

**Description**

The AD AEB 40 GT enables a 4-channel analog signal acquisition while providing digitally processed process variables. The signals are provided via an RS485 bus interface available. Analog values and scaling values are available via implemented MODBUS commands. All settings for scaling or filter are carried out via MODBUS commands.

The operating voltage is indicated by a green LED. The data communication is signaled by a yellow LED. Invalid measurement signals outside the defined measuring range are detected. In this case, the green LED flashes.

**Application**

Conversion of analog process variables in digital information already in the cabinet. Drastic reduction of wiring work.

**Specific characteristics**

- Four analog inputs can be used as voltage or current input.
- Adjustable filter functions.
- Electrically isolated RS485 bus interface.
- Configurable interface settings.
- Front-setting the device address.
- Electrically isolated wide range power supply.
- Programmable with PC via AD-Studio configuration software.
- Double RS485 BUS connection for wire loop through.
- Status LED for operating voltage and data communication.
- Visual indication of an invalid measurement signals.

**Business data****Order number**

AD-AEB 40 GT

**Technical specifications****Current inputs**

Measuring range	0 ... 20 mA
Input resistance	50 Ohm

**Voltage inputs**

Measuring range	0 ... 10 V
Input resistance	100 kOhm

**Signal detection**

Channel counts (U/I)	4
Basic accuracy	< 0,2 %
Temperature influence	80 ppm/K
Sampling rate / resolution	100 ms / 11 bit

**RS485-Bus**

Software protocol	Modbus-RTU
Data format	19200, e, 8, 1
Max. bus users	99
Bus termination	120 ohms both sides at the end
Max. length of bus	500 m (no stubs)
Cable	twisted and shielded

**Supply**

Voltage range AC	50 ... 253 V AC, 50/60 Hz
Nominal voltage AC	230 V AC
Power consumption	max. 1,5 VA
Voltage range DC	20 ... 253 V DC
Nominal voltage DC	24 V DC
Power consumption	max. 0,5 W

**Housing**

Dimensions (WxHxD)	71 x 90 x 58 mm
Type of protection	IP 20
Connection method	screw clamp
Terminals, wire cross section	2,5 mm <sup>2</sup> flex wire / 4 mm <sup>2</sup> one wire
Bolting torque terminals	0,6 Nm
Skinning length	6 mm
Weight	~ 140 g
Manner of fastening	35 mm DIN rail 35mm

**Environmental conditions**

Ambient temperature	-10 ... 50 °C
Storage and transport	-10 ... 70 °C (no condensation)

**EMC**

Product family standard	EN 61326-1 <sup>1)</sup>
Emitted interference	EN 55011, CISPR11 Cl. B, Gr. 1

**Electrical safety requirements**

Product family standard	EN 61010-1
Overvoltage category	II
Pollution degree	2

**Galvanic isolation, test voltages**

Grid side to RS485-Bus	3 kV, 50 Hz (1 min.)
Signal / supply unit	3 kV, 50 Hz (1 min.)
Signal / RS485 bus	1 kV, 50 Hz (1 min.)

**Protection circuits**

Input	electrical surge protection
RS485-Bus	electrical surge protection
Power supply	electrical surge protection

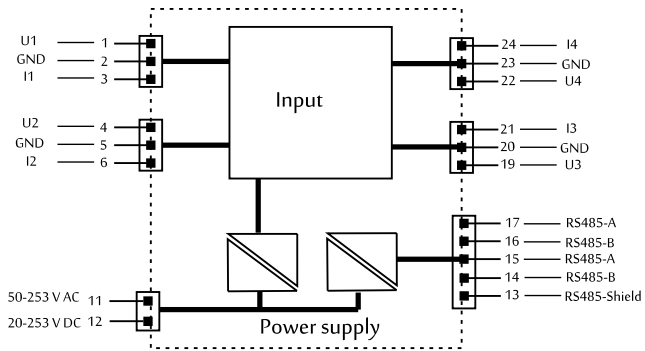
<sup>1)</sup> During checking, slight signal deviations are possible.



