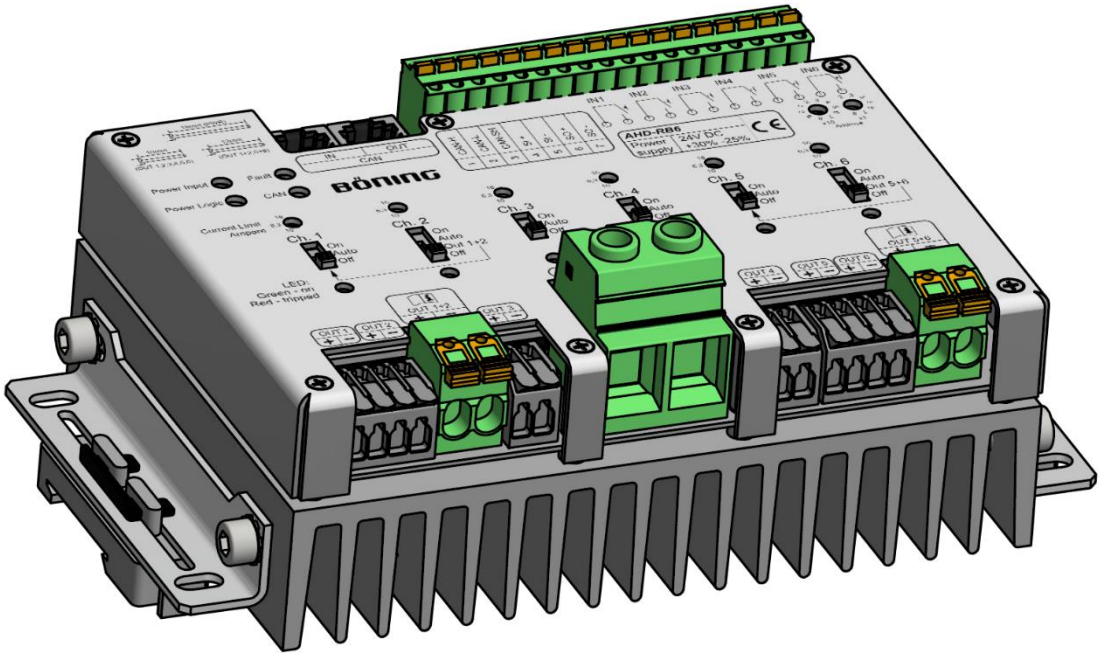
AHD-RB6
Remote-Controllable Electronic Circuit Breaker



- *New design (V2) with additional terminals*
- *Rated current up to 16 A per channel or 28 A for combined channels*
- *Bipolar switching of all channels*
- *Operating voltage 24 V DC (+30%/-25%)*
- *6 outputs, 6 inputs, for example for light switches, level switches or other contacts, independently configurable*
- *Freely configurable with the Böning DeviceConfig tool*
- *Individual current measurement for each channel (< 50 mA resolution)*
- *Optional dimmer function for lighting control*
- *Status LEDs for each channel*
- *Monitored by hardware watchdog*
- *Undercurrent and overcurrent detection*
- *3-step current limit setting with rotary switches*
- *Maximum security by redundant circuits*
- *Protection against overvoltage, short-circuit, overload and overheating*
- *Easy and cost-effective installation with patch cables for CAN bus*
- *Smooth switching of lamps for longer lifespan (pulse width modulation)*
- *Grouping of channels, for example for lighting control*
- *Programmable switch off delay time for outputs*
- *Operating temperature range allows installation in all locations, including engine rooms*
- *Significant reduction of cabling and costs due to decentralized installation*
- *Stand-alone operation with pushbuttons / switches possible*
- *Connection to NMEA 2000 network (upon request)*
- *Tripping characteristic Type C*

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Introduction

AHD-RB6 is an electronic circuit breaker (ECB) for six channels for connecting, controlling and monitoring of electrical loads of up to 16 A / 24 V DC per channel. Remote control and monitoring are possible over the CAN bus. The device switches all load circuits bipolar.

