Marine Chiller Air-Conditioning Systems

Installation Instructions

BlueCool CAN-bus module

1 About this document

1.1 Purpose of the document

The installation instructions describe the installation of the BlueCool CAN-bus module. They are valid only in connection with the current version of the general installation instructions for BlueCool S, C, P or V-Series, Fresh air units and Air handlers.

1.2 Safety precautions

Please read this information carefully before you begin with the installation! If you require additional information about special applications in the marine sector or are unsure about an application option, please contact your authorised Webasto Marine dealer or phone us directly at the following number:

- Webasto Thermo & Comfort SE
  +31-(0)38-3371160 (Netherlands)
- Webasto Thermo & Comfort North America, Inc.
  1-800-555-4518 (USA) or
  1-800-667-8900 (Canada).

Use the following phone number to learn the location of the Webasto Service Centre nearest you:

- International: +31-(0)38-3371160
- USA: (800) 860-7866 (toll-free) or visit our website under the following internet address:
  - www.webasto.com or
  - www.webasto.us

Use of symbols and highlighting

See supplement "Important Information on Operating and Installation Instructions".

1.3 Warranty and liability

Webasto shall not assume liability for defects or damage that are the result of the installation and operating instructions being disregarded.

This liability exclusion particularly applies for:

- installation by untrained personnel
- improper use
- repairs not carried out by a Webasto service workshop
- use of non-genuine parts
- conversion of the module without permission from Webasto

2 Scope of delivery

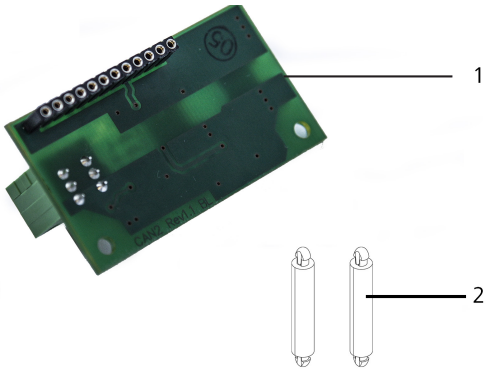

Fig. 01: Example of scope of delivery

1 CAN-bus pc-board
2 Spacer for pc-board (2x)

3 Information on Module

Several BlueCool air-conditioning systems can be connected via the CAN-bus and controlled centrally from a control element with CAN-bus interface. The BlueCool CAN-bus modules are mounted on pc-boards and interconnected in series. The CAN-bus module can then receive commands which control the complete air-conditioning system.
There is a limit switch, which activates the terminating resistor, on the CAN-bus module. There must be a terminating resistor connected at the beginning and at the end of each CAN-bus system. The limit switch on the corresponding CAN-bus modules must be set to position 1.
Failure to do so can result in the CAN-bus malfunctioning.
See Chapter 5.1.

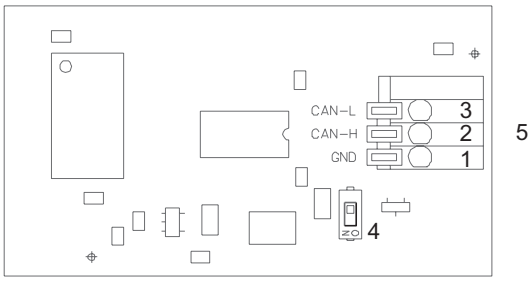

Fig. 02: Layout of BlueCool CAN-bus module

1 Earth (GND)
2 CAN-H
3 CAN-L
4 Limit switch, CAN-bus module
5 CAN-bus cable connection (CON2)

Pin No.	Assignment	Permissible conductor cross section
1	GND	0.13 to 0.52mm²
2	CAN-High	0.13 to 0.52mm²
3	CAN-Low	0.13 to 0.52mm²

4 Installation

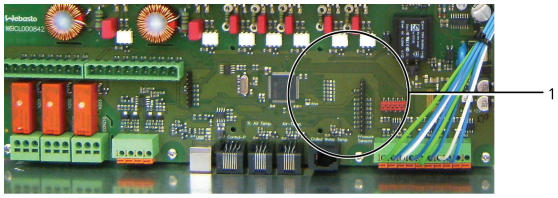

Fig. 03: Example of mounting position

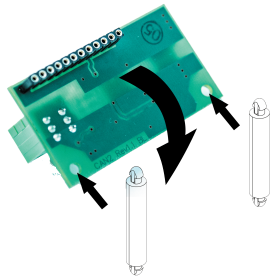

Fig. 04: CAN-bus module installation

- ▶ Plug the CAN-bus modules together with the spacers onto the pc-board of the corresponding BlueCool unit. For example see Fig. 04 and Annex Fig. 07.
- ▶ Connect CAN-bus cable.

4.1 System layout

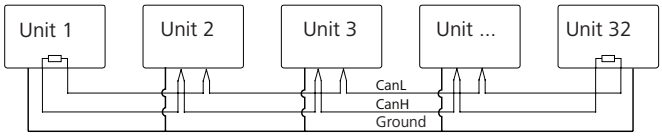

Fig. 05: Example of system layout

- ▶ Set limit switch at first and at last module to ON position (1, active) (only when the CAN-bus module is located at the end or at the beginning of the CAN-bus system).

