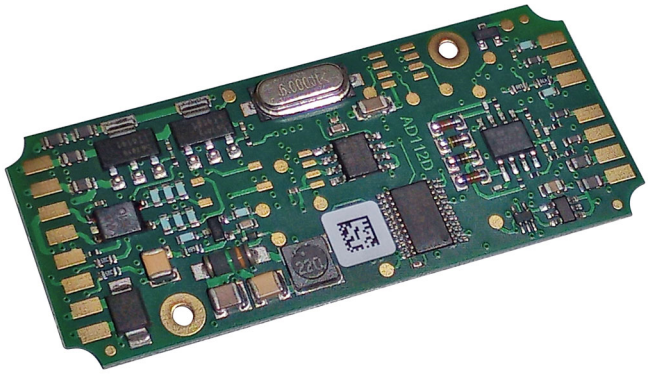
DATA SHEET

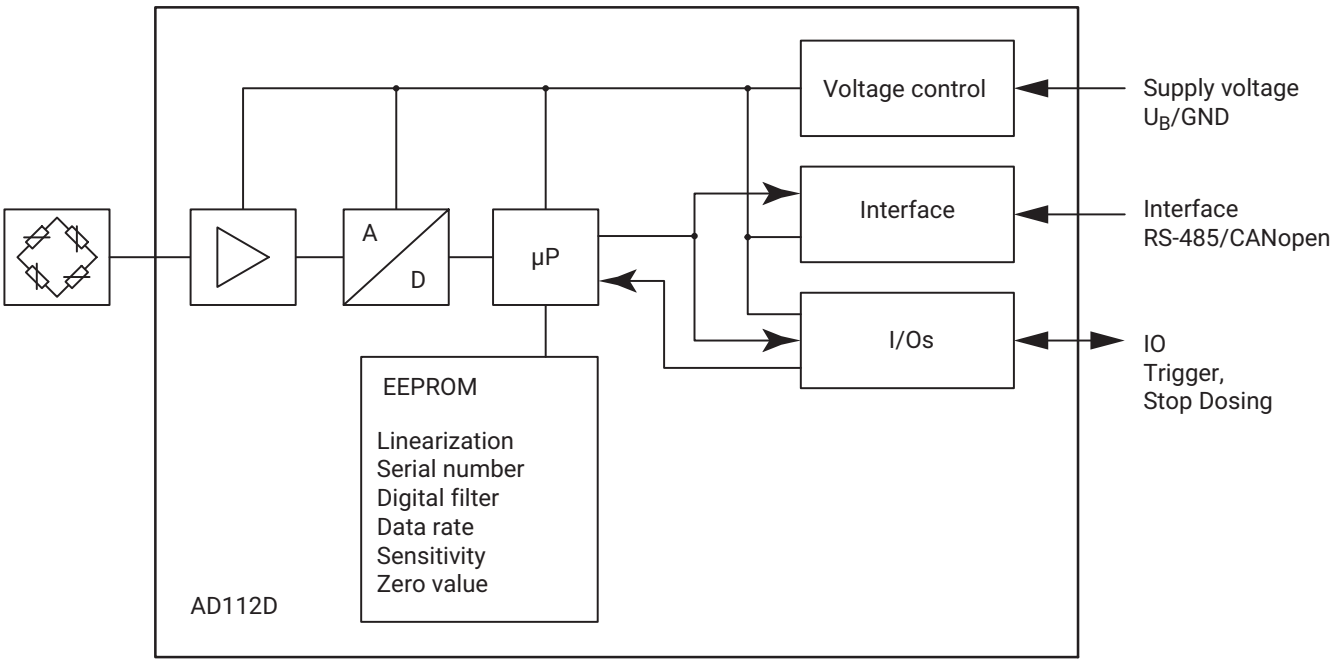
AD112D
Digital transducer electronics

SPECIAL FEATURES

- Electronics for strain gage full bridge sensors to measure weight, force, pressure, strain
- Digital filtering and scaling of the measurement signal
- Power failsafe storage of all parameters
- 2 freely programmable digital I/Os, e.g. for filling or monitoring applications
- Digital interfaces CANopen or RS485 (4-wire, full-duplex)
- The intuitive and user-friendly software PanelX is available free of charge for configuration, measurement and analysis



