MDACM1

Modbus to analog converter

The MDACM1 is intended for converting a Modbus RTU (RS485) signal into an analog / modulating output signal (0—10 VDC / 0—20 mA / PWM). It is Power over Modbus supplied and all parameters are accessible via Modbus RTU. It needs a master unit, such as the Sentera RDPU or any BMS or master module that is able to write a value in Modbus Holding registers.

Key features

- Modbus selectable analog / modulating output
- Bootloader for updating the firmware via Modbus RTU communication
- LED status indication

Technical specifications

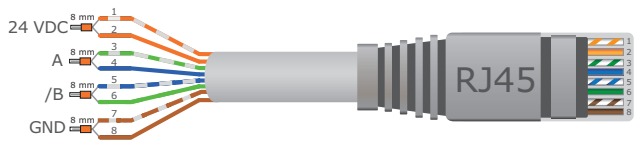
Power supply		24 VDC, Power over Modbus
Maximum power consumption		0,72 W
Nominal or average power consumption in normal operation		0,54 W
Imax		30 mA
Selectable analog / modulating output types	0—10 VDC	min. load 50 kΩ (R_L ≥ 50 kΩ)
	0—20 mA	max. load 500 Ω (R_L ≤ 500 Ω)
	PWM	PWM frequency: 1 kHz, min. load 50 kΩ (R_L ≥ 50 kΩ) PWM voltage level – open collector (external pull-up resistor and 3,3—30 VDC external voltage source) or 12 VDC
Protection standard		IP65 (according to EN 60529)
Ambient conditions	Temperature	-10—60 °C
	Rel. humidity	5—85 % rH (non-condensing)

Area of use

- BMS and controlled ventilation systems
- Modbus signal conversion

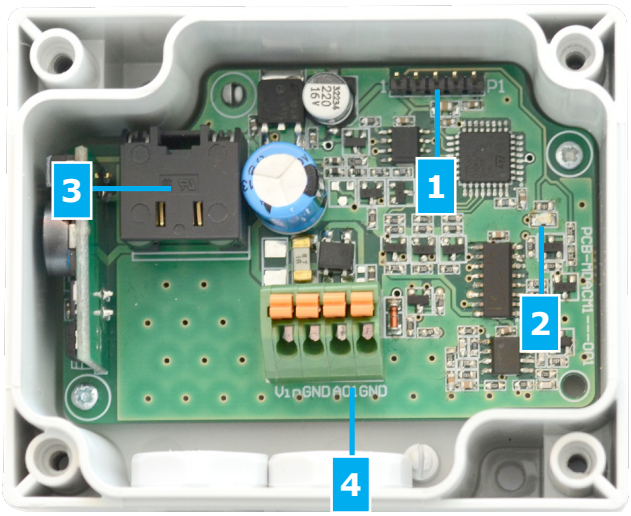
Wiring and connections

RJ45 connection	
24 VDC	Supply voltage 24 VDC[1]
GND	Ground
A	Modbus RTU communication, signal A
/B	Modbus RTU communication, signal /B



Terminal block connection	
VIN	Supply voltage 24 VDC[1]
GND	Ground, supply voltage
AO1	Analog / modulating output (0—10 VDC / 0—20 mA / PWM)
GND	Ground, AO1
Output connection	Spring contact terminal blocks, cable cross section: 1,5 mm²

Settings and indications



1 - PROG header, P1*	1 2 3 4 5	Put a jumper onto pins 1 and 2 and wait for at least 5 seconds to reset the Modbus communication parameters
	1 2 3 4 5	Put a jumper onto pins 3 and 4 and restart the supply to enter bootloader mode
2 - Status LED	On	Power supply is OK
	Blinking	Active Modbus RTU communication
3 - RJ45 socket		Plug the communication and / or power cable into the socket
4 - Terminal block	Vin, GND	Power supply - 24 VDC, PoM[1]
	AO1, GND	Output signal connection

* ***indicates the position of the jumper.***

[1]Attention! MDACM1 needs to be supplied via the RJ45 connector or via the connection terminals. Do not supply the device via the RJ45 connector and the connection terminals simultaneously!

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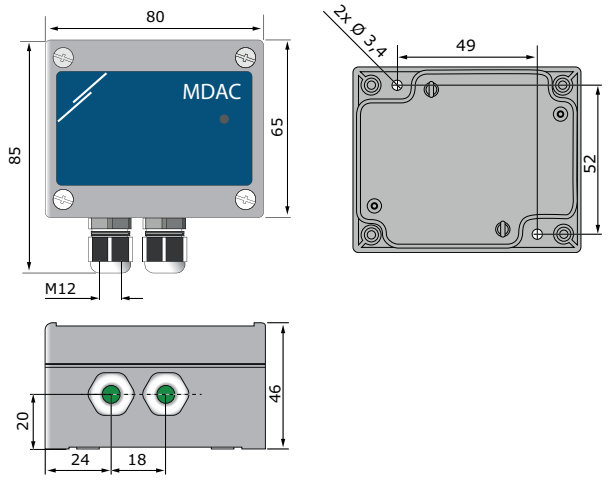
Modbus registers

The Sensistant Modbus configurator allows you to easily monitor and/or configure Modbus parameters.

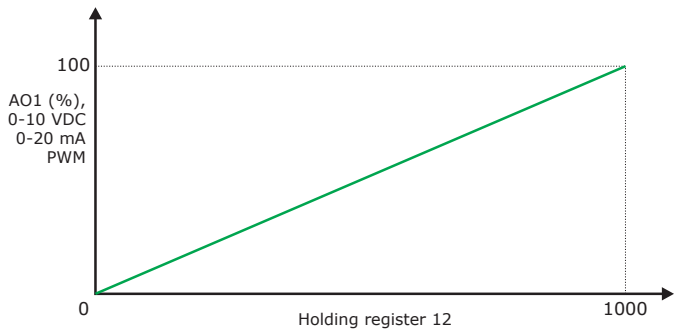
The parameters of the unit can be monitored / configured through the 3SModbus software platform. You can download it from the following link:
https://www.sentera.eu/en/3SMCenter

For more information about the Modbus registers, please refer to the product Modbus Register Map.

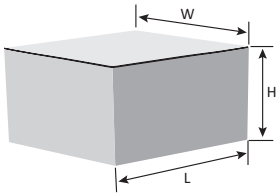
Fixing and dimensions



Operational diagram



Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
MDACM1	Unit (1 pc.)	95	85	70	0,15 kg	0,16 kg
	Carton (10 pcs.)	495	185	87	1,50 kg	1,60 kg
	Box (60 pcs.)	590	380	280	9 kg	9,6 kg

Standards

- EMC Directive 2014/30/EC:
  - EN 61000-6-1:2007 Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light industrial environments
  - EN 61000-6-3:2007 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments Amendments A1:2011 and AC:2012 to EN 61000-6-3
- WEEE Directive 2012/19/EC
- RoHs Directive 2011/65/EC