HEIDENHAIN

Product Information

IK 220

Interpolation and
Counter Card

March 2006

Interpolation and Counter Card
Description

The IK 220 is a counter card for linear and angular measurement with the aid of a personal computer. Two HEIDENHAIN encoders with sinusoidal current signals **(∿ 11 µA$_{PP}$),** sinusoidal voltage signals **(∿ 1 V$_{PP}$), EnDat** or **SSI interface** can be connected to the IK 220. It is inserted directly into a free PCI slot in the computer.

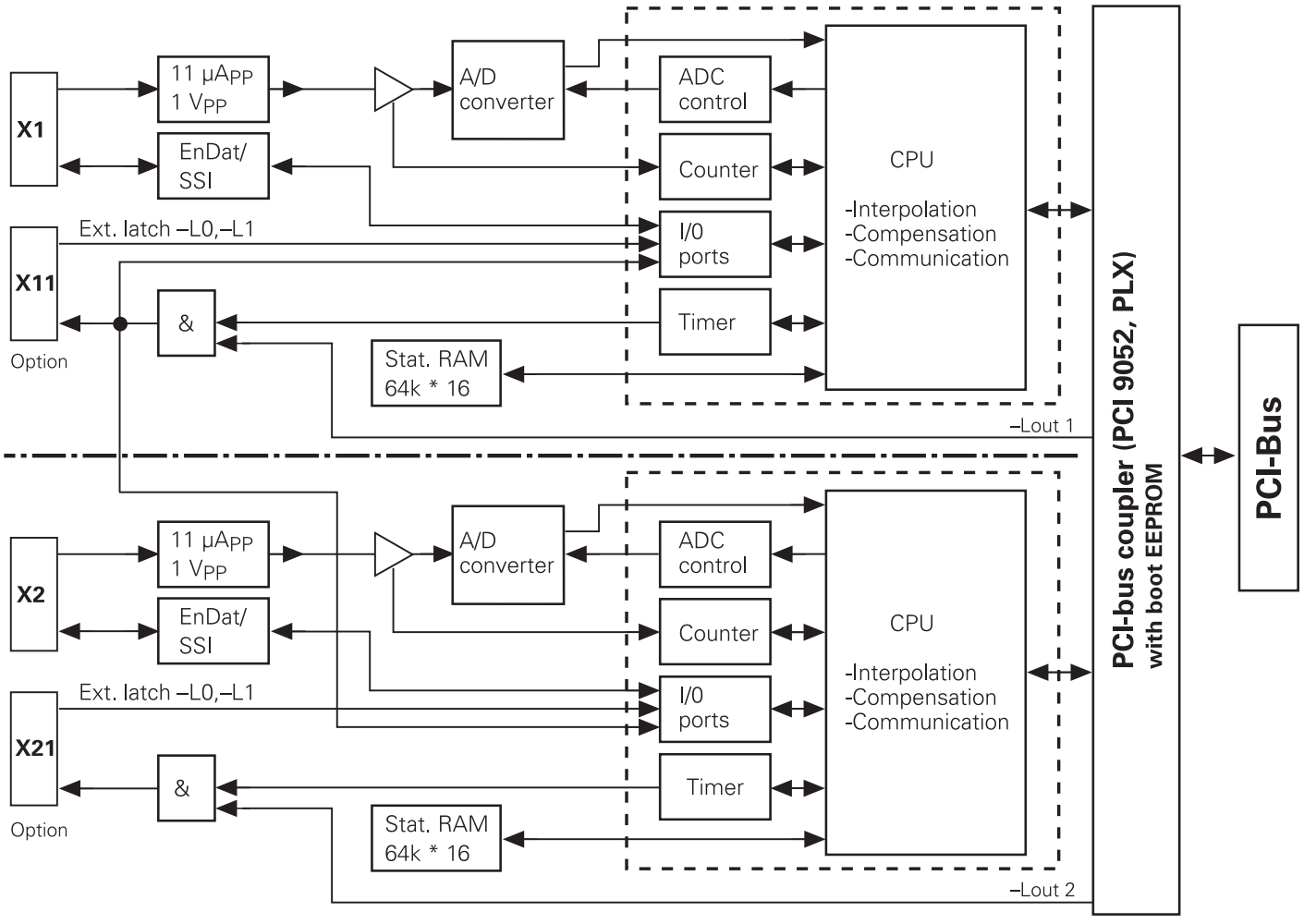
The IK 220 subdivides the periods of the sinusoidal encoder signals up to 4096-fold. They are called and stored either by using external latch inputs or by software.

A total of up to 8192 measured values can be stored in the IK 220 buffer and downloaded in a single block.

The position values from the two encoders are processed in the PC using programs created by the operator. To demonstrate the PC counter card's capabilities, examples of such programs and driver software for 98/NT/2000/XP are supplied with the card.

The IK 220 is ideal for applications requiring high-resolution encoder signals and rapid capture of measuring values.

