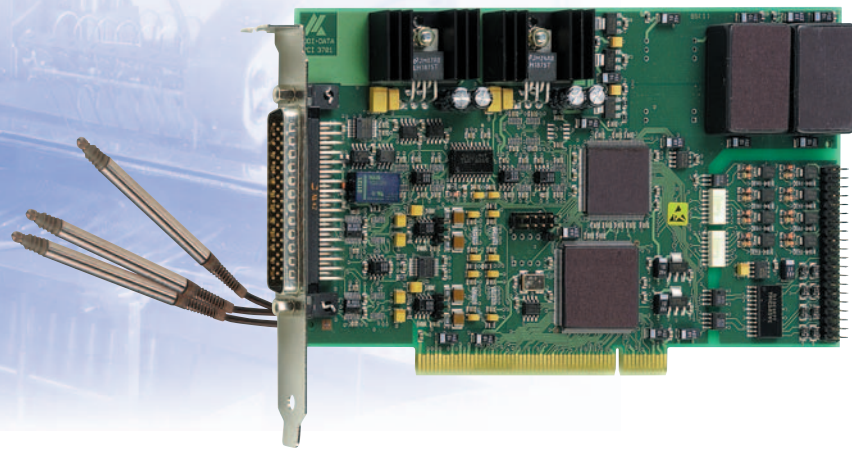


# Acquisition of 8 or 16 inductive displacement transducers



## Features

- PCI interface to the 32-bit data bus
- Acquisition of 8 or 16 inductive displacement transducers (Half Bridge, LVDT)
- 16-bit resolution
- Sampling frequency from 2 to 20 kHz, depending on the transducer type, or 50 kHz for Horst Knäbel transducer
- Measuring frequency from 2 to 20 kHz, programmable through software, or 50 kHz for Horst Knäbel transducer
- Conversion can be triggered through software or digital input
- End of conversion can be inquired through software and/or interrupt
- PCI-DMA access
- On-board FIFO
- Sequence RAM
- 16 digital I/O channels, isolated, 24 V
- Software operation
- Connection to a broad selection of industrial transducer types: Horst Knäbel, Solarton, Tesa, Marposh, Schlumberger, Peter & Hirth, Mahr, RDP, Schaevitz, SMPR Controle.  
Other transducer types can be calibrated on request.
- Automatic setting of the input levels (Gain and Offset) acc. to the transducer sensitivity
- Transducer calibration tool in preparation

## APCI-3701

Acquisition of 16 or 8 inductive displacement transducers

Half Bridge, LVDT

16-bit resolution

16 isolated digital I/O, 24 V

## Safety features

- Input filters
- Diagnostic function in case of short-circuit or line break

## EMC tested acc. to 89/336/EEC

- IEC 61326: electrical equipment for measurement, control and laboratory use

## Applications

- Gear wheel control
- Gauge block
- Acquisition of sensor data
- Quality assurance
- Industrial process control
- Automatic parts control
- R&D instrumentation

## Software drivers for:

Drivers for Windows XP/2000/NT/98.  
Real-time drivers for Windows XP/2000/NT/98.  
The board is supplied with ADDIPACK (see Page 5).

## Samples for the following compilers:

Microsoft VC++ 5.0 • Borland C++ 5.01

## ADDIPACK functions supported:

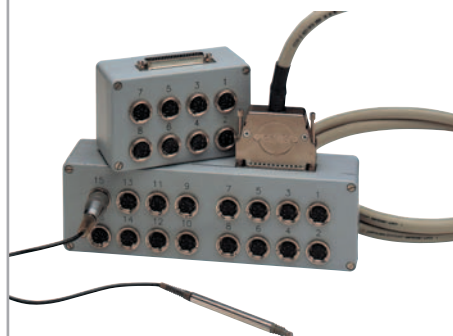
Transducer • Timer • Digital input • Digital output

Current driver list on the web: [www.addi-data.com](http://www.addi-data.com)

## PX 3701

## Specifications

Versions:	PX 3701HB-8:	connection box of the APCI-3701-8 for 8 half-bridge transducers
	PX 3701HB-16:	connection box of the APCI-3701-16 for 16 half-bridge transducers
	PX 3701LVDT-8:	connection box of the APCI-3701-8 for 8 LVDT transducers
	PX 3701LVDT-16:	connection box of the APCI-3701-16 for 16 LVDT transducers
Pins:	aluminium	
Protection:	Protection hoods for DIN connectors, dust-tight, IP54	
Transducer connection:	8 or 16 x 5-pin DIN connectors	
Connector:	50-pin SUB-D female connector for connecting a cable ST3701	
Dimensions (L x W x H):	PX 3701-8:	80 x 57 x 120 mm
	PX 3701-16:	80 x 57 x 250 mm
Temperature range:	0 to 60 °C	
Connection cable:	ST3701: cable length 2 to max. 10 m	