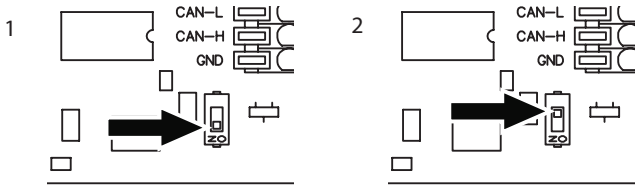

Fig. 06: Limit switch (1, active; 2, not active)

- ▶ Plug the CAN-bus module together with the spacers onto the pc-board of the Chiller unit.
- ▶ Connect CAN-bus cable.
- ▶ Set up the CAN-bus address with the aid of the Expert Tool.

RISK OF INJURY

Make sure that the BlueCool units do not start up unsupervised.

Disregard can result in death.

- ▶ First install the BlueCool air-conditioning system according to the installation instructions and place into operation.

ATTENTION

No CAN-bus commands can be received or sent when the USB diagnostic cable is connected to the BlueCool air-conditioning system.

4.2 Cable type

The type of cable used should be a two-wire, stranded (twisted) cable with shielding. The shielding simultaneously serves as the GND.

Structure	
Conductor	Bare copper stranded wire, 0.13 mm² to 0.52 mm²
Stranding	Both conductors are stranded (twisted) to form a pair
Shielding	Tin-plated copper wire braiding

5 Configuration

5.1 Setting CAN-bus address

The CAN-bus address is set on the Configuration screen with the aid of the Expert Tool.

5.2 CAN-bus commands

CAN-bus format:

CAN commands are transferred as data telegrams with a 29-bit identifier (extended format, 250,000 bits).

Command structure of a request from a control element to the BlueCool air-conditioning system

29-bit identifier:

Bit 7 to bit 0: Source address (operating level) = 0x00

Bit 15 to bit 8: Target address (BlueCool air-conditioning system) set from 0x01 to 0xEF

Bit 29 to bit 16: General 0x10EB

Write request (7 data bytes)

Data[0]: 0x01

Data[1]: 0x01

Data[2]: Address of parameter to be written

Data[3] to

Data[6]: New parameters, pad unnecessary bytes with 0x00*

*: Minimum pause between two write commands 260 ms.

Read request (7 data bytes)

Data[0]: 0x00

Data[1]: 0x01

Data[2]: Address of parameter to be read

Data[3] to

Data[6]: 0x00

Command structure of a reply from a BlueCool air-conditioning system

The entire command consists of the 29-bit identifier and the data bytes of the reply.

29-bit identifier:

Bit 7 to bit 0: Source address (BlueCool air-conditioning system) set from 0x01 to 0xEF

Bit 15 to bit 8: Target address (control element) 0x00; for an error 0xFF

Bit 29 to bit 16: General 0CEB

Reply to a write request (1 data byte)

Data[0] address of the parameter to be written

Reply to a read request (5 data bytes)

Data[0] address of the parameter to be read

Data[1] to Data[4] value of the read parameter. The least significant byte is transferred first. Unnecessary bytes are not transferred.

Reply in the case of fault (2 data bytes)

Data[0] address of the parameter to be read or to be written

Data[1] to Data[4] value of the read parameter. The least significant byte is transferred first. Unnecessary bytes are not transferred.

Fault codes:

0x01	The number of data bytes in the write or read request is not equal to 7
0x02	Unknown address of a parameter
0x03	The data of the parameter to be written are outside the valid value range
0x04	No write access to the parameter

5.3 BlueCool Air handler

Standard commands:

Address	Meaning	Value range		Unit	Data field	Access	Remarks (data type)
		Min	Max				
0x00	On or Off	0	1	-	1	R/W	(u8)
0x01	Setpoint temperature (cabin)	15 °C 59 °F	29 °C 85 °F	°C °F	1	R/W	(u8)
0x02	Current fan speed	0	6	-	1	R/W	(u8)
0x03	Operating mode (cooling or heating)	0 (F1)	5 (F7)	-	1	R/W	(u8)
0x83	Cabin temperature	-	-	x 0.1°C x 0.1°F	2	R	(s16) L-byte H-byte
0x84	Cold water temperature	-	-	x 0.1°C x 0.1°F	2	R	(s16) L-byte H-byte

Optional commands:

Address	Meaning	Value range		Unit	Data field	Access	Remarks (data type)
		Min	Max				
0x04	Dehumidification cycles in 24 h	1	3	-	1	R/W	(u8)
0x05	Heating time in dehumidification cycle	1	99	x 1min	1	R/W	(u8)
0x06	Cooling time in dehumidification cycle	1	99	x 1min	1	R/W	(u8)
0x07	Configuration Bit 0 Temperature unit Bit 1 Remote control function (ON/OFF) Bit 2 Continuous fan operation (ON/OFF) Bit 3 to 7 Reserve	 0 0 0	 1 1 1	-	1	R/W	(u8)
0x08	Fan type	0	2			R/W	0 = AC 1 = EC 2 = electronic silencer
0x09	Fan speed 5	30	100	x 1%	1	R/W	(u8)
0x0a	Fan speed 4	30	100	x 1%	1	R/W	(u8)
0x0b	Fan speed 3	30	100	x 1%	1	R/W	(u8)
0x0c	Fan speed 2	30	100	x 1%	1	R/W	(u8)
0x0d	Fan speed 1	30	100	x 1%	1	R/W	(u8)
0x0e	Calibration of cabin temperature sensor	-5.5 °C -9.9 °F	5.5 °C 9.9 °F	x 0.1°C x 0.1°F	1	R/W	(s8)

Address	Meaning	Value range		Unit	Data field	Ac cess	Remarks (data type)
		Min	Max				
0x80	Fault codes: Byte0.Bit0: A09 Byte0.Bit1: A10 Byte0.Bit2: Init Byte0.Bit3: to Byte0.Bit7: Reserve Byte1.Bit0: to Byte1.Bit4: Reserve Byte1.Bit5: EEPROM Byte1.Bit6: Invalid parameter list Byte1.Bit7: Invalid runtime data Byte2/3 Reserve				4	R	(u32) B0,B1…B3
0x82	Device status Byte0. Bit0: Fan Byte0. Bit1: Valve Byte0. Bit2: Heating elements Byte0.Bit3: to Byte0.Bit7: Reserve Byte1/2/3: Reserve				4	R	(u32) B0,B1..B3
0x90	Device identifier	0x00	0x05		1	R	(u8) 0x00 = CUA1 Air handler 0x01 = CUB1 S-Series 0x02 = CUC1 C-Series, P-Series 0x03 = CUC1 V-Series 0x05 = CUC1 Fresh air unit
0x91	Firmware version				2	R	(u16) BCD format

5.4 BlueCool S-Series

Standard commands:

Address	Meaning	Value range		Unit	Data field	Ac cess	Remarks (data type)
		Min	Max				
0x00	On or Off	0	1	-	1	R/W	(u8)
0x01	Setpoint temperature (cabin)	15 °C 59 °F	29 °C 85 °F	°C °F	1	R/W	(u8)
0x02	Current fan speed	0	6	-	1	R/W	(u8)
0x03	Operating mode (cooling or heating)	0 (F1)	3 (F7)	-	1	R/W	(u8)
0x83	Cabin temperature	-	-	x 0.1°C x 0.1°F	2	R	(s16) L-byte, H-byte
0x84	Evaporator temperature	-	-	x 0.1°C x 0.1°F	2	R	(s16) L-byte, H-byte

Optional commands:

Address	Meaning	Value range		Unit	Data field	Ac cess	Remarks (data type)
		Min	Max				
0x04	Dehumidification cycles in 24 h	1	3	-	1	R/W	(u8)
0x05	Heating time in dehumidification cycle	1	99	x 1min	1	R/W	(u8)
0x06	Cooling time in dehumidification cycle	1	99	x 1min	1	R/W	(u8)
0x07	Configuration Bit 0 Temperature unit Bit 1 Remote control function (ON/OFF) Bit 2 Continuous fan operation (ON/OFF) Bit 3 to 7 Reserve	 0 0 0	 1 1 1		1	R/W	(u8)
0x08	Fan type	0	2			R/W	0 = AC 1 = EC 2 = electronic silencer
0x09	Fan speed 5	30	100		1	R/W	(u8)
0x0a	Fan speed 4	30	100		1	R/W	(u8)
0x0b	Fan speed 3	30	100		1	R/W	(u8)
0x0c	Fan speed 2	30	100		1	R/W	(u8)
0x0d	Fan speed 1	30	100		1	R/W	(u8)
0x0e	Calibration of cabin temperature sensor	-5.5 °C -9.9 °F	5.5 °C 9.9 °F		1	R/W	(s8)
0x0f	Undervoltage switch-off	Byte 0: 90 Byte 1: 180	Byte 0: 105 Byte 1: 210	x 1V	2	R/W	(u16) Byte 0: Limit value for 115V power supply Byte 1 Limit value for 230V power supply
0x10	Switch-off temperature, compressor cooling (minimum)	-4 °C 24 °F	15 °C 59 °F	x 1°C x 1°F	2	R/W	(s16)
0x11	Switch-off temperature, compressor cooling	-4 °C 24 °F	15°C 59 °F	x 1°C x 1°F	2	R/W	(s16)
0x12	Switch-on temperature, compressor cooling	2 °C 35 °F	18 °C 65 °F	x 1°C x 1°F	2	R/W	(s16)
0x13	Switch-off temperature, compressor heating	30 °C 86 °F	55 °C 131 °F	x 1°C x 1°F	2	R/W	(s16)
0x14	Switch-on temperature, compressor heating	27 °C 81 °F	50 °C 122 °F	x 1°C x 1°F	2	R/W	(s16)

