

Modbus-CAN-Adapter

Product data sheet



Information about the device

Description	Modbus-CAN-Adapter
Device type	Temperature measuring unit
Product number	626140-9144-010
Year of manufacture	2015
Manufacturer	Carl Zeiss 3D Automation GmbH Carl-Zeiss-Straße 32 73431 Aalen Germany

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1 Description of the product

1.1 Functional description

The Modbus CAN adapter (MCA) was developed for translating measuring sensor data. This data is translated into the Zeiss-specific CAN protocol of the C99 machine control using a Modbus protocol. A 5 V supply is available for the Modbus participants to be connected. The voltage is processed directly in the MCA, all interfaces are electrically isolated.

1.2 Description of the hardware

Housing dimensions:	105 x 44 x 125 mm; dimension information without mounting rail adapter
Material:	Aluminium, natural anodised
Attachment:	Mounting rail adapter 37 x 102.5 x 10.5 mm; attachment by pressing into the guide groove
Front plate:	Connection plug (see plug assignment)

1.3 Plug assignment and front view MCA

Plug	Type	Assignment
X411	Sub-D9	1 – NC 2 – CANL 3 – GND 4 – NC 5 – NC 6 – GND 7 – CANH 8 – NC 9 – Vout (24V)
X412	Sub-D9	1 – NC 2 – CANL 3 – GND 4 – NC 5 – NC 6 – GND 7 – CANH 8 – NC 9 – VIN (24V)
M801	M8	1 – VOUT (5V) 2 – RS485 Data+ 3 – RS485 Data- 4 – GND
M821	Micro-USB	1 – VCC (5V) 2 – Data- 3 – Data+ 4 – ID 5 – GND

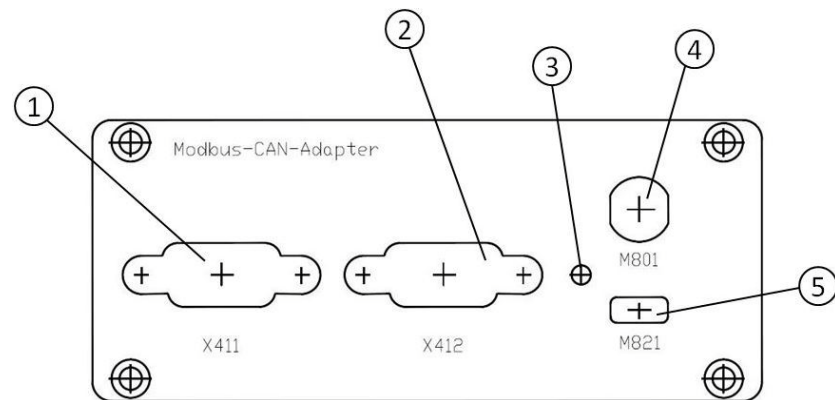


Fig. 1: Plug assignment

1. Sub-D9 female connector
2. Sub-D9 male connector
3. LED-CAN
4. M8 female connector
5. Micro-USB socket

1.4 Description of electronics properties

Permitted ambient temperature: 0...70 °C

Power supply: 7...36V DC; over X412

Electrical isolation: Between CAN, Modbus 5V DC

Modbus 5 V: Connection of max. 12 mini sensors (max. 550mA); 5 V DC +/-0.13V DC from MCA

LED

The LED status is re-established every cycle. The statuses illustrated in the table are checked one after another. For each LED, the appropriate status is selected and the highest successfully tested LED status is then set.

Status	Flashing code	Meaning
LED status 1	No flashing, LED ON (red)	System error
LED status 2	No flashing, LED ON (green)	Configuration is valid, there is neither CAN nor Modbus communication.
LED status 3	125 ms ON, 875 ms OFF (green)	Configuration is not valid, there is neither CAN nor Modbus communication.
LED status 4	250 ms ON, 250 ms OFF (green)	CAN activity
LED status 5	125 ms ON, 125 ms OFF (green)	CAN activity and Modbus activity.

1.5 Description of the Modbus interface

The measured values are requested via pre-configured Modbus protocol from the connected evaluation electronics (AD converter). The Modbus participants have addresses (1...12). These addresses must be set again as new addressed when the system is exchanged.

Register type	Register number	Contents	Note
Holding register	200	Modbus node address	1...247
Input register	0	Measured value channel 1	Integer with factor 1/100°C
	1	Measured value channel 2	Integer with factor 1/100°C

1.6 Start-up

The MCA is connected to the machine control C99 via the CAN input (CAN connector X412) using the CAN cable (CAN cable 2500). Note the following:

- The name of the CAN socket on the C99 varies between the individual C99 models. The connector plan of the control must be read carefully.
- On the O-Inspect 543 control (C99L), the designation of the CAN connection is X193 (CAN socket).

The contacting unit MSM (Modbus interface machine-side) fitted in the machine is connected to the MCA. For this purpose, the cable attached to the MSM (M8 plug) must be connected to socket M801 of the MCAs. The MCA is then secured to the top-hat rail.

Important: The terminating resistor (CAN) is not allowed to be forgotten.

By default, the MCA is configured as follows:

1. CAN address 40 (sensor 1–8) as well as 42 (sensor 9–12)
2. Number of configured sensors 12
3. D7 table:

CAN address	Sensor no.	D7 register
40	Sensor 1	4
	Sensor 2	5
	Sensor 3	2
	Sensor 4	3
	Sensor 5	6
	Sensor 6	7
	Sensor 7	0
	Sensor 8	1
42	Sensor 9	20
	Sensor 10	21
	Sensor 11	22
	Sensor 12	23

The values can be read out in the CMM-MiniCommander in two ways:

- The successive commands Debug keys [F8] and "D106cn,(40),(He000),(H0FF),6,0" display the values on the right in the table (for address 40; sensor 1–8). The "D106cn,(42),(He000),(H0FF),6,0" command displays the values on the right in the table (for address 42; sensor 9–12).
- The entire D7 register table can be seen with the successive commands View-Data keys [F4], Status CAN [F6], TEMP module [F7].