Length measurement board, 16-bit, 16 or 8 inductive transducers, LVDT, half-bridge



With the length measurement board APCI-3701, you can connect directly and acquire up to 16 half-bridge or LVDT transducers. The calibration software "ConfigTools" guides you through each step of the installation, beginning with the selection of a transducer from a database including more than 50 pre-calibrated transducers up to testing each single channel.

Features

PCI 32-bit

Signed 64-bit drivers for

Windows 7/Vista/XP

LabVIEW™

- PCI interface to the 32-bit data bus, 3.3 V or 5 V
- Acquisition of 8 or 16 inductive transducers (half-bridge, LVDT, Knäbel)
- 16-bit resolution
- Sampling rate depending on the transducer: APCI-3701-8/-16: from 2 to 20 kHz
- Measuring frequency programmable through software: Standard version APCI-3701-8/-16: from 2 to 20 kHz (50 kHz on request)
- Conversion triggered through software, digital input or timer
- End of conversion through software and/or interrupt
- PCI-DMA access
- Onboard FIFO
- Seguence RAM
- 16 digital inputs and outputs, optically isolated, 24 V
- Connection of the transducer through an external box PX3701-8 or -16. The box type depends on the transducer, please order separately.
- Software operation
- Automatic setting of the input levels (gain and offset) acc. to the transducer sensitivity
- Tool for the individual calibration of the transducers with transducer database
- Database for connecting/calibrating a large range of industry-standard transducers (APCI-3701-8, or -16):
 - Solartron Tesa Marposs Schlumberger
 - Peter & Hirt Mahr RDP Schaevitz
 - SMPR Controle Knäbel

Safety features

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

APCI-3701

Acquisition of 16 or 8 inductive transducers

Half-bridge, LVDT, Knäbel

16-bit resolution

16 digital inputs and outputs, optically isolated

Measurement of different transducer types with the same board!

Applications

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

Software

ConfigTools (supplied with the board)

- Easy transducer calibration
- Step by step from the transducer selection up to testing each single channel.
- Database with more than 50 pre-calibrated transducers
- Update of the APCI-3701 firmware

Standard drivers for:

- Linux
- 32-bit drivers for Windows 8 / 7 / Vista / XP / 2000
- Signed 64-bit drivers for Windows 8 / 7 / XP
- Real-time use with Linux and Windows on request

Drivers for the following compilers and software packages:

- Microsoft VC++ Borland C++ Visual Basic Delphi
- LabVIEW LabWindows/CVI

ADDIPACK functions:

Transducer • Timer • Digital input • Digital output

On request

Further operating systems, compilers and samples

Driver download: www.addi-data.com, download menu







info@addi-data.com www.addi-data.com

Specifications

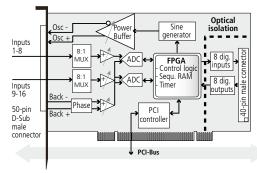
-	
Inpute for industi	ivo transducare
Inputs for inducti	ve transducers
Channel features	
Number	-4/-8/-16/ multiplexed
Input type	Single ended
Coupling	DC
Resolution	24-bit
Sampling rate $f_{\rm s}$	On 1 channel At primary frequency $f_{\rm p}$ of 4.883 kHz 6.975 kHz 9.768 kHz 13.951 kHz 19.531 kHz
	Ab n \geq 2 channels f_p = primary frequency $f_s = \frac{f_p}{SP \times n}$ SP . Settling period $5 \leq SP \leq 255$ f_s here concerns all n channels
Example with TESA GT21	On one channel $f_s = f_p$ = 13.951 kHz
	Ab n ≥ 2 channels $f_s = \frac{13.951 \text{ kHz}}{5 \times 4} = 697.5 \text{ Hz for 4 channel}$ $f_s = \frac{13.951 \text{ kHz}}{5 \times 8} = 348.7 \text{ Hz for 8 channel}$ $f_s = \frac{13.951 \text{ kHz}}{5 \times 16} = 174.4 \text{ Hz for 16 channel}$
Input level	
Input impedance	2 k Ω software-programmable 10 k Ω , 100 k Ω , 10 M Ω
Input ranges	± 3 V single ended
Sensor supply (sinus gen	
Туре	Sinus differential (180° phase-shift)
Coupling	AC
Programmed signals:	710
Output frequency $f_{\mathbb{P}}$	2-20 kHz depending on the transducer
(primary frequency)	(50 kHz Knäbel)
Output impedance	$< 0.1 \Omega$ typ., > 30 kΩ typ. in shutdown mode
Short-circuit current	0.7 A typ. at 25°C with thermal protection
Short-circuit current	0.7 A typ. at 25 C with thermal protection
Digital I/O	
Number of I/O channels:	8 dig. inputs, 8 dig. outputs, 24 V
Optical isolation:	1000 V through opto-couplers
Input current at 24 V:	3 mA typ.
Max. input frequency:	5 kHz
Max. switching current:	50 mA typ.
Input range:	0-30 V
Output range:	5-30 V

EMC - Electromagnetic compatibility

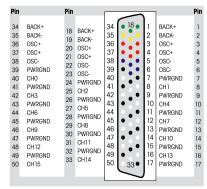
The product complies with the European EMC directive. The tests were carried out by a certified EMC laboratory in accordance with the norm from the EN 61326 series (IEC 61326). The limit values as set out by the European EMC directive for an industrial environment are complied with. The respective EMC test report is available on request.

50-pin D-Sub male connector

Simplified block diagram



Pin assignment 50-pin D-Sub male connector (APCI-3701-16)



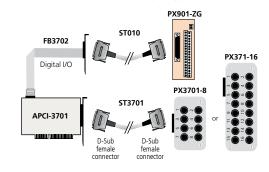
Osc+/-: Phase-shifted supply signal of the inductive transducers

Back+/-: Return lines of the supply voltage for measuring the amplitude. Actual value signal of the oscillator for the supply voltage.

CHx: Transducer input and input number

PWRGND: Ground

ADDI-DATA connection



Ordering information

APCI-3701

Front connector:

Additional connector: Temperature range:

Length measurement board, 16-bit, 16 or 8 inductive transducers, LVDT, half-bridge, Knäbel. Incl. technical description and software drivers.

16-pin male connector for connecting the dig. I/O 0 to 60 °C (with forced cooling)

APCI-3701-8: For 8 inductive transducers
APCI-3701-16: For 16 inductive transducers
APCI-3701-8-K: For 8 Knäbel inductive transducers
APCI-3701-16-K: For 16 Knäbel inductive transducers

Accessories:

FB3702: Ribbon cable for digital I/O

PX901-ZG: Screw terminal panel for digital I/O, for DIN rail **ST010:** Standard round cable, shielded, twisted pairs, 2 m

Accessories for half-bridge and LVDT transducer:

PX3701HB-8: Connection box of the APCI-3701-8, 8 x half-bridge
PX3701HB-16: Connection box of the APCI-3701-16, 16 x half-bridge
PX3701LVDT-8: Connection box of the APCI-3701-8, 8 x LVDT
PX3701LVDT-16: Connection box of the APCI-3701-16, 16 x LVDT
ST3701: Connection cable between APCI-3701 and

Connection box PX3701

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