If required, two channel pairs can be combined per device so that the rated current increases to 28 A for each of the two resulting double channels.

The maximum current can be set individually for each channel to 6.3 A, 10 A or 16 A, providing appropriate protection for all correspondingly dimensioned cables. The terminals for the power input can handle a current of up to 125 A.

The current of each channel is measured separately, making it possible to use AHD-RB6 for example as a power management device. The measured current values are available in the CAN bus and can be visualized for example on our displays and panel PCs.

If the CAN system or the processor fail each channel can be controlled manually with the built-in switches without affecting the function as a circuit breaker.

The switches for the channel status of each channel (Item 11 in the "Device Overview" below) can be set to the following positions:

Position 1: On (Channels 1...6):
Override function, remote control is disabled. The output is switched on in the hardware; the function as circuit breaker is available even if the electronics fail.

Position 2: Auto (Channel 1…6):
Remote control is enabled; the output is switched and monitored over the CAN bus.

Position 3: Off (Only channels 1, 3…5):
Override function, remote control is disabled. The output is switched off and cannot be switched on again over the CAN bus.

Position 3: Out 1+2 (Only channel 2):
Switches channel 2 in a special mode to increase the permissible output current at output 1.

Position 3: Out 5+6 (Only channel 6):
Switches channel 6 to a special mode to increase the permissible output current at output 5.

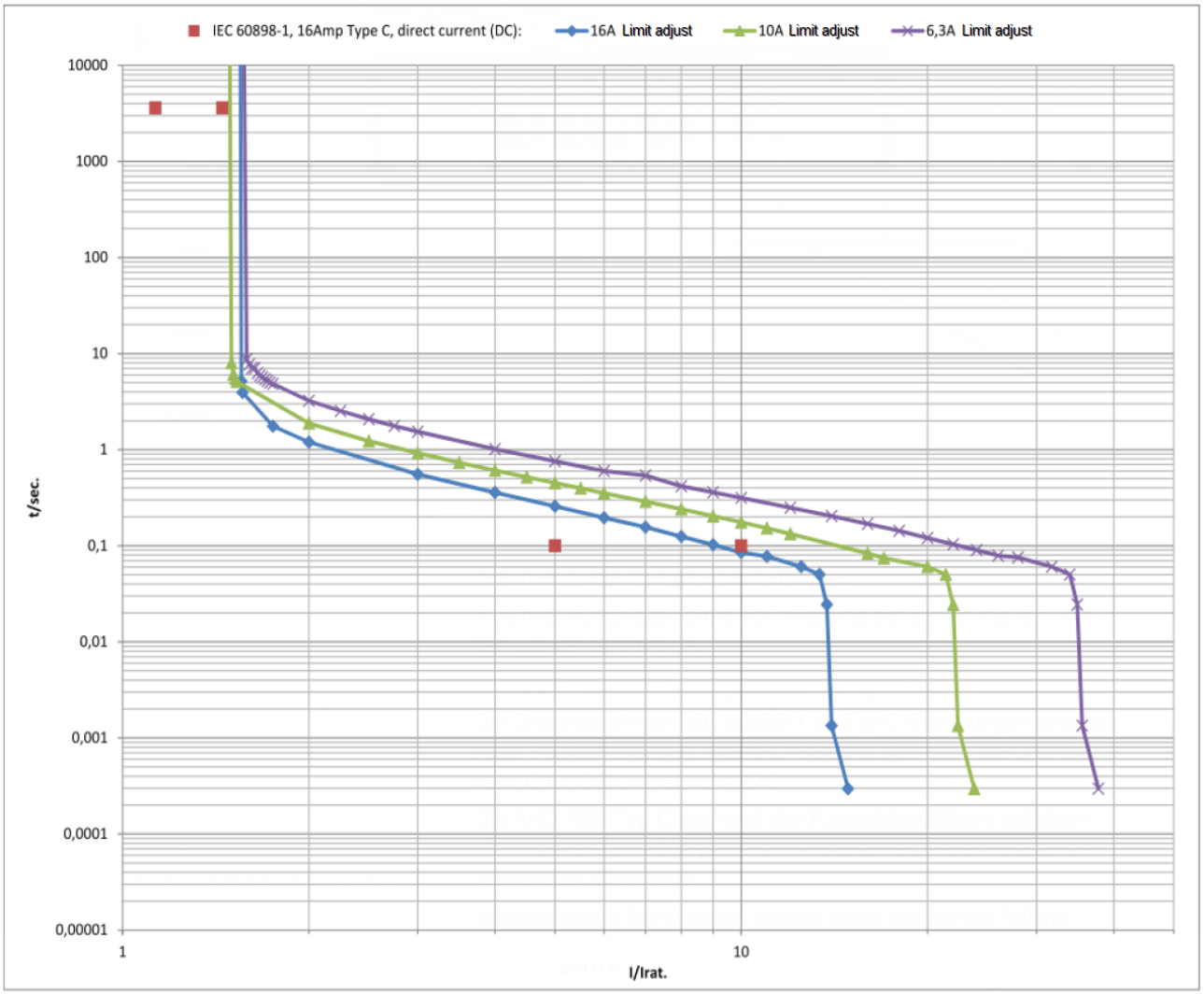
Position 4: Off (Only channels 2 and 6):
Override function, remote control is disabled. The output is switched off and cannot be switched on again over the CAN bus.