BLOCK DIAGRAM



SPECIFICATIONS

Type		AD112D
Suitable for transducer types		Full bridge strain gages
Maximum number of load cell verification intervals	d = e	6000
Multi-range applications	d = e	2 x 3000
Rated electrical output		
Input sensitivity Industrial mode	 µV/d	 ≥0.1
Measuring range	mV/V	Nominal ±2, max. ±3.2
Minimum transducer resistance	Ω	300
Maximum transducer resistance		1200
Transducer excitation voltage (carrier frequency 1.2 kHz)	V_{AC}	5 (square-wave)
Load cell connection		4-wire circuit
Maximum cable length to transducer	m	3
Temperature coefficient of the zero signal per 10 K	%	±0.0055
Temperature coefficient of the sensitivity per 10 K		±0.0083
Non-linearity	% of meas. range	± 0.0025
Power supply Supply voltage U_B (DC) Power consumption (transducer and switching outputs) Max. current	 V W A	 +12…+30, nominal 24 V ≤3 1.1
Digital signal conditioning		
Measurement signal resolution	bit	24
Sample rate (adjustable)	1/s	4 … 1200
Sample rate	1/s	4…1200
Cut-off frequency of digital filter, adjustable; at -3 dB	Hz	0.1…120
Tare range (subtractive) industrial mode	% of meas. range	±100
Zeroing range legal-for-trade mode industrial mode	% of meas. range	 ±2 ±2
Interfaces		
Max. number of bus nodes		90
CANopen interface Bit rate Maximum cable length	 bit/s m	Standard CiA DS301 10,000 … 1,000,000 ≤5000 (10 kbit/s) … ≤100 (500 kbit/s) … ≤25 (1 Mbit/s)
RS-485 interface Bit rate Maximum cable length	 bit/s m	 9600/19,200/38,400/57,600/115,200 50
Digital HCMOS input [1)] Permissible input voltage Low level High level Input resistance	 V V V kΩ	 0…+12 < 1 > 4 70

Type		AD112D
Digital PLC input [1]		
Permissible input voltage	V	0…+30
Low level	V	< 6
High level	V	> 10
Input resistance	kΩ	9
Control outputs [1]		
External supply voltage	V	11…+30
Max. current per output	A	< 0.5
Max. total current of all outputs	A	< 1
General information		
Nominal (rated) temperature range	°C	-10…+40
Operating temperature range		-10…+50
Storage temperature range		-25…+75
Permissible relative humidity	%	5 … 95 (non-condensing)
Degree of protection per EN 60529 (IEC 529)		IP 00
Dimensions (L x W x H)	mm	65 x 27 x 8
Weight, PCB, approx.	g	50

[1] The electronics have 2 digital I/Os that can each be connected as a control input or an output, as required. Additional information can be found in the operating manual and in the command documentation.

PIN ASSIGNMENT AD112D

Pin	Transducer connection	Color of HBM sensor cable
AN3	Bridge excitation voltage (+)	blue/green
AN2	Bridge excitation voltage (-)	black/gray
AN4	Measurement signal (-)	Red
AN1	Measurement signal (+)	White
AN15	Not assigned	
AN17	Not assigned	
AN16	Not assigned	

Pin	Digital interface	
	RS485	CAN
AN10	GND	GND
AN9	Ub	UB
AN11	Ra	CAN High IN
AN12	Rb	CAN Low IN
AN13	Ta	CAN High OUT
AN14	Tb	CAN Low OUT
AN8	IN1/OUT1	IN1/OUT1
AN7	IN2/OUT2	IN2/OUT2

