DADCM

DIN RAIL MOUNTED ANALOGUE TO DIGITAL CONVERTER

Mounting and operating instructions

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SAFETY AND PRECAUTIONS

Read all the information, the datasheet, Modbus map, mounting and operating instructions and study the wiring and connection diagram before working with the product. For personal and equipment safety, and for optimum product performance, make sure you entirely understand the contents before installing, using or maintaining this product.

For safety and licensing (CE) reasons, unauthorised conversion and / or modifications of the product are inadmissible.

The product should not be exposed to abnormal conditions, such as extreme temperatures, direct sunlight or vibrations. Long-term exposure to chemical vapours in high concentration can affect the product performance. Make sure the work environment is as dry as possible; avoid condensation.

All installations shall comply with local health and safety regulations and local electrical standards and approved codes. This product can only be installed by an engineer or a technician who has expert knowledge of the product and safety precautions.

Avoid contacts with energised electrical parts. Always disconnect the power supply before connecting, servicing or repairing the product.

Always verify that you apply appropriate power supply to the product and use appropriate wire size and characteristics. Make sure that all the screws and nuts are well tightened and fuses (if any) are fitted well.

Recycling of equipment and packaging should be taken into consideration and these should be disposed of in accordance with local and national legislation / regulations.

In case there are any questions that are not answered, please contact your technical support or consult a professional.

PRODUCT DESCRIPTION

DADCM is a DIN rail mounted analogue to digital (Modbus RTU) converter, which changes the input signal into Modbus RTU signals. Depending on the chosen version, we have available 8 inputs (4 analogue and 4 digital inputs in DADCM-08 version and 4 analogue/digital inputs in combination with 4 temperature inputs in DADCM-44 version). The converter is Power over Modbus supplied (24 VDC) and the selection of the inputs can be done through the Modbus RTU communication.

ARTICLE CODE

Article code	Number of analogue / digital inputs	Number of analogue inputs	Number of temperature inputs	Modbus RTU
DADCM/08	4	4	0	yes
DADCM/44	4	0	4	

INTENDED AREA OF USE

- Building and controlled ventilation systems
- Clean air and non-aggressive, non-combustible gases
- Convert analogue to Modbus RTU (digital) signals
- For indoor use only

TECHNICAL DATA

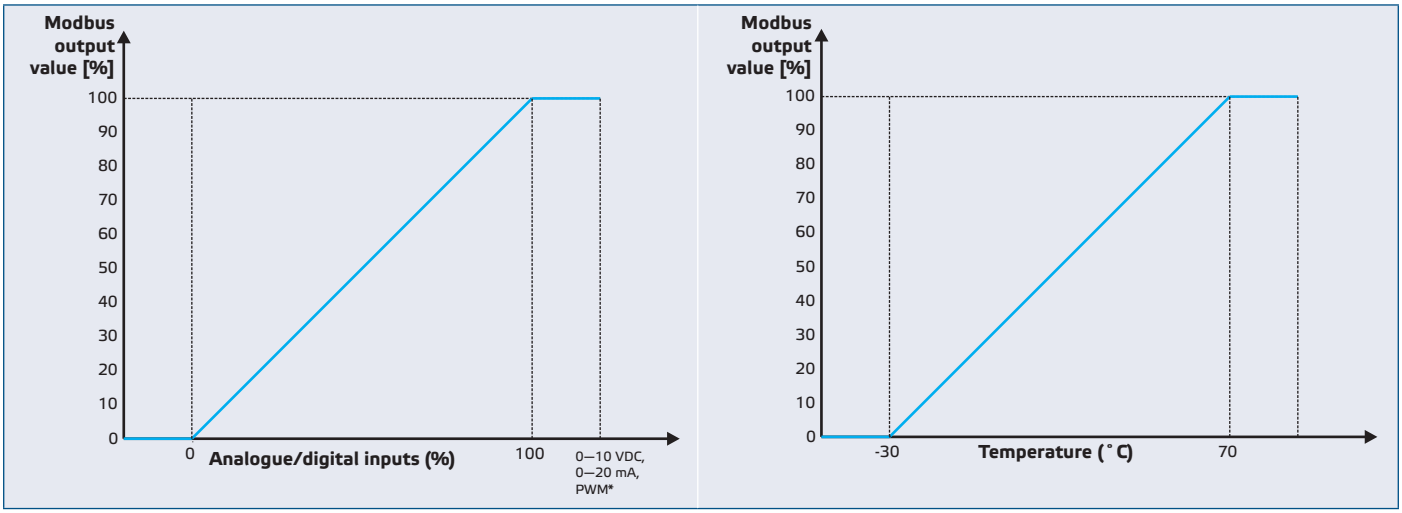
- 24 VDC / 1 W supply voltage, Power over Modbus (PoM)
- Two sockets for RJ45 connections
- Maximum power consumption: 0,96 W
- Nominal power consumption in normal operation: 0,72 W
- Imax: 40 mA
- Easy to connect via two terminal blocks or two Modbus RTU RJ45 connectors on the PCB
- DIN rail mounted
- Different types of inputs, depending on the version of the product:
  - DADCM/08: 4 x analogue inputs (0—10 VDC/0—20 mA/PWM mode: PWM frequency: 1—5 kHz) and 4 x digital inputs (0—10 VDC/0—20 mA)
  - DADCM/44: 4 x temperature inputs (PT500 / PT1000) and 4 x analogue / digital inputs (0—10 VDC/ 0—20 mA/ PWM mode: PWM frequency: 1—5 kHz)
- Enclosure: plastic ABS, UL94-V0, grey RAL 7035
- Protection class: IP30
- Operating ambient conditions:
  - Temperature: -5—65 ºC
  - Rel. humidity: 5—85 % rH (non-condensing)
- Storage temperature: -40—50ºC