Each channel can be configured individually for the dimming of lighting. It is possible to assign an individual dimming value to each channel over the CAN bus (from a display) or with pushbuttons.

If a pushbutton is used for dimming, a short press of the button switches the lighting on or off, while pressing and holding the button activates the dimming function (dimming from bright to dark or from dark to bright, respectively).

Tripping Characteristics

The circuit breakers integrated in the AHD-RB6 (V2) generally correspond to the **tripping characteristic type C** for DC voltage.



X axis: multiples of the rated current.

Y axis: Tripping time without prior load; that is the current was 0.0 Amperes.

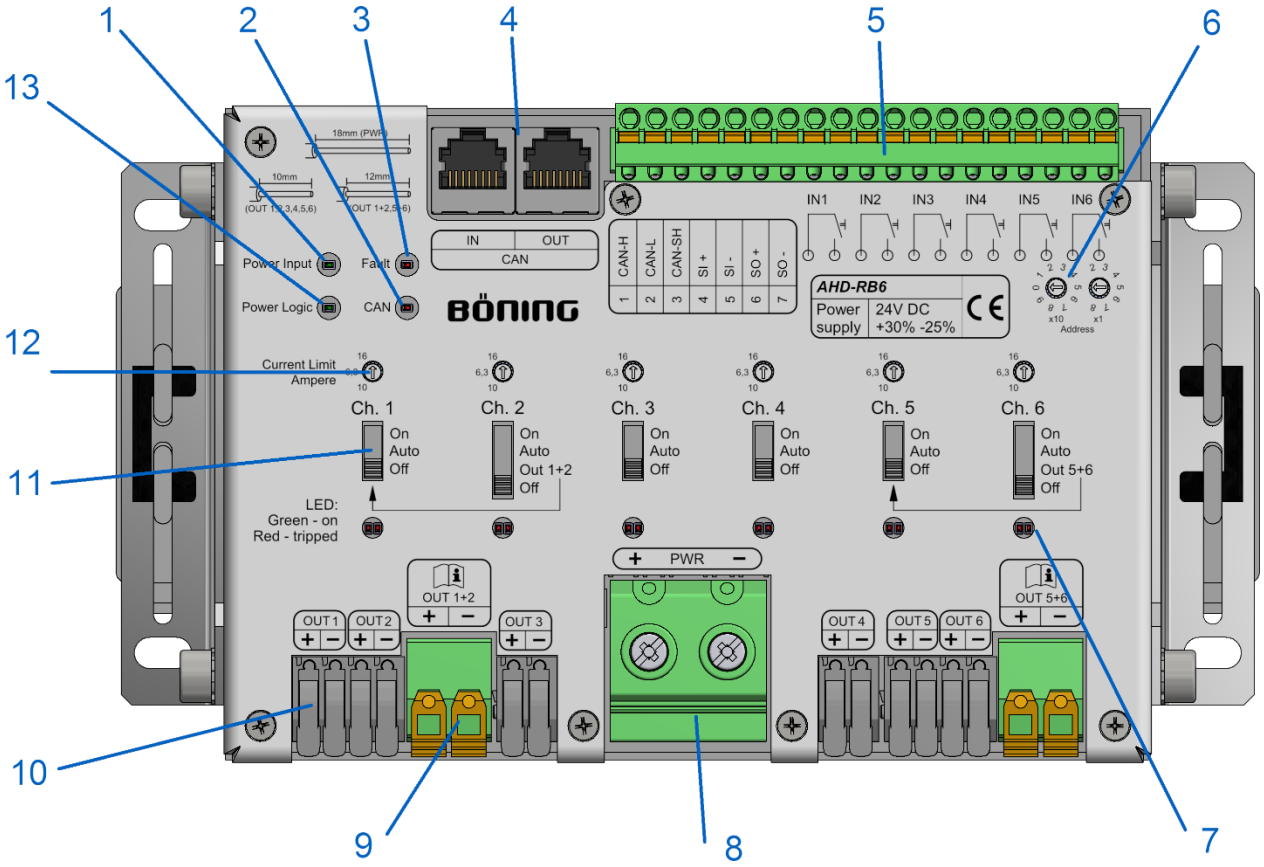
The limit values of IEC 60898-1 for type C circuit breakers are marked with red dots.

AHD-RB6 (V2) has the characteristics C for direct current (DC) according to IEC 60898-1.

AHD-RB6 (V2) limits the short-circuit current to a maximum value of 240 A for each channel (typ. 225 A) with a tripping time of 1.0ms

Larger fuses connected in series will therefore never be loaded with more than 240 A.

Device Overview



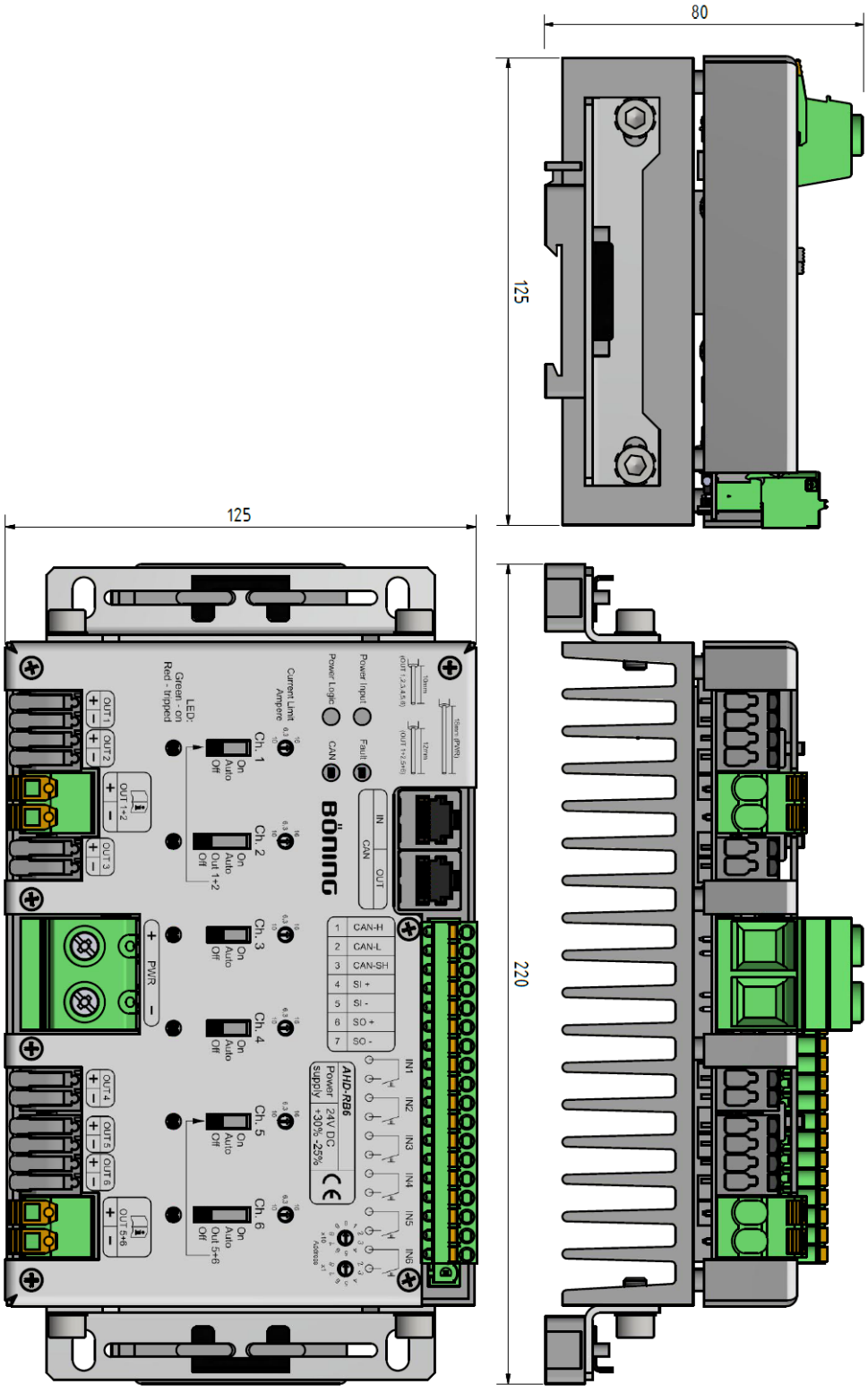
Overview:

1	Power LED for the main connection
2	LED CAN (CAN bus status)
3	LED Fault (Boot mode or internal error)
4	RJ45 interface (CAN)
5	Terminal strip (pluggable)
6	Rotary switch for the device address
7	Status LED (individual for each channel)
8	Input terminal for the power supply
9	Terminals for combined outputs (28 A)
10	Terminals for standard outputs (16 A)
11	Switch for channel status
12	Rotary switch for current limit (for each channel, see table below)
13	Power LED logic

The rotary switch for the current limit has three positions:

Pos. Rotary Switch	I max
1	10 A
2	6.3 A
3	16 A

Dimensions


80
125
125
220
BÖNING
AHD-RB6
Power supply
24V DC +30% -25%
CAN-H
CAN-L
CAN-SH
SI +
SI -
SO +
SO -
Ch. 1
Ch. 2
Ch. 3
Ch. 4
Ch. 5
Ch. 6
Current Limit Ampere
Power Logic
Power Input
CAN
Fault
LED: Green - on Red - tripped
IN
CAN
OUT
PWR
OUT 1
OUT 2
OUT 1+2
OUT 3
OUT 4
OUT 5
OUT 6
OUT 5+6
On
Auto
Off
Out 1+2
Out 5+6
IN1
IN2
IN3
IN4
IN5
IN6

Technical Data

Description	Value/Unit/Type
General Data	
Dimensions W x H x D (mm)	220 x 80 x 125
Weight	appr. 1.6kg
Environmental Data	
Operating temperature	-30°C … +70°C
Storage temperature	-50°C … +85°C
Protection class	IP 20
Electrical Data	
Power supply	24 V DC (+30%/-25%)
Current consumption (Device electronics)	max. 220 mA
Current rating	16 A per channel / 28 A per two channel
Switching voltage	= power supply
Maximum load	6 x 16 A = 96 A / 24 V DC
Connection Data	
Mounting	Module housing; mounted directly onto rail TS 35
Measurement resolution	< 50 mA
Wire cross section for output terminals	max. 4…6 mm^2
Wire cross section for main power	max. 35 mm^2
PWM Function	
Frequency for outputs in dimming mode	150 Hz