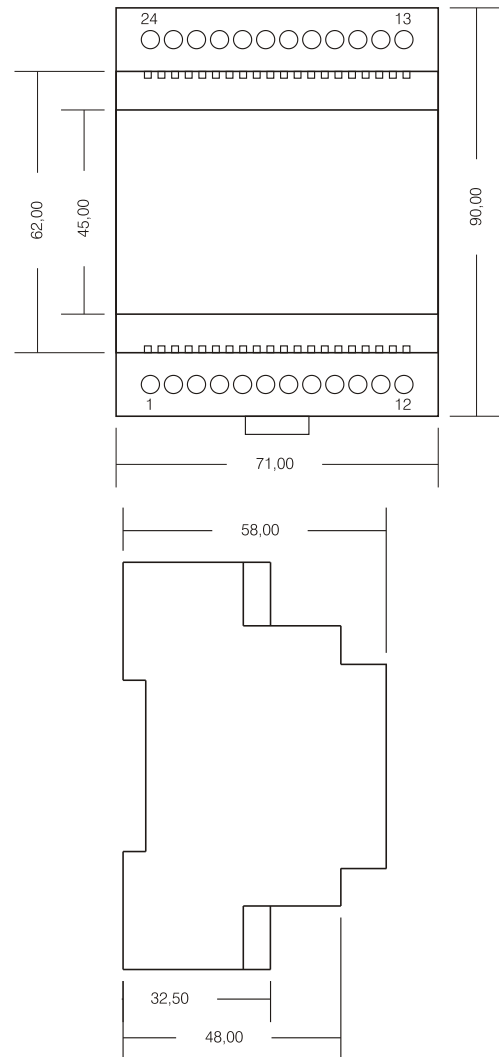
# Analog Bus Converter

AD-AEB 40 GT

## Block and wiring diagram



## Dimensions



### Modbus Communication

The AD-AEB 40 GT has an RS485 bus interface on which the Modbus RTU protocol is used. About this bus interface all measured data of the device can be read. The preset standard data format is 19200,e,8,1. Adaptation to a different data format is possible at any time. The bus address is set to the front-mounted rotary switches. The address 0 is not permitted for the bus operation. However, on this zero position the device only via the standard data format (19200, e, 8.1) accessible. The position 0 thus represents a service position, the example can be used during parameterization error.

The AD-AEB 40 GT supports two Modbus functions. These are the functions "Read Holding Registers" (0x03) and "Write Holding Registers" (0x10). With the "Read Holding Registers" function data can be read from the device and written with "Write Holding Registers" data. The individual register width is 16 bits. Please see the Modbus specification for detailed explanations of the Modbus communication. This is online available for free, but can also be purchased from the Adamczewski homepage.

The following Modbus data are accessible via the RS485 bus:

#### Observations:

Start address	Reg. number	Name	Unit	Datatype	[Code] = Value	read	write
40101	2	analog input channel 1	mA or V	float	0...20mA / 0...10V	yes	no
40103	2	analog input channel 2	mA or V	float	0...20mA / 0...10V	yes	no
40105	2	analog input channel 3	mA or V	float	0...20mA / 0...10V	yes	no
40107	2	analog input channel 4	mA or V	float	0...20mA / 0...10V	yes	no
40801	2	scaled value channel 1	scale unit	float	scaled value	yes	no
40803	2	scaled value channel 2	scale unit	float	scaled value	yes	no
40805	2	scaled value channel 3	scale unit	float	scaled value	yes	no
40807	2	scaled value channel 4	scale unit	float	scaled value	yes	no

#### Parameters:

Start address	Reg. number	Name	Unit	Datatype	[Code] = Value	read	write
43073	1	signal selection channel 1	I or U	U08	[0] = I (20mA); [1] = U (10V)	yes	yes
43074	1	signal selection channel 2	I or U	U08	[0] = I (20mA); [1] = U (10V)	yes	yes
43075	1	signal selection channel 3	I or U	U08	[0] = I (20mA); [1] = U (10V)	yes	yes
43076	1	signal selection channel 4	I or U	U08	[0] = I (20mA); [1] = U (10V)	yes	yes
43001	2	range begin channel 1	mA or V	float	0...10mA / 0...5V	yes	yes
43003	2	range begin channel 2	mA or V	float	0...10mA / 0...5V	yes	yes
43005	2	range begin channel 3	mA or V	float	0...20mA / 0...5V	yes	yes
43007	2	range begin channel 4	mA or V	float	0...20mA / 0...5V	yes	yes
43033	2	range end channel 1	mA or V	float	10...20mA / 5...10V	yes	yes
43035	2	range end channel 2	mA or V	float	10...20mA / 5...10V	yes	yes
43037	2	range end channel 3	mA or V	float	10...20mA / 5...10V	yes	yes
43039	2	range end channel 4	mA or V	float	10...20mA / 5...10V	yes	yes
43065	1	filter value channel 1	seconds	U16	0...1000	yes	yes
43066	1	filter value channel 2	seconds	U16	0...1000	yes	yes
43067	1	filter value channel 3	seconds	U16	0...1000	yes	yes
43068	1	filter value channel 4	seconds	U16	0...1000	yes	yes
43017	2	scale begin channel 1	scale unit	float		yes	yes
43019	2	scale begin channel 2	scale unit	float		yes	yes
43021	2	scale begin channel 3	scale unit	float		yes	yes
43023	2	scale begin channel 4	scale unit	float		yes	yes
43049	2	scale end channel 1	scale unit	float		yes	yes
43051	2	scale end channel 2	scale unit	float		yes	yes
43053	2	scale end channel 3	scale unit	float		yes	yes
43055	2	scale end channel 4	scale unit	float		yes	yes
43132	6	scale unit channel 1	max. 6 character	string		yes	yes
43138	6	scale unit channel 2	max. 6 character	string		yes	yes
43144	6	scale unit channel 3	max. 6 character	string		yes	yes
43150	6	scale unit channel 4	max. 6 character	string		yes	yes
43084	6	measuring point channel 1	6 character	string		yes	yes
43090	6	measuring point channel 2	6 character	string		yes	yes
43096	6	measuring point channel 3	6 character	string		yes	yes
43102	6	measuring point channel 4	6 character	string		yes	yes
43081	1	baud rate	baud	U16	see list below	yes	yes
43082	1	parity		U16	[0]=even; [1]=odd; [2]=no	yes	yes
43083	1	stopbit		U16	[0] = 1 ; [1] = 2	yes	yes

#### Coding baudrate list

Index	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
baudrate	50	110	300	600	1200	2400	4800	9600	14400	19200	28800	38400	57600	76800	115200