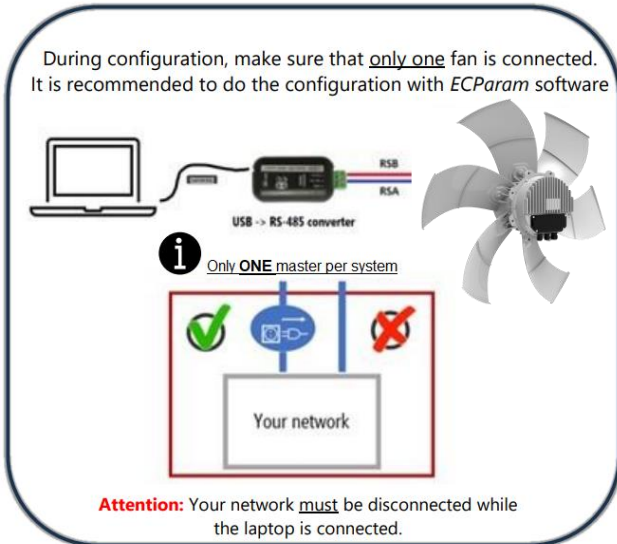
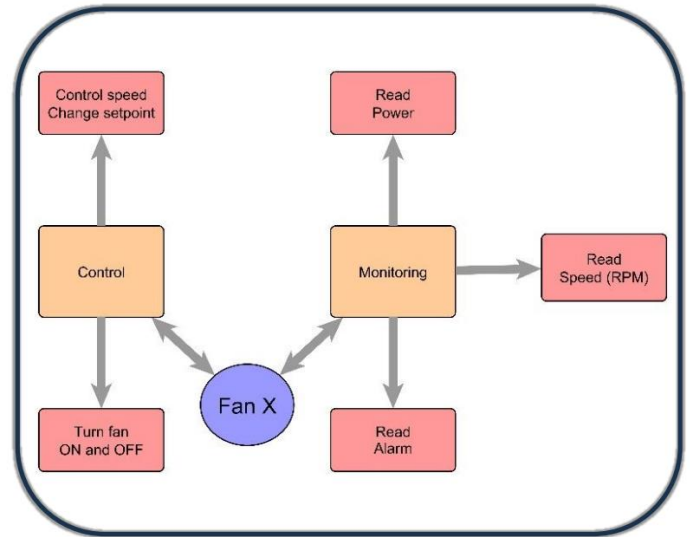


Quick-Start Guide Modbus: BA602

Configuration



Control



Quick reminder

All Modbus devices need the same Baudrate and parity + unique address.

The Modbus signal is divided into 5 Key points: Address, FC, Register, Data, CRC.
Each command should have the following order.

Adress	FC	Register 1	Register 0	Data 1	Data 0	CRC	CRC
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A quick example would be the change of the Baudrate.

01	06	00	16	00	01	A9	CE
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The signal contains the address 1 with the FC06 for the register 16 and writes the value 01 in it.
After that the CRC (cycle redundancy check) finishes the signal.

Attention: On every Modbus network, only ONE Master is allowed. While configuring with a laptop, it is important to disconnect your BMS network.

Default Modbus parameters are:

Baud rate: 19200
Parity: EVEN
Stop bit: 1
Address: 1

Quick Start configuration

register type	register	name	unit	description	read /write
coil	7 0x07	<i>control mode</i>	0 = Modbus ; 1 = 0-10V	control possibility of the fan	R/W
holding	16 0x10	<i>modbus address</i>	1-200	device in the system	R/W
holding	22 0x16	<i>communication rate</i>	0 = 9600 ; 1 = 19200 ; 2 = 38400 ; 3 = 115200 ; 4 = 57600	baud rate of the system	R/W
holding	23 0x17	<i>parity</i>	0 = none ; 1 = odd ; 2 = even	parity of the system	R/W
holding	24 0x18	<i>stop bits</i>	1 = 1 stoppbit ; 2 = 2 stoppbit	stop bit of the system	R/W

Quick Start operation

register type	register	name	unit	resolution	description	read/write
coil	0 0x00	<i>motor on / off</i>	0/1	0-1	1 = motor is on ; 0 = motor is off	R/W
holding	0 0x00	<i>setpoint</i>	%	0-10000 * 0.01	set the rpm in % for the fan	R/W
input	4 0x04	<i>speed of the motor</i>	RPM	0-3000	get the current rpm of the fan	R
input	8 0x08	<i>power in</i>	W	0-15000	get the current power consumption	R
input	32 0x20	<i>power consumption</i>	kWh	0-999	Total power consumption	R
input	33 0x21	<i>power consumption</i>	MWh	0-999	Total power consumption	R
input	10 0x0A	<i>internal stop</i>	0/1	0-1	motor stopped	R

Typical used settings

Setup modbus network

In this example multiple fans are set to 19200 baudrate with even parity and 1 stop bit.

The control mode gets changed to bus control.

These settings need to be changed on every fan.

After the changes the Fan needs to be power cycled and turned off for minimum 30sec.

We recommend using our Software ECParm for configuration.

fan 1				
Nr	description	type	register Dez	value Dez
1	Modbus address	holding	16	4
2	communication rate	holding	22	1
3	parity	holding	23	2
4	stop bits	holding	24	1
5	control mode	Coil	7	0
fan 2				
1	Modbus address	holding	16	5
2	communication rate	holding	22	1
3	parity	holding	23	2
4	stop bits	holding	24	1
5	control mode	Coil	7	0
fan x				
1	Modbus address	holding	16	X
2	communication rate	holding	22	1
3	parity	holding	23	2
4	stop bits	holding	24	1
5	control mode	Coil	7	0

1. Define YOUR Modbus address. Each number is unique and should not be multiple times in one network.
2. Define the speed of the communication (baudrate). Each device needs the same communication speed.
Higher communication speed means a shorter bus wire length maximum.
3. Define your parity. This is for error detection in the bus. Each device needs the same parity.
4. Define your stop bits. Each device needs the same amount of stop bits.
5. Set the control mode register to bus control.

Control the Fan

In this example the fan gets controlled over Modbus.

With the following commands it gets turned ON and set to 50% of its maximum speed.

Additionally, the rotation speed gets read out.

Nr	description	type	register Dez	value Dez
1	motor on / off	coil	0	1 = on / 0 = off
2	setpoint	holding	0	4505 = ~50%
3	speed of the motor	input	4	read value
4	internal stop	discrete input	10	0 = no failure 1 = failure

1. Control the fan by turning it ON or OFF
Attention: When the fan is set to Modbus control and gets turned on the fan will start spinning even when setpoint is 0.
To turn the fan off you need to do it in this register.
2. Define the speed of the fan. This is a percent-based control.
means 0 = 0% and 10000 = 100%
3. Returns the measured speed of the motor. The value is the measured speed of the motor in RPM.
4. Check for a failure of the motor (only read function).
It can only be read, if the register value is 1 the motor has stopped and needs to be restarted
overpower cycled. To see what caused the motor to stop, the software ECParm and a USB to RS-485
converter is required.

**For the more detailed Modbus Instruction Guide use the "Complete Instruction Guide"
for the ID: BA602.**