Address	Meaning	Value range		Unit	Data field	Access	Remarks (data type)
		Min	Max				
0x15	Switch-on/switch-off hysteresis compressor	0.1 °C 0.2 °F	0.8 °C 1.4 °F	x 0.1°C x 0.1°F	1	R/W	(u8)
0x16	Maximum low-temperature period of shut-down temperature, compressor cooling	0	999	x 1s	2	R/W	(u16)
0x80	Fault codes: Byte0.Bit0: AAA Byte0.Bit1: A01 Byte0.Bit2: A02 Byte0.Bit3: A09 Byte0.Bit4: A10 Byte0.Bit5 Init Byte0.Bit6 TA11 Byte0.Bit7: Reserve Byte1.Bit0: to Byte1.Bit3: Reserve Byte1.Bit4: No calibration Byte1.Bit5: EEPROM Byte1.Bit6: Invalid parameter list Byte1.Bit7: Invalid runtime data				4	R	(u32) B0,B1…B3
0x82	Device status Byte0.Bit0: Fan Byte0.Bit1: Compressor Byte0.Bit2: Sea water pump Byte0.Bit3: Valve Byte0.Bit: to Byte0.Bit7: Reserve Byte 1/2/3 Reserve				4	R	(u32) B0,B1..B3
0x87	Operating voltage	-	-	x 1V	2	R	(u16)
0x90	Device identifier	0x00	0x05		1	R	(u8) 0x00 = CUA1 Air handler 0x01 = CUB1 S-Series 0x02 = CUC1 C-Series, P-Series 0x03 = CUC1 V-Series 0x05 = CUC1 Fresh air unit
0x91	Firmware version				2	R	(u16) BCD format

5.5 BlueCool C-Series, BlueCool P-Series

Standard commands:

Address	Meaning	Value range		Unit	Data field	Access	Remarks (data type)
0x00	On or Off	0	1	-	1	R/W	(u8)
0x01	Setpoint temperature (cabin)	15 °C 59 °F	29 °C 85 °F	°C °F	1	R/W	(u8)
0x02	Current fan speed	0	6	-	1	R/W	(u8)
0x03	Operating mode (cooling or heating)	0 (F1)	5 (F7)	-	1	R/W	(u8)
0x83	Cabin temperature	-	-	x 0.1°C x 0.1°F	2	R	(s16) L-byte, H-byte
0x84	Cold water temperature	-	-	x 0.1°C x 0.1°F	2	R	(s16) L-byte, H-byte

Optional commands:

Address	Meaning	Value range		Unit	Data field	Access	Remarks (data type)
		Min	Max				
0x04	Number of dehumidification cycles every 24 h	1	3	-	1	R/W	(u8)
0x05	Heating time in dehumidification cycle	1	99	x 1min	1	R/W	(u8)
0x06	Cooling time in dehumidification cycle	1	99	x 1min	1	R/W	(u8)
0x07	Configuration Bit 0 Temperature display Bit 1 Remote control function ON/OFF Bit 2 Continuous fan operation ON/OFF Bit 3 to 4 Flow monitor Bit 5 to 7 Reserve	 0 0 0 0	 1 1 1 2	-	1	R/W	Bit 4/3 (flow monitor) 00 = Switch off 01 = NO contact 10 = NC contact
0x08	Fan type	0	2			R/W	0 = AC 1 = EC 2 = electronic silencer
0x09	Fan speed 5	30	100	x 1%	1	R/W	(u8)
0x0a	Fan speed 4	30	100	x 1%	1	R/W	(u8)
0x0b	Fan speed 3	30	100	x 1%	1	R/W	(u8)
0x0c	Fan speed 2	30	100	x 1%	1	R/W	(u8)
0x0d	Fan speed 1	30	100	x 1%	1	R/W	(u8)
0x0e	Calibration of cabin temperature sensor	-5.5 °C -9.9 °F	5.5 °C 9.9 °F	x 0.1°C x 0.1°F	1	R/W	(s8)
0x0f	Undervoltage switch-off	Byte 0: 90 Byte 1: 180	Byte 0: 105 Byte 1: 210	x 1V	2	R/W	(u16) Byte 0: Limit value for 115V power supply Byte 1 Limit value for 230V power supply
0x20	Interval between compressor starts	1	60	x 1s	1	R/W	(u8)