# Acquisition of 8 or 16 inductive displacement transducers

## APCI-3701

### Specifications

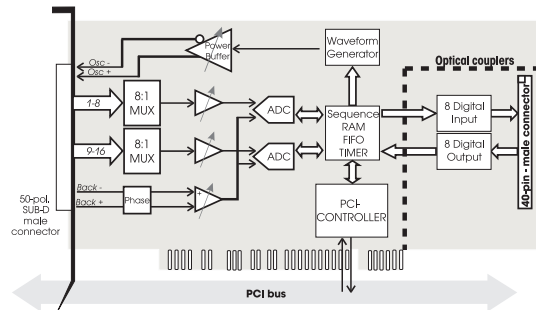
<b>Analog inputs</b>	
Number of inputs:	for 16 or 8 inductive displacement transducers
Resolution:	16-bit
Interrupt:	At end of conversion, timer overrun or end of scan
Programmable modes:	- Trigger (external, through digital input) - Interrupt - Polling - DMA
Conversion start:	Triggering through software (API function), timer-driven or digital input
End of conversion:	readable through software or interruptible
Timer:	1 x 16-bit
Diagnostic possibilities:	Short circuit or break of the transducer supply Short circuit or break of the transducer signal line

<b>Digital I/O</b>	
Number of I/O channels:	8 dig. inputs, 8 dig. outputs, 24 V
Optical isolation:	1000 V through optical couplers
Inputs current at 24 V:	3 mA typ.
Max. input frequency:	5 kHz
Max. switching current:	5 mA typ.
Input range:	0-30 V
Output range:	5-30 V

<b>Noise immunity</b>	
Test level:	- ESD: 4 kV - Fields: 10 V/m - Burst: 2 kV/4 kV Netz - Conducted radio interferences: 10 V

<b>Physical and environmental conditions</b>	
Dimensions:	175 x 99 mm
System bus:	PCI 32-bit 5 V acc. to specification 2.1 (PCISIG)
Place required:	1 PCI slot for analog inputs, 1 slot opening for digital I/O with FB3701
Operating voltage:	+5 V and +3.3 V, $\pm 5\%$ from PC external 24 V
Current consumption (+ 5 V from PC):	APCI-3701-8: 1,28 A; APCI-3701-16: 1,40 A
Front connector:	50-pin SUB-D male connector
Additional Connector:	16-pin male connector for connecting the dig. I/O
Temperature range:	0 to 60 °C (with forced cooling)

### Simplified block diagram



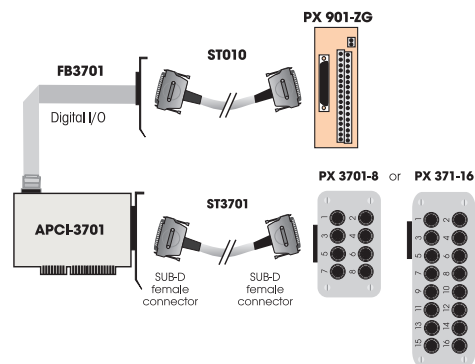
### Pin assignment

#### 50-pin SUB-D male connector (APCI-3701-16)

Pin	Pin	Pin	Pin	Pin
34 BACK+	18 BACK+	34	1 BACK+	1
35 BACK-	19 BACK-	35	2 BACK-	2
36 OSC+	20 OSC+	36	3 OSC+	3
37 OSC+	21 OSC+	37	4 OSC+	4
38 OSC-	22 OSC-	38	5 OSC-	5
39 PWRGND	23 OSC	39	6 OSC-	6
40 CH0	24 PWRGND	40	7 PWRGND	7
41 PWRGND	25 CH2	41	8 CH1	8
42 CH3	26 PWRGND	42	9 PWRGND	9
43 PWRGND	27 CH5	43	10 CH4	10
44 CH6	28 PWRGND	44	11 PWRGND	11
45 PWRGND	29 CH8	45	12 CH7	12
46 CH9	30 PWRGND	46	13 PWRGND	13
47 PWRGND	31 CH11	47	14 CH10	14
48 CH12	32 PWRGND	48	15 PWRGND	15
49 PWRGND	33 CH14	49	16 CH13	16
50 CH15		50	17 PWRGND	17

osc+/-: phase-shifted supply signal of the inductive transducers  
 Back+/-: Return lines of the supply voltage for measuring the amplitude. It serves as true value signal of the oscillator for the supply voltage.  
 CHx: Transducer input and input number  
 PWRGND: Ground

### ADDI-DATA connection



## ORDERING INFORMATION

### ADDIALOG APCI-3701

Acquisition von 8 to 16 inductive displacement transducers. Incl. technical description and software drivers.

#### Versions

- APCI-3701-8:** for 8 displacement transducers
- APCI-3701-16:** for 16 displacement transducers
- APCI-3701-8-K:** for 8 displacement transducers (Knäbel transducers)
- APCI-3701-16-K:** for 16 displacement transducers (Knäbel transducers)

#### Connection

- PX 3701HB-8:** Connection box of the APCI-3701-8 for 8 half-bridge transducers
- PX 3701HB-16:** Connection box of the APCI-3701-16 for 16 half-bridge transducers

- PX 3701LVDT-8:** Connection box of the APCI-3701-8 for 8 LVDT transducers
- PX 3701LVDT-16:** Connection box of the APCI-3701-16 for 16 LVDT transducers
- ST3701:** Connection cable between APCI-3701 and connection box
- FB3701:** Ribbon cable for digital I/O
- PX 901-ZG:** Terminal board for digital I/O