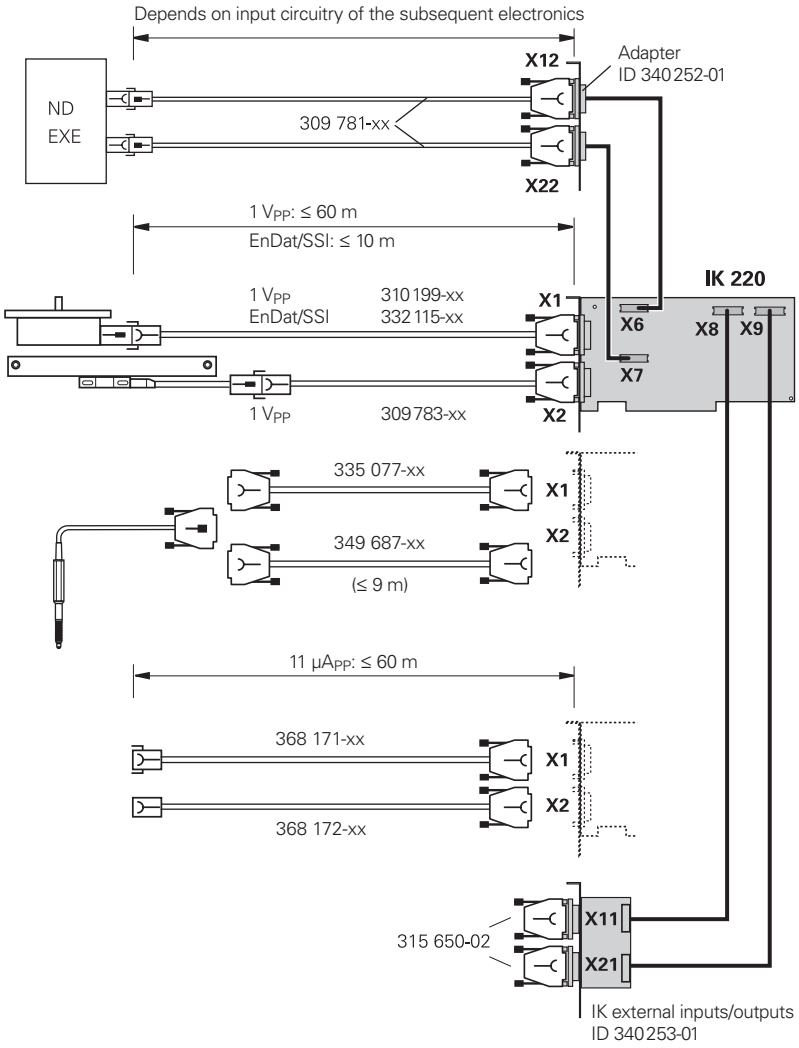
Basic Circuit Diagram



Specifications

	IK 220			
Encoder inputs	Two D-sub connections (15-pin), male (X1 and X2) for two encoders			
Input signals (switchable)	~ **1 V_{PP}**	~ **11 μA_{PP}**	**EnDat 2.1**	**SSI**
Input frequency (max.)	500 kHz	33 kHz	–	
Cable length (max.)	60 m		10 m	
Adjustment of encoder signals	Offset, phase and amplitude are adjusted through software			
Signal subdivision	4096-fold			
Data register for measured values	48 bits; only 44 bits are used for the measured value			
Internal memory	For 8192 position values			
Measured value latching	Alternatively through • External latch signals (over separate IK assembly for external inputs/outputs) • Software command • Timer • Traversing the reference marks			
Cycle time of firmware	Max. 25 µs			
Access time to measured values	• **Max. 100 µs** (without adjustment, without compensation run) • **Max. 110 µs** (with adjustment, without compensation run) • **Max. 160 µs** (with adjustment, with compensation run)		Depends on encoder	
Interface	PCI bus (plug and play) Local Bus Specification Rev. 2.1			
Driver software and demonstration program	**For Windows 98/NT/2000/XP** in VISUAL C++, VISUAL BASIC and BORLAND DELPHI			
Encoder outputs	~ 11 μA_{PP} Over PCB connector in the IK (10-pin, female) Fitting cable assembly with PC-slot cover available as option			
Power consumption	Approx. 4 W, without encoders			
Dimensions	Approx. 190 mm x 100 mm			
Operating temperature **Storage temperature**	0 °C to 55 °C (32 °F to 131 °F) –30 °C to 70 °C (–22 °F to 158 °F)			

Electrical Connection



Pin Layout

	Power supply					Incremental signals						Absolute position values			
	1	**9**	**2**	**11**	**13**	**3**	**4**	**6**	**7**	**10**	**12**	**5**	**8**	**14**	**15**
11 µA$_{PP}$	**U_P** 5 V	**Sensor** 5 V	**U_N** 0 V	**Sensor** 0 V	**Inside shield**	**I_1 +**	**I_1 –**	**I_2 +**	**I_2 –**	**I_0 +**	**I_0 –**	**DNU**	**DNU**	**DNU**	**DNU**
1 V$_{PP}$						**A+**	**A–**	**B+**	**B–**	**R+**	**R–**	**DNU**	**DNU**	**DNU**	**DNU**
EnDat						**A+**	**A–**	**B+**	**B–**	**R+**	**R–**	**DATA**	**$\overline{\text{DATA}}$**	**CLOCK**	**$\overline{\text{CLOCK}}$**
SSI						**DNU**	**DNU**	**DNU**	**DNU**	**DNU**	**DNU**	**DATA**	**$\overline{\text{DATA}}$**	**CLOCK**	**$\overline{\text{CLOCK}}$**
	Brown/ Green	Blue	White/ Green	White	/	Green/ Black	Yellow/ Black	Blue/ Black	Red/ Black	Red	Black	Gray	Pink	Violet	Yellow

Shield on connector housing
DNU: Do not use this pin

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