Address	Meaning	Value range		Unit	Data field	Access	Remarks (data type)
		Min	Max				
0x21	First switch-on delay in seconds after connecting the AC power supply	1	200	x 1s	1	R/W	(u8)
0x22	Compressor ON/OFF Bit 0 = compressor 1 Bit 1 = compressor 2 Bit 2 = compressor 3 Bit 3 = compressor 4 Bit 4 = compressor 5 Bit 5 = compressor 6	0x00	0x3F	-	1	R/W	(u8)
0x23	Function relay 1	0	5	-	1	R/W	(u8)
0x24	Function relay 2	0	5	-	1	R/W	(u8)
0x25	Function relay 3	0	5	-	1	R/W	(u8)
0x26	Switch-off temperature, cold water in cooling mode	0 °C 32 °F	15 °C 59 °F	x 1°C x 1°F	2	R/W	(s16)
0x27	Switch-on temperature, cold water in cooling mode	2°C 36 °F	18°C 64°F	x 1°C x 1°F	2	R/W	(s16)
0x28	Switch-on temperature, cold water in heating mode (C-Series)	27 °C 81 °F	49 °C 120 °F	x 1°C x 1°F	2	R/W	(s16)
0x28	Switch-on temperature, cold water in heating mode (P-Series)	27 °C 81 °F	40 °C 104 °F	x 1°C x 1°F	2	R/W	(s16)
0x29	Switch-off temperature, cold water in heating mode (C--Series)	30 °C 86 °F	52 °C 126 °F	x 1°C x 1°F	2	R/W	(s16)
0x29	Switch-off temperature, cold water in heating mode (P-Series)	30 °C 86 °F	45 °C 113 °F	x 1°C x 1°F	2	R/W	(s16)
0x2a	ON/OFF offset compressor 1	0.0K 0.0 °F	5.5K 9.9 °F	x 0.1K x 0.1°F	1	R/W	(u8)
0x2b	ON/OFF offset compressor 2	0.0K 0.0 °F	5.5K 9.9 °F	x 0.1K x 0.1°F	1	R/W	(u8)
0x2c	ON/OFF offset compressor 3	0.0K 0.0 °F	5.5K 9.9 °F	x 0.1K x 0.1°F	1	R/W	(u8)
0x2d	ON/OFF offset compressor 4	0.0K 0.0 °F	5.5K 9.9 °F	x 0.1K x 0.1°F	1	R/W	(u8)
0x2e	ON/OFF offset compressor 5	0.0K 0.0 °F	5.5K 9.9 °F	x 0.1K x 0.1°F	1	R/W	(u8)
0x2f	ON/OFF offset compressor 6	0.0K 0.0 °F	5.5K 9.9 °F	x 0.1K x 0.1°F	1	R/W	(u8)
0x30	Switch-on/switch-off hysteresis compressor	0.0K 0.0 °F	9.9K 17.8 °F	x 0.1K x 0.1°F	1	R/W	(u8)
0x80	Fault codes Byte0.Bit0: AAA Byte0.Bit1: A01 Byte0.Bit2: A02 Byte0.Bit3: A03 Byte0.Bit4: A04 Byte0.Bit5: A05 Byte0.Bit6: A06 Byte0.Bit7: A07 Byte1.Bit0: A08 Byte1.Bit1: A09 Byte1.Bit2: A10 Byte1.Bit3: A11 Byte1.Bit4: A12 Byte1.Bit5: A13 Byte1.Bit6: A14 Byte1.Bit7: A15 Byte2.Bit0: Init Byte2.Bit1: CA11 Byte2.Bit2 to Byte2.Bit7 Reserve Byte3.Bit0 to Byte3.Bit3: Reserve Byte3.Bit4: No calibration Byte3.Bit5: EEPROM Byte3.Bit6: Invalid parameter list Byte3.Bit7: Invalid runtime data				4	R	(u32) B0,B1…B3
0x82	Device status Byte0.Bit0: Fan 1 Byte0.Bit1: Fan 2 Byte0.Bit2: Sea water pump Byte0.Bit3: Cold water pump Byte0.Bit4: Valve Byte0.Bit5: Relay 1 Byte0.Bit6: Relay 2 Byte0.Bit7: Relay 3 Byte1.Bit0: Compressor 1 Byte1.Bit1: Compressor 2 Byte1.Bit2: Compressor 3 Byte1.Bit3: Compressor 4 Byte1.Bit4: Compressor 5 Byte1.Bit5: Compressor 6 Byte1.Bit6: to Byte1.Bit7: Reserve Byte2/3 : Reserve				4	R	(u32) B0,B1…B3
0x87	Supply voltage	-	-	x 1V	2	R	(u16)
0x90	Device identifier	0x00	0x05	-	1	R	(u8) 0x00 = CUA1 Air handler 0x01 = CUB1 S-Series 0x02 = CUC1 C-Series, P-Series 0x03 = CUC1 V-Series 0x05 = CUC1 Fresh air unit
0x91	Firmware version	-	-	-	2	R	(u16) BCD format

5.6 BlueCool V-Series

Standard commands:

Address	Meaning	Value range		Unit	Data field	Access	Remarks (data type)
		Min	Max				
0x00	On or Off	0	1	-	1	R/W	(u8)
0x01	Setpoint temperature (cabin)	15 °C 59 °F	29 °C 85 °F	°C °F	1	R/W	(u8)
0x02	Current fan speed	0	6	-	1	R/W	(u8)
0x03	Operating mode (cooling or heating)	0 (F1)	5 (F7)	-	1	R/W	(u8)
0x83	Cabin temperature	-	-	x 0.1°C x 0.1°F	2	R	(s16) L-byte H-byte
0x84	Cold water temperature	-	-	x 0.1°C x 0.1°F	2	R	(s16) L-byte, H-byte

