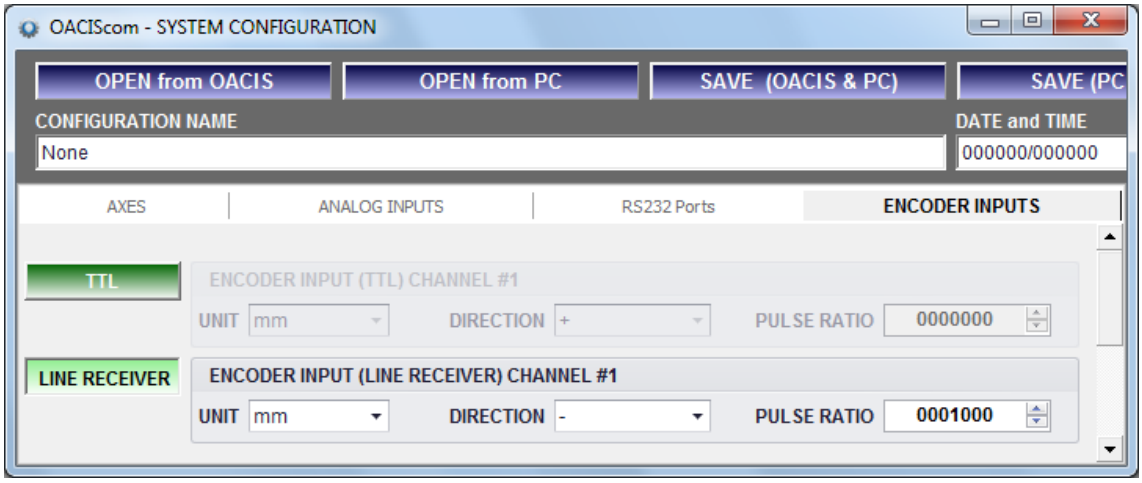
D. Pin Map

OACIS DK Channel (DSUB 9PIN)		HEIDENHAIN #ST 1278 (12-pin connector)	
Pin #	**Description**	**Pin #**	**Description**
1	+Vcc (5V)	12 (BROWN/GREEN) 2 (BLUE)	Up Sensor Up
2	0V	10 (WHITE/GREEN) 11 (WHITE)	0V Sensor 0V
3	A	5 (BROWN)	Ua1
4	/A	6 (GREEN)	/Ua1
5	B	8 (GRAY)	Ua2
6	/B	1 (PINK)	/Ua2
7	Z	3 (RED)	Ua0
8	/Z	4 (BLACK)	/Ua0
9	Shield	Shield	Shield

E. HEIDENHAIN “/Uas”(Pin#7) is not to be connected.

i. Different HEIDENHAIN connector has different Pin Number. You need to see the description carefully. Above example is for #ST 1278 or ST 3078.

F. Set Encoder Inputs in System Configuration



V. EXAMPLE #4

A. Selected Model: HEIDENHAIN #MT 1271

i. Measuring Method: “Incremental”
ii. Output Signals: “TTL”
iii. Signal period: “0.4 um”
iv. Interpolation: “None”