STANDARDS

CE

- EMC Directive 2014/30/EC:
  - EN 61000-6-2: 2005/AC:2005
  - EN 61000-6-3:2007/A1:2011/AC:2012
  - EN 61326-2-3:2013
- DIN rail EN 60715:2001 compatible: EN 60730-1:2011
- Low Voltage Directive 2014/35/EC
- WEEE 2012/19/EC
- RoHs Directive 2011/65/EC

OPERATIONAL DIAGRAMS



— Modbus output value (%)
*Available only in Ai1—Ai4

WIRING AND CONNECTIONS

DADCM/08	Ai1—Ai4	Analogue / digital inputs
	AGND	Ground for analogue / digital inputs
	Ai5—Ai8	Analogue inputs
	24 VDC	Ground for analogue inputs
DADCM/44	Ai1—Ai4	Analogue / digital inputs
	AGND	Ground for analogue / digital inputs
	Ti1—Ti4	Temperature inputs (PT500 or PT1000)
	AGND	
Connections		Wire cross section: 1,5 mm^2
		Cable clamping range: 3,5 mm

	Two RJ45 connections
24 VDC	Supply voltage, 24 VDC
GND	Ground
A	Modbus RTU communication, signal A
/B	Modbus RTU communication, signal /B

MOUNTING & OPERATING INSTRUCTIONS IN STEPS

Before you start mounting the unit, read carefully *"***Safety and Precautions"** and follow these steps:

1. Slide the unit along the guides of a standard 35 mm DIN rail and fix it to the rail by means of the black locking clip on the enclosure. Mind the correct position and mounting dimensions shown in **Fig. 1** *Mounting dimensions* and **Fig. 2** *Mounting position*.

Fig. 1 Mounting dimensions

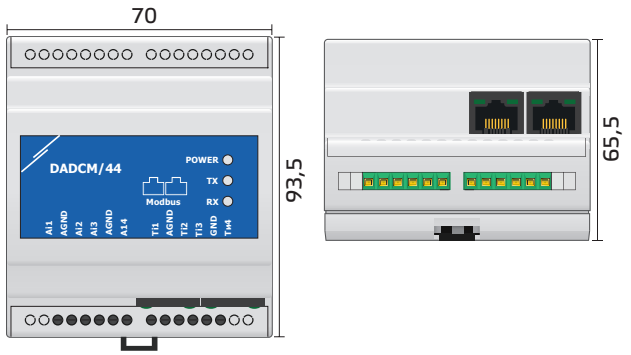
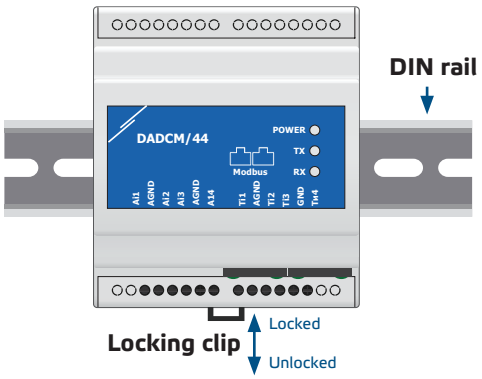


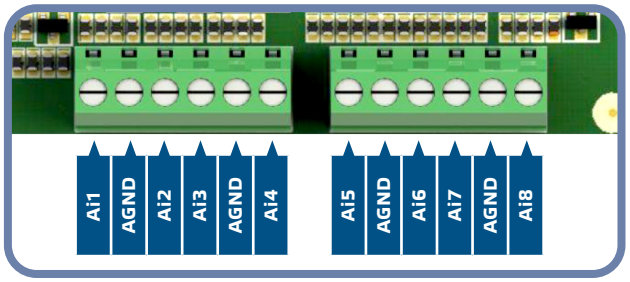
Fig. 2 Mounting position



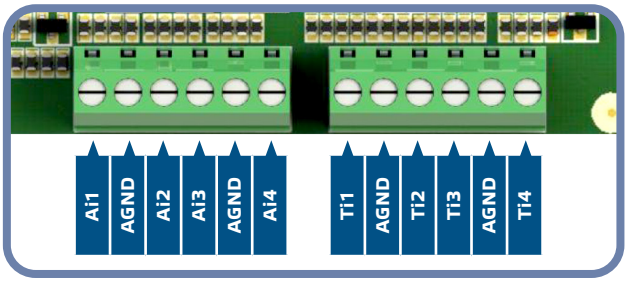
2. Connect the cables to the terminal blocks as shown in **Fig. 3** *Wiring* adhering to the information in section "**Wiring and connections**".