Optional commands:

Address	Meaning	Value range		Unit	Data field	Access	Remarks (data type)
		Min	Max				
0x04	Number of dehumidification cycles every 24 h	1	3	-	1	R/W	(u8)
0x05	Heating time in dehumidification cycle	1	99	x 1min	1	R/W	(u8)
0x06	Cooling time in dehumidification cycle	1	99	x 1min	1	R/W	(u8)
0x07	Configuration Bit 0 Temperature display Bit 1 Remote control function ON/OFF Bit 2 Continuous fan operation ON/OFF Bit 3 to 4 Flow monitor Bit 5 to 6 Eco mode Bit 7 Reserve	 0 0 0 0	 1 1 1 2	-	1	R/W	Bit 4/3 (flow monitor) 00 = Switch off 01 = NO contact 10 = NC contact Bit 6/5 (Eco mode) 00 = On 01 = Eco 1 10 = Eco 2
0x08	Fan type	0	2			R/W	0 = AC 1 = EC 2 = electronic silencer
0x09	Fan speed 5	30	100	x 1%	1	R/W	(u8)
0x0a	Fan speed 4	30	100	x 1%	1	R/W	(u8)
0x0b	Fan speed 3	30	100	x 1%	1	R/W	(u8)
0x0c	Fan speed 2	30	100	x 1%	1	R/W	(u8)
0x0d	Fan speed 1	30	100	x 1%	1	R/W	(u8)
0x0e	Calibration of cabin temperature sensor	-5.5 °C -9.9 °F	5.5 °C 9.9 °F	x 0.1°C x 0.1°F	1	R/W	(s8)
0x0f	Undervoltage switch-off	Byte 0: 90 Byte 1: 180	Byte 0: 105 Byte 1: 210	x 1V	2	R/W	(u16) Byte 0: Limit value for 115V power supply Byte 1 Limit value for 230V power supply
0x40	First switch-on delay	1	200	x 1s	1	R/W	(u8)
0x41	Function relay 1	0	5	-	1	R/W	(u8)
0x42	Function relay 2	0	5	-	1	R/W	(u8)
0x43	Function relay 3	0	5	-	1	R/W	(u8)
0x44	Set cold water temperature in cooling mode	4 °C 39 °F	4 °C 39 °F	x 1°C x 1°F	2	R	(s16)
0x45	Set cold water temperature in heating mode	45 °C 113 °F	45°C 113°F	x 1°C x 1°F	2	R	(s16)
0x46	Switch-on temperature, cold water in cooling mode	4°C 39 °F	8°C 46°F	x 1°C x 1°F	2	R/W	(s16)
0x47	Switch-on temperature, cold water in heating mode	41 °C 106 °F	45°F 113°F	x 1°C x 1°F	2	R/W	(s16)
0x80	Fault codes Byte0.Bit0: AAA Byte0.Bit1: A01 Byte0.Bit2: A02 Byte0.Bit3: A09 Byte0.Bit4: A10 Byte0.Bit5: Init Byte0.Bit6: A15 Byte0.Bit7: A20 Byte1.Bit0: A21 Byte1.Bit1: A22 Byte1.Bit2: A23 Byte1.Bit3: A24 Byte1.Bit4: A25 Byte1.Bit5: A26 Byte1.Bit6: A27 Byte1.Bit7: A28 Byte2.Bit0: A30-A54 Byte2.Bit1 to Byte2.Bit7 Reserve Byte3.Bit0 to Byte3.Bit3: Reserve Byte3.Bit4: No calibration Byte3.Bit5: EEPROM Byte3.Bit6: Invalid parameter list Byte3.Bit7: Invalid runtime data				4	R	(u32) B0,B1…B3
0x81	Inverter fault codes	0	25		1	R	(u8)

Address	Meaning	Value range		Unit	Data field	Access	Remarks (data type)
		Min	Max				
0x82	Device status Byte0.Bit0: Fan 1 Byte0.Bit6:Relay 1 Byte0.Bit1: Fan 2 Byte0.Bit7:Relay 2 Byte0.Bit2: Inverter/compr. Byte1.Bit0:Relay 3 Byte0.Bit3: Sea water pump Byte1.Bit1:to Byte0.Bit4: Cold water pump Byte1.Bit7:Reserve Byte0.Bit5: Valve Byte2/3 : Reserve				4	R	(u32) B0,B1…B3
0x86	Compressor temperature	-	-	x 0.1°C x 0.1°F	2	R	(s16) L-byte, H-byte
0x87	Operating voltage	-	-	x 1V	2	R	(u16)
0x88	Low pressure (refrigerant circuit)	-	-	x0.1 bar	2	R	(s16)
0x89	High pressure (refrigerant circuit)	-	-	x0.1 bar	2	R	(s16)
0x90	Device identifier	0x00	0x05	-	1	R	(u8) 0x00 = CUA1 Air handler 0x01 = CUB1 S-Series 0x02 = CUC1 C-Series, P-Series 0x03 = CUC1 V-Series 0x05 = CUC1 Fresh air unit
0x91	Firmware version	-	-	-	2	R	(u16) BCD format

5.7 BlueCool Fresh air unit

Standard commands:

Address	Meaning	Value range		Unit	Data field	Access	Remarks (data type)
		Min	Max				
0x00	On or Off	0	1	-	1	R/W	(u8)
0x03	Operating mode (cooling or heating)	0 (F1)	3 (F7)	-	1	R/W	(u8)
0x83	Cabin temperature	-	-	x 0.1°C x 0.1°F	2	R	(s16) L-byte, H-byte
0x83	Outside air temperature	-	-	x 0.1°C x 0.1°F	2	R	(s16) L-byte, H-byte
0x84	Cold water temperature	-	-	x 0.1°C x 0.1°F	2	R	(s16) L-byte, H-byte
0x85	Supply air temperature	-	-	x 0.1°C x 0.1°F	2	R	(s16) L-byte, H-byte

Optional commands:

Address	Meaning	Value range		Unit	Data field	Access	Remarks (data type)
		Min	Max				
0x04	Dehumidification cycles in 24 h	1	3	-	1	R/W	(u8)
0x05	Heating time in dehumidification cycle	1	99	x 1min	1	R/W	(u8)
0x06	Cooling time in dehumidification cycle	1	99	x 1min	1	R/W	(u8)
0x07	Configuration Bit 0 Temperature display Bit 1 Remote control function ON/OFF Bit 2 to 7 Reserve	 0 0	 1 1	-	1	R/W	(u8)
0x08	Fan type	0	1			R/W	0 = AC 1 = EC
0x0f	Undervoltage switch-off	Byte 0: 90 Byte 1: 180	Byte 0: 105 Byte 1: 210	x 1V	2	R/W	(u16) Byte 0: Limit value for 115V power supply Byte 1 Limit value for 230V power supply
0x50	Fan ON/OFF Bit 0 = Supply air fan Bit 1 = Exhaust air fan	0	3	-	1	R/W	(u8)
0x51	Heating ON/OFF Bit 0 = Heating 1 Bit 1 = Heating 2	0	3	-	1	R/W	(u8)
0x52	Supply air fan speed	30	70	x 1%	1	R/W	(u8)
0x53	Exhaust air fan speed	30	70	x 1%	1	R/W	(u8)
0x54	Exhaust air fan start-up delay	0	99	x 1s	1	R/W	(u8)
0x55	Filter change interval	0	99	x 100h	1	R/W	(u8)
0x56	Runtime of supply air fan since last filter change	-	-	x 100h	1	R/W	(u8) Can only be written at "0", i.e. runtime reset
0x57	Function relay 1	0	3	-	1	R/W	(u8)
0x58	Function relay 2	0	3	-	1	R/W	(u8)
0x59	Function relay 3	0	3	-	1	R/W	(u8)

Address	Meaning	Value range		Unit	Data field	Access	Remarks (data type)
		Min	Max				
0x5a	Changeover threshold for heating mode	20 °C 68 °F	35 °C 95 °F	x 1°C x 1°F	2	R/W	(s16)
0x5b	Changeover threshold for cooling mode	10 °C 50 °F	20 °C 68 °F	x 1°C x 1°F	2	R/W	(s16)
0x5c	Outside air heating	10 K 18°F	35K 63°F	x 1 K x 1°F	2	R/W	(s16)
0x5d	Outside air cooling	5 K 9°F	25K 45°F	x 1 K x 1°F	2	R/W	(s16)
0x5e	Maximum outside air heat-up threshold	10°C 50°F	35 °C 95 °F	x 1°C x 1°F	2	R/W	(s16)
0x5f	Minimum outside air cool-down threshold	10°C 50°F	30 °C 86 °F	x 1°C x 1°F	2	R/W	(s16)
0x60	Switching threshold 1	1.0K 1.8°F	5.5K 9.9°F	x 0.1 K x 0.1°F	2	R/W	(s16)
0x61	Switching threshold 2	1.5K 2.7°F	5.5K 9.9°F	x 0.1 K x 0.1°F	2	R/W	(s16)
0x80	Fault codes Byte0.Bit0: AAA Byte0.Bit1: A09 Byte0.Bit2: A10 Byte0.Bit3: A11 Byte0.Bit4: Init Byte0.Bit5: to Byte0.Bit7: Reserve Byte1: Reserve Byte2: Reserve Byte3.Bit0 to Byte3.Bit3: Reserve Byte3.Bit4: No calibration Byte3.Bit5: EEPROM Byte3.Bit6: Invalid parameter list Byte3.Bit7: Invalid runtime data				4	R	(u32) B0,B1…B3
0x82	Device status Byte0.Bit0: Supply air fan Byte0.Bit1: Exhaust air fan Byte0.Bit2: Valve Byte0.Bit3: Relay 1 Byte0.Bit4: Relay 2 Byte0.Bit5: Relay 3 Byte0.Bit6: Heating elements 1 Byte0.Bit7: Heating elements 2 Byte1/2/3: Reserve				4	R	(u32) B0,B1…B3
0x87	Operating voltage	-	-	x 1V	2	R	(u16)
0x90	Device identifier	0x00	0x05	-	1	R	(u8) 0x00 = CUA1 Air handler 0x01 = CUB1 S-Series 0x02 = CUC1 C-Series, P-Series 0x03 = CUC1 V-Series 0x05 = CUC1 Fresh air unit
0x91	Firmware version	-	-	-	2	R	(u16) BCD format

6 The CAN-bus module is suitable for BlueCool air conditioning units with following software version:

BlueCool Air handler	as from software version 2.01
BlueCool S-Series	as from software version 2.01
BlueCool C-Series	as from software version 2.01
BlueCool P-Series	as from software version 2.03
BlueCool V-Series	as from software version 2.03
BlueCool Fresh air unit	as from software version 1.02

7 Annex

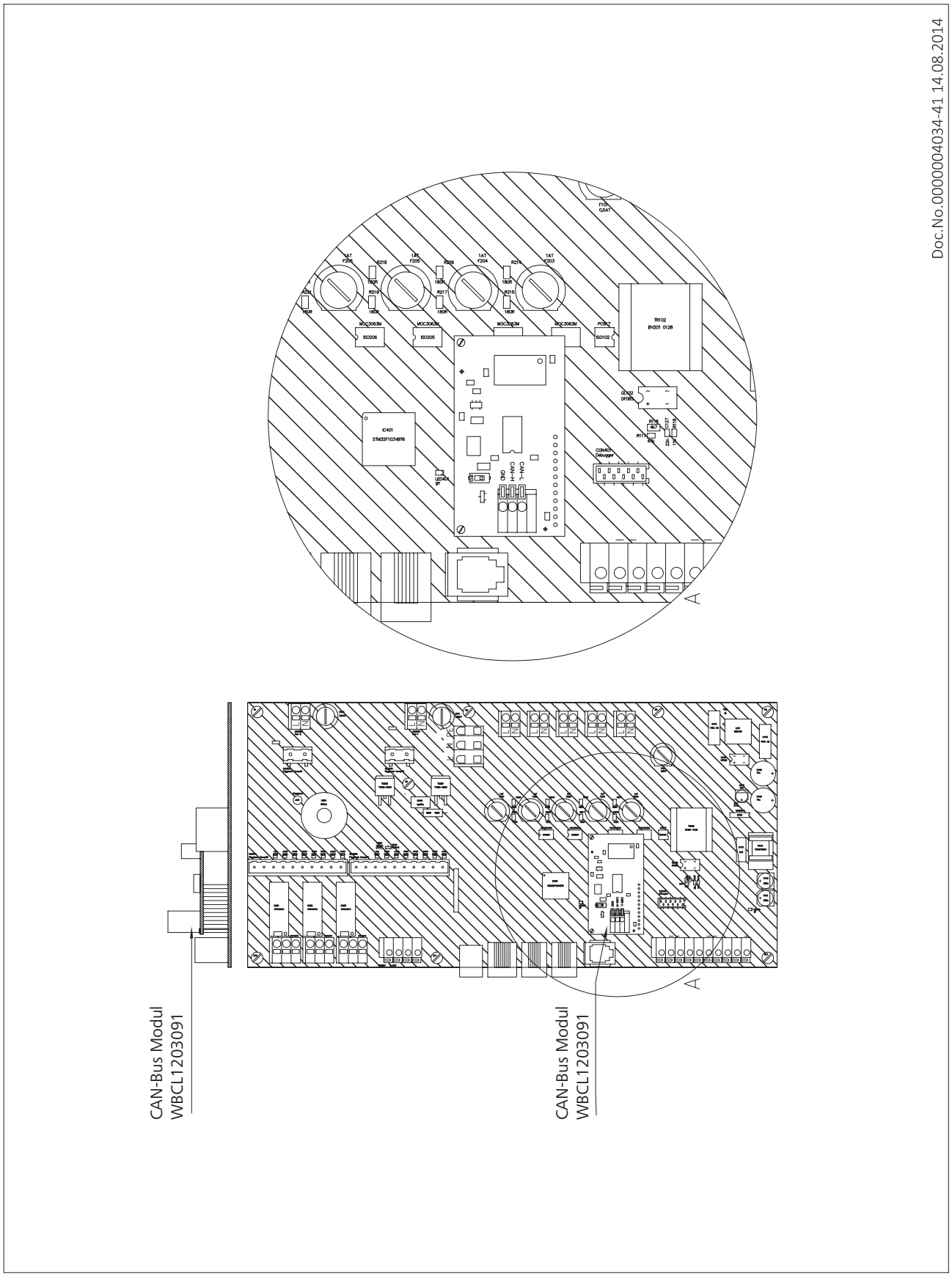

Fig. 07: Installation example, BlueCool C-Series

In multilingual versions the German language is binding.
The telephone number of each country can be found in the Webasto service center leaflet or the website of the respective Webasto representative of your country.

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