B. OACIS Input Signals: LINE RECEIVER

C. Pulse Ratio in the System Configuration: 10,000 (= 1 / 0.0004 x 4)

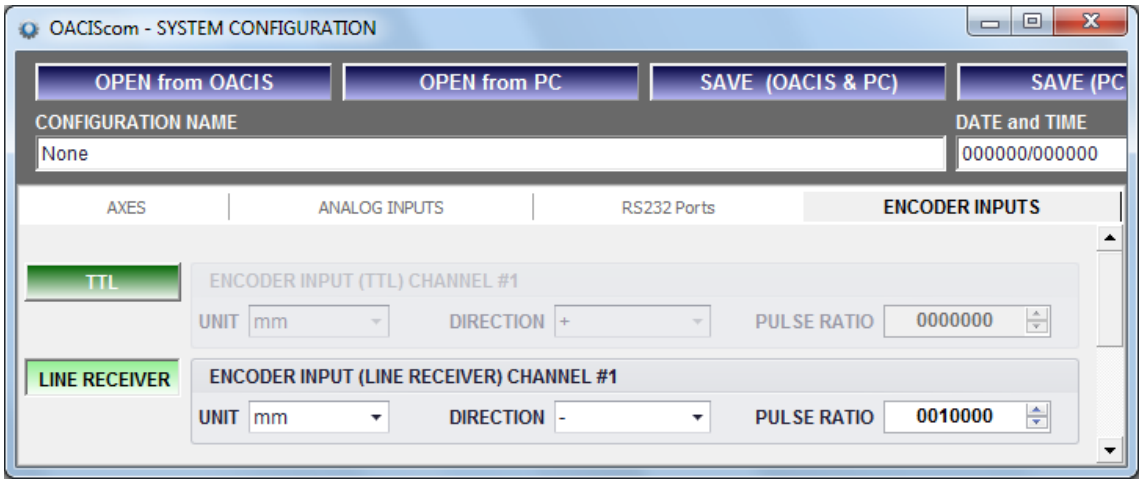
D. Pin Map

OACIS DK Channel (DSUB 9PIN)		HEIDENHAIN #MT 1271 (12-pin connector)	
Pin #	**Description**	**Pin #**	**Description**
1	+Vcc (5V)	12 (BROWN/GREEN) 2 (BLUE)	Up Sensor Up
2	0V	10 (WHITE/GREEN) 11 (WHITE)	0V Sensor 0V
3	A	5 (BROWN)	Ua1
4	/A	6 (GREEN)	/Ua1
5	B	8 (GRAY)	Ua2
6	/B	1 (PINK)	/Ua2
7	Z	3 (RED)	Ua0
8	/Z	4 (BLACK)	/Ua0
9	Shield	Shield	Shield

E. HEIDENHAIN “/Uas”(Pin#7) is not to be connected.

i. Different HEIDENHAIN connector has different Pin Number. You need to see the description carefully. Above example is for #MT 1271 or MT 2571.

F. Set Encoder Inputs in System Configuration



VI. EXAMPLE #5

A. Selected Model: "Encoder" + "Interface Electronics"

i. Drum Encoder: HEIDENHAIN #AK ERA 4280C 28000

a. **Output Signals: "1Vpp"**

b. **Signal period / rev: "28000"**

ii. Interface Electronics: HEIDENHAIN #IBV660B 400-fold

a. **Measuring Method: "Incremental"**

b. **Input Signals: "1Vpp"**

c. **Output Signals: "TTL"**

d. **Design: "Box design – IP 65"**

e. **Interpolation: "400-fold"**

B. OACIS Input Signals: LINE RECEIVER

C. Pulse Ratio in the System Configuration: 124,445 (= 28,000 x 400 x 4 / 360)

D. Pin Map

OACIS DK Channel (DSUB 9PIN)		HEIDENHAIN #IBV660B (12-pin connector)	
Pin #	**Description**	**Pin #**	**Description**
1	**+Vcc (5V)**	**12 (BROWN/GREEN) 2 (BLUE)**	**Up Sensor Up**
2	**0V**	**10 (WHITE/GREEN) 11 (WHITE)**	**0V Sensor 0V**
3	**A**	**5 (BROWN)**	**Ua1**
4	**/A**	**6 (GREEN)**	**/Ua1**
5	**B**	**8 (GRAY)**	**Ua2**
6	**/B**	**1 (PINK)**	**/Ua2**
7	**Z**	**3 (RED)**	**Ua0**
8	**/Z**	**4 (BLACK)**	**/Ua0**
9	**Shield**	**Shield**	**Shield**

E. HEIDENHAIN "/Uas"(Pin#7) is not to be connected.

i. Different HEIDENHAIN connector has different Pin Number. You need to see the description carefully. Above example is for #IBV660B.

F. Set Encoder Inputs in System Configuration