Fig. 3 Wiring

DADCM/08

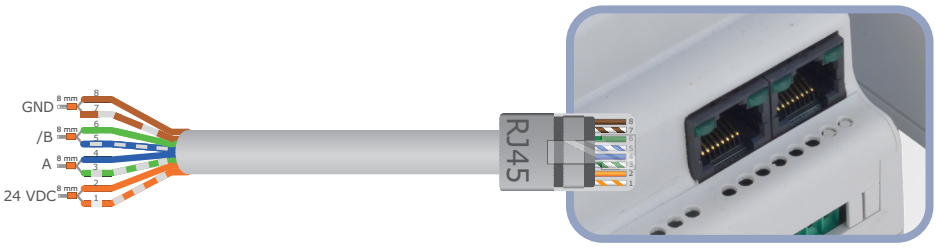


DADCM/44



3. Plug the RJ45 cables in the RJ45 sockets (see **Fig. 4**).

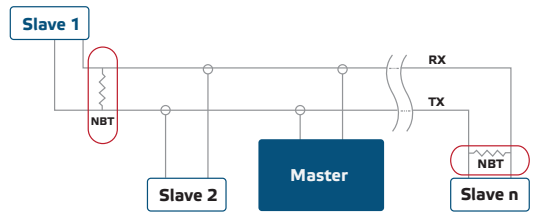
Fig. 4 RJ45 connections



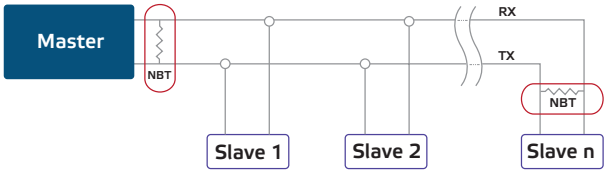
Optional settings:

To assure correct communication, the NBT needs to be activated in only two devices on the Modbus RTU network. If necessary, enable the NBT resistor via 3SModbus or Sensistant (*Holding register 9*).

Example 1



Example 2



NOTE

On a Modbus RTU network, two bus terminators (NBTs) need to be activated.

VERIFICATION OF INSTALLATION

- Green POWER 'ON' indicates that the unit is supplied.
- Blinking green TX and RX LEDs indicate active Modbus RTU communication.
- Blinking LEDs on the RJ45 connector also indicate active Modbus RTU communication.
- If this is not the case, check the connections (see **Fig. 5** *LED indications*).

Fig. 5 LED indications

Fig 5a. Front panel LED indications

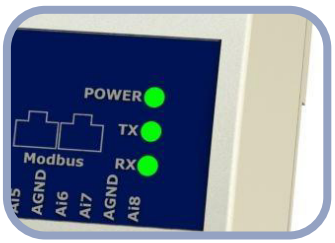
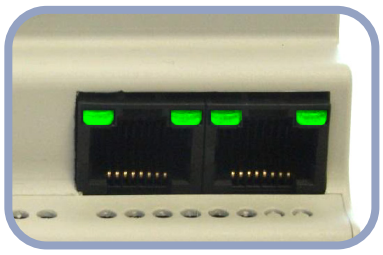


Fig 5b. RJ45 LED indications



ATTENTION

The status of the LEDs can be checked only when the unit is energised. Take the relevant safety measures!

OPERATING INSTRUCTIONS

Modbus registers reset procedure

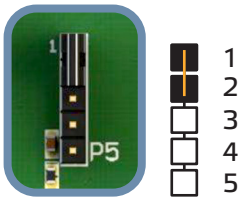
It is only possible to reset the Modbus communication parameters (Holding registers 1—3) via following this procedure:

- To reset the Modbus registers to their default values, put a jumper onto pins 1 and 2 for at least 20 s. Holding registers 1—3 have been reset to their default values.
- All Modbus registers are reset via writing "1" in Modbus holding register 19.

NOTE

For detailed information and settings, refer to the product Modbus registers map, which is attached to the article code on our website.

Fig. 6 Modbus holding registers reset jumper (P5)



Indicates the position of the jumper

TRANSPORT AND STORAGE

Avoid shocks and extreme conditions; stock in original packing.

WARRANTY AND RESTRICTIONS

Two years from the delivery date against defects in manufacturing. Any modifications or alterations to the product after the date of publication relieve the manufacturer of any responsibilities. The manufacturer bears no responsibility for any misprints or mistakes in this data.

MAINTENANCE

In normal conditions this product is maintenance-free. If soiled, clean with a dry or damp cloth. In case of heavy pollution, clean with a non-aggressive product. In these circumstances the unit should be disconnected from the supply. Pay attention that no fluids enter the unit. Only reconnect it to the supply when it is completely dry.