

# DC-Combiner Boxes Series MSB



**PCE** **M** **MERZ**

*switch to Quality!*

# BENEFITS

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DC combiner box for photovoltaic applications



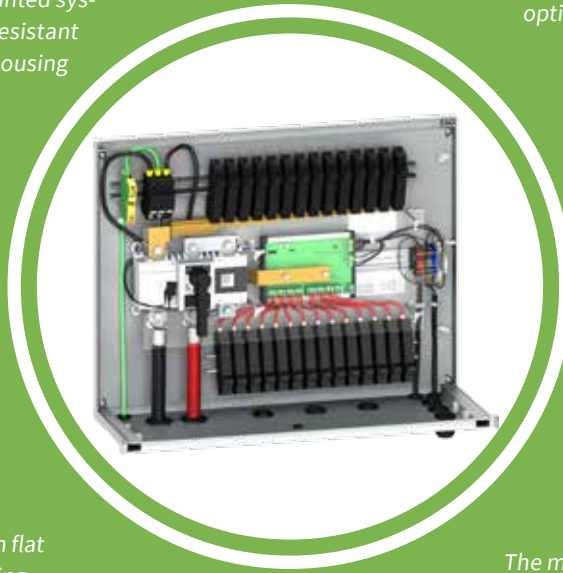
High-quality glass fiber reinforced plastic enclosures for rooftop and ground-mounted systems UV and weather resistant - optionally in metal housing



Standard versions from 5 to 24 strings, optionally with monitoring .



Overvoltage protection devices SPD Type 2, or type 1/2



Project-specific solutions, here using the example of 14 strings, further solutions available on request at any time.



Up to 3 tinned busbars with flat connection without settling movement for heat reduction.



The maintenance-free 400A DC switch-disconnector has a high thermal reserve.



Easy to connect, all connections in the cable run guarantee optimal connections, UV-resistant black screw connections

# COMPONENTS

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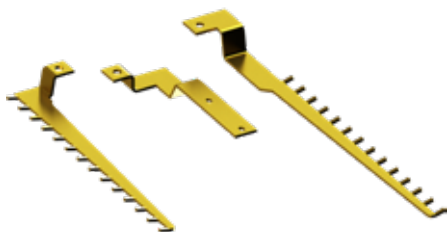
Glass fiber reinforced polyester housing  
double lockable



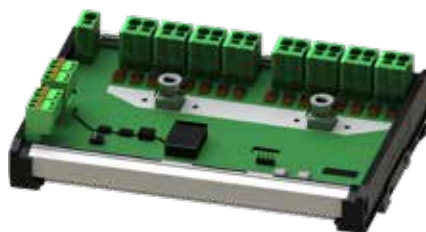
Switch-disconnector  
400A



Inclined PV fuse holders enable a  
simplified connection



Copper rails



Monitoring - Current control



Contact protection with wing nuts and  
spacers



MC4 EVO 2 plug / socket  
UV-resistant black



Sunclix plug / socket  
UV-resistant black



Single / multiple screw connections  
UV-resistant black



Pressure equalization membrane  
UV-resistant black



SPD Type 2 / 1-2 surge protection



SPD for monitoring + terminal block

# SPECIFICATIONS

- The MERZ DC combiner boxes have been developed for use with rooftop and ground-mounted systems and are designed for use between PV modules and inverters.
- Equipped with load-break switches, fuse holders, fuse inserts, overvoltage protection and monitoring, they offer the option of connecting 5 to 24 strings.
- The individual strings are brought together at the string fuse outlets via busbars and connected in parallel via a DC load-break switch in parallel.
- Particularly suitable for outdoor use for systems up to max. 1500V DC.

		from	to
<b>Electrical data</b>			
Number of strings (+/-)		5	24
Rated operating voltage $U_e$	Vdc	1500	1500
Max. Operating current per line and version (input / output)	A	10,0	20,4
<b>Overvoltage protection device (SPD) type 2 (optional type 1/2)</b>			
SPD according to EN 50539-11 2013		Typ 2	
Protection level $U_p$	kA	≤ 5	
Total leakage impulse current (8/20 μs) ( $I_{total}$ )	kA	30	
<b>DC switch-disconnector</b>			
Model		DC switch-disconnector(400A)	
Rated operational voltage $U_e$	V	1500	
Rated operational current $I_e$	A	400	
<b>Connection data</b>			
<b>Input / output variant MC4 EVO 2</b>		Stäubli MC4-EVO 2 / 2,5 - 6 mm <sup>2</sup>	
<b>Input / output variant Sunclix</b>		Sunclix / 2,5 - 6 mm <sup>2</sup>	
<b>Input / output variant Single / multiple screw connections</b>		MFD 5-7 mm / 4-6 mm <sup>2</sup>	
Abisolierlänge	mm	14	
<b>Grounding</b>			
Stripping length	mm	PE conductor terminal block	
Cable glands	M25 / Clamping range mm	9	16
<b>Fuse</b>			
Fuses on the plus and minus side		15A / 20A / 25A / 32A	
Rated fuse current $I_n$		>1,5 x $I_{sc\_MOD}$ and (IEC 60364-7-712)	
<b>Enclosure</b>			
Material		lass fiber reinforced plastic enclosures	
Degree of protection		IP 66	
Impact resistance		IK 10	
Protection class		II	
<b>Operating conditions</b>			
Installation sites		Rooftop and ground-mounted systems	
Ambient temperature		-25°C - +55°C	
<b>Norms</b>			
Norm		61439-2	

# GENERATOR COMBINER BOX DESIGN WITH / WITHOUT MONITORING

Generator combiner boxes, ready for connection using the example of 14 strings



MSB-1141-20-1500-  
VFD-01-E-HI  
Single screw connections

MSB-1141-20-1500-  
WFD-01-E-HI  
Multiple screw connections

MSB-1141-20-1500-  
MFD-01-E-HI  
MC4 EVO2

MSB-1141-20-1500-  
SFD-01-E-HI  
Sunclix



MSB-1141-20-1500-  
VFD-01  
Single screw connections

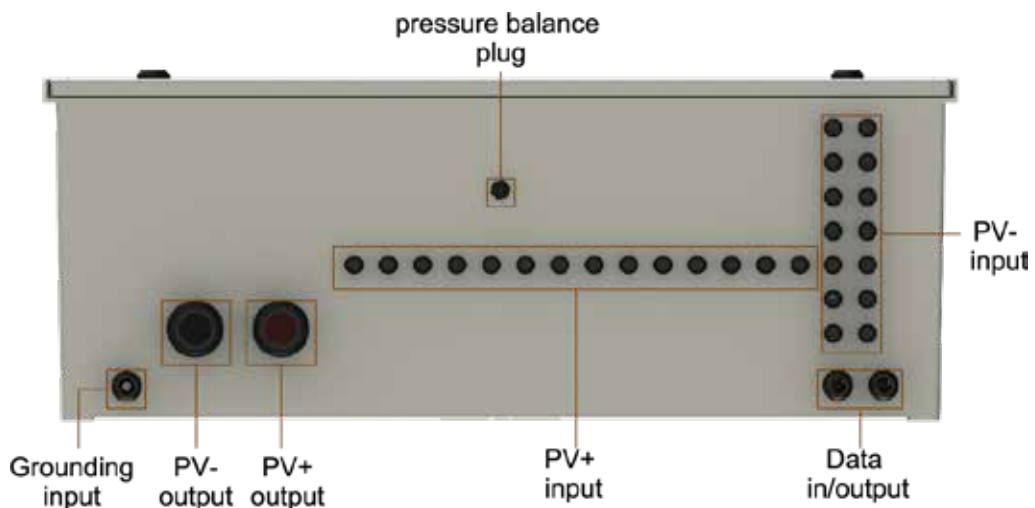