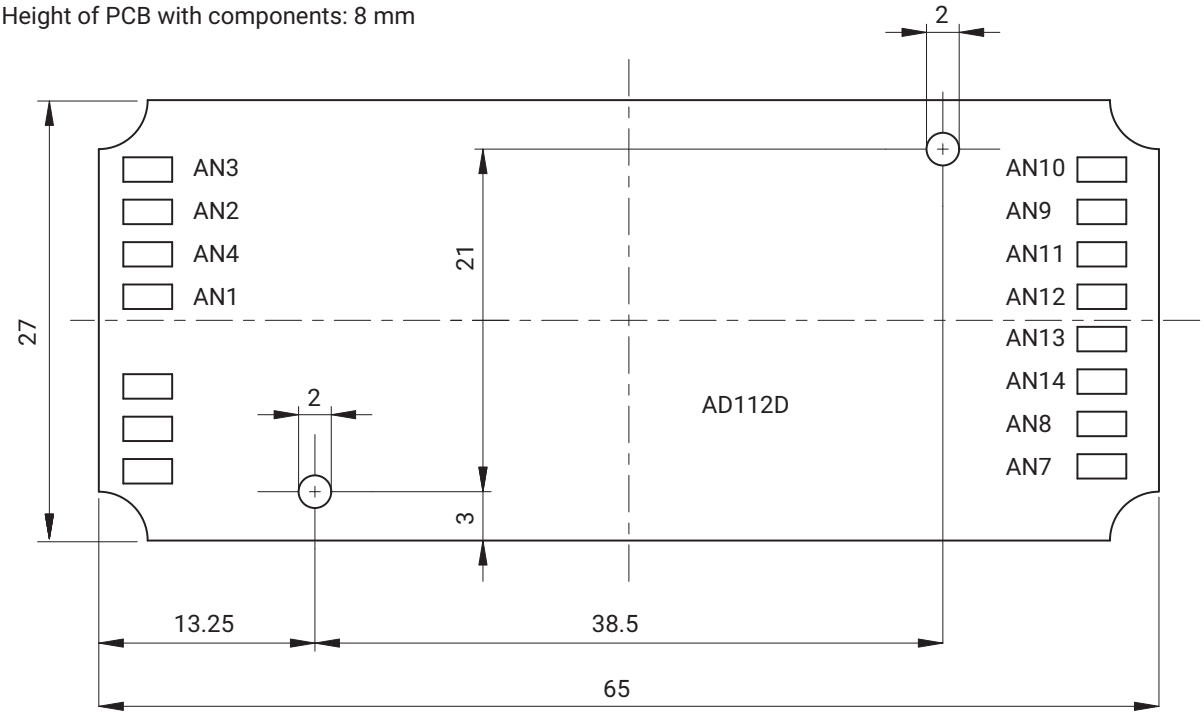
A 4-wire cable is sufficient for connecting the transducer.

On 6-wire cables and sensors in a 6-wire configuration the positive bridge excitation voltage and sense lead, as well as the negative bridge excitation voltage and sense lead must be bridged as close to the sensor as possible.
On HBM cables this means that the blue/green stranded connection wires must be soldered on to pin AN3 and the black/gray stranded connection wires must be soldered on to pin AN2.

This can further reduce interference effects.

DIMENSIONS AD112D

Height of PCB with components: 8 mm



Dimensions in mm

SOFTWARE FOR AD112D

- PC software: PanelX
- Download: https://www.hbm.com/en/4825/panelx-weighing-and-operating-software/

Note: The software package to parameterize and adjust the AD112D can be downloaded free of charge from the HBM website. It includes extensive online help and a command description.

Important: The AD112D motherboard is not protected against electrostatic electricity. Relevant precautions must be taken when installing it in the transducer.

Important information for EMC protection

The AD112D must be housed in a shielding enclosure. The cables must be shielded. The cable shields are connected to the load cell and the housing of the AD112D.

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