

Solid State Contactor DCS 1500 (20 A)

Data sheet



Description

The DCS 1500 is a solid state contactor, for optimized switching of loads in the DC grid.

Impressive features make the DCS 1500 interesting for any application:

- Wear-free
- Maintenance free
- No ozone formation
- Overload protected
- Short circuit protected

Typical applications:

- General load contactor
- Heating contactor (railway heaters)
- Air-conditioning contactor
- Pre-charging contactor
- and others...

Insulation characteristics

Rated voltage	V _{DC}	1500
Max. Operating voltage	V _{DC}	2000
Rated impulse voltage *	kV	6
Test voltage (EN 50124-1)	kV _{DC}	5
Clearance distance (EN 50124-1)	mm	> 40
Creepage distance (EN 50124-1)	mm	> 56
Comparative Tracking Index (CTI)	–	> 600

* Transients above 3kV are passed to the connected load
Higher rated impulse voltages are possible in combination with a surge arrester, please contact Widap

Electrical characteristics

Contact type	–	1 / NO
Rated current * (100 % ED, @45 °C)	A _{DC}	20
Max. Operating current * (50 % ED, @40 °C, max. cycle time 10 min on – 10 min off)	A _{DC}	26
Min. Operating current (for reliable load detection)	A _{DC}	2
Voltage drop (@ rated current)	V _{DC}	< 2.5
Power loss (@ rated current)	W	< 50
Permissible load inductance	mH	5

* See derating

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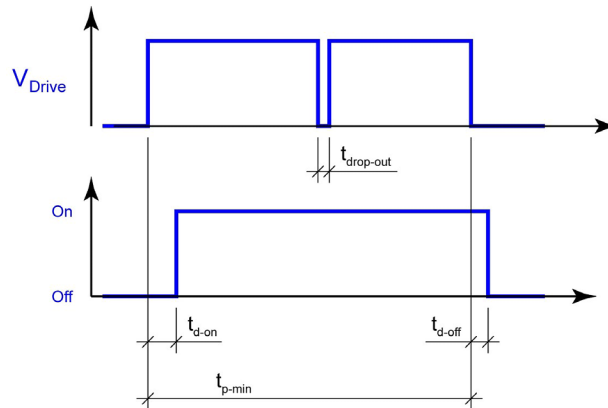
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Time characteristics

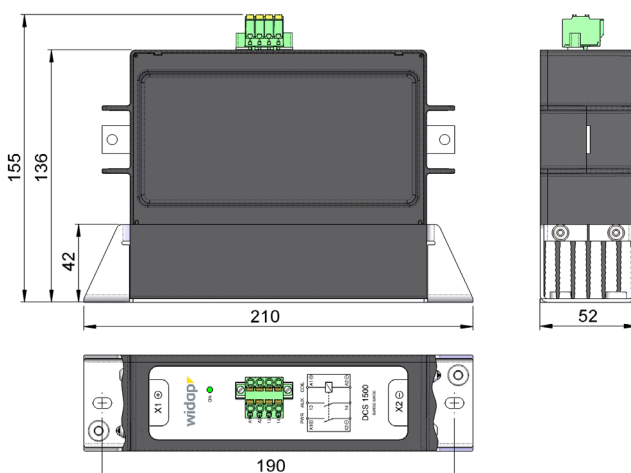
Turn on delay (t_{d-on})	ms	< 70
Turn off delay (t_{d-off}) (basic delay)	ms	< 60
Min. pulse width (t_{p-min})	ms	> 500
Voltage drop-out ($t_{drop-out}$) (EN 50155, Class S2)	ms	≤ 10



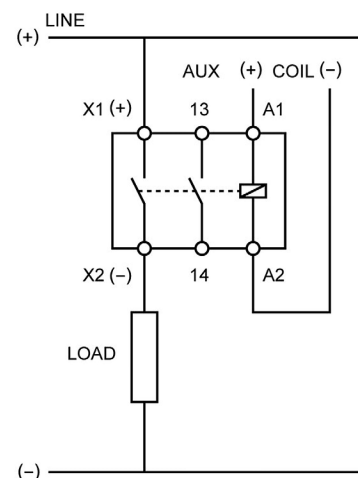
Mechanical characteristics

Protection degree main connections (EN 60529)	–	IP00
Protection degree housing (EN 60529)	–	IP40
Fire protection (EN 45545-2)	–	R22/HL2, R23/HL2
Mechanical endurance (@ rated load) (IEC 60077-2, Cat. A1)	Cycles	> 1 Mio.
Mechanical endurance (@ load free) (IEC 60077-2, Cat. C3)	Cycles	> 10 Mio.
Shock/Vibration (IEC 61373)	–	Cat. 1/Class B
Weight	kg	1.2

Dimension drawing



Circuit diagram



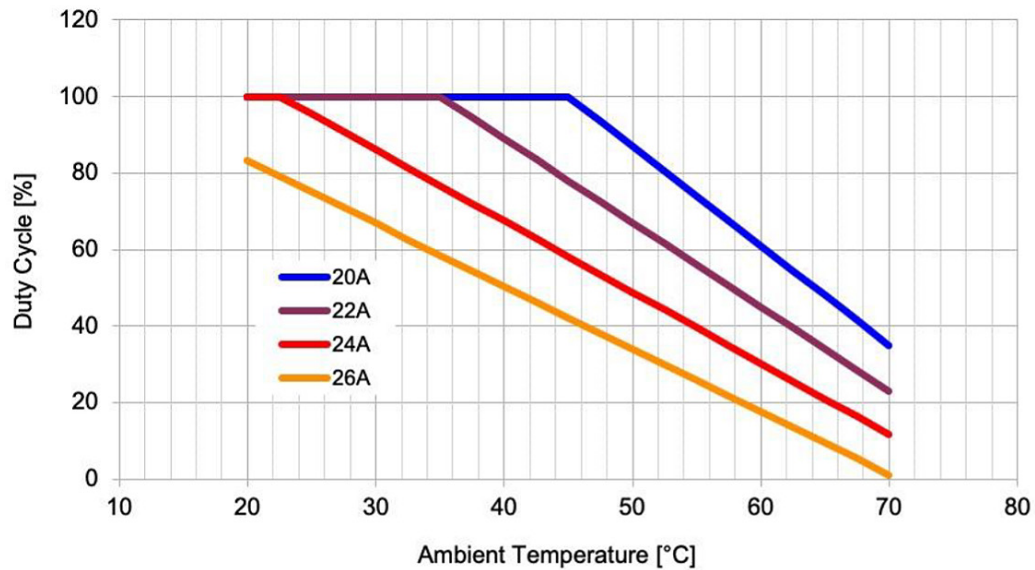
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Derating



Steuerkreis

Control voltage (EN 50155, -30 % / +25 %)	V_{DC}	24 ÷ 110
Control current (@ 24 V_{DC})	mA_{DC}	< 100
Control current (@ 110 V_{DC})	mA_{DC}	< 25

Hilfskontakt

Contact type	–	1 / NO
Max. Operating voltage (AC/DC)*	V	60
Max. Operating current (AC/DC)*	A	1

* Both AC and DC operation possible. For AC operation, the specifications correspond to the peak values.

Environmental conditions

Stock temperature range	°C	-40 ÷ +80
Operational temperature range (EN 50155, Class TX)	°C	-40 ÷ +70
Overvoltage category (EN 50124-1)	–	OV3
Pollution Degree (EN 50124-1)	–	PD3
Air humidity	%	< 95
Operating altitude (without derating)	m	2000
Ventilation	–	Natural convection

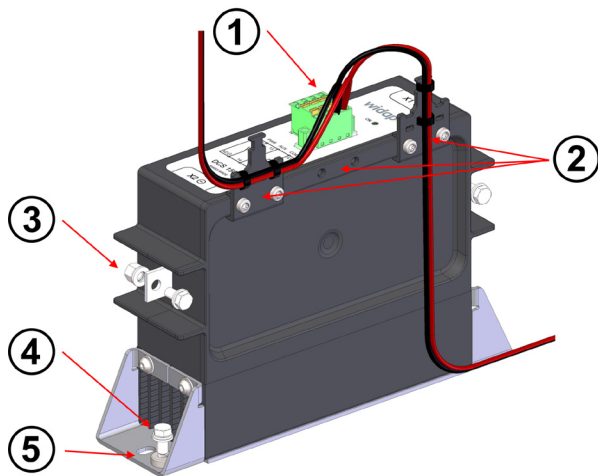
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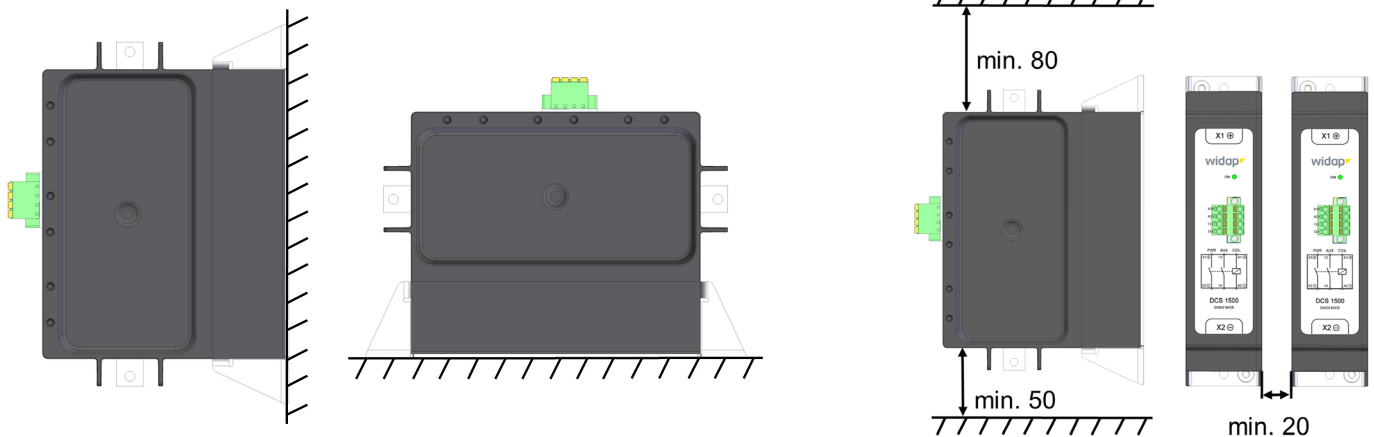


Connection



- 1 Connector for control voltage / auxiliary contact (max. 2x2.5 mm²)
- 2 Cable strain relief (included in delivery)
Tightening torque: 3 Nm
- 3 Load connection (2xM5)
Tightening torque: 6.5 Nm
- 4 Ground connection (2xM5)
Tightening torque: 6.5 Nm
- 5 Oblong hole for fixation (2xM5)

Mounting position & distances



Reference Standards

EN 45545-2	EN 45545-2 Issue: 2021	Railway applications – Fire protection on railway vehicles – Part 2: requirements for fire behavior of materials and components
EN 50121-3-2	EN 50121-3-2 Issue: 2016	Railway applications – Electromagnetic compatibility – Part 3-2: rolling stock – Apparatus
EN 50124-1	EN 50124-1 Issue: 2017	Railway applications – Insulation coordination – Part 1: basic requirements – Clearances and creepage distances for all electrical and electronic equipment
EN 50155	EN 50155 Issue: 2017	Railway applications – Rolling stock – Electronic equipment
EN 50163	EN 50163 Issue: 2004	Railway applications – Supply voltages of traction systems
IEC 60077-1	IEC 60077-1 Issue: 2017	Railway applications – Electric equipment for rolling stock – Part 1: General service conditions and general rules
IEC 60077-2	IEC 60077-2 Issue: 2017	Railway applications – Electric equipment for rolling stock – Part 2: Electrotechnical components – General rules
IEC 61373	IEC 61373 Issue: 2010	Railway applications – Rolling stock equipment – Shock and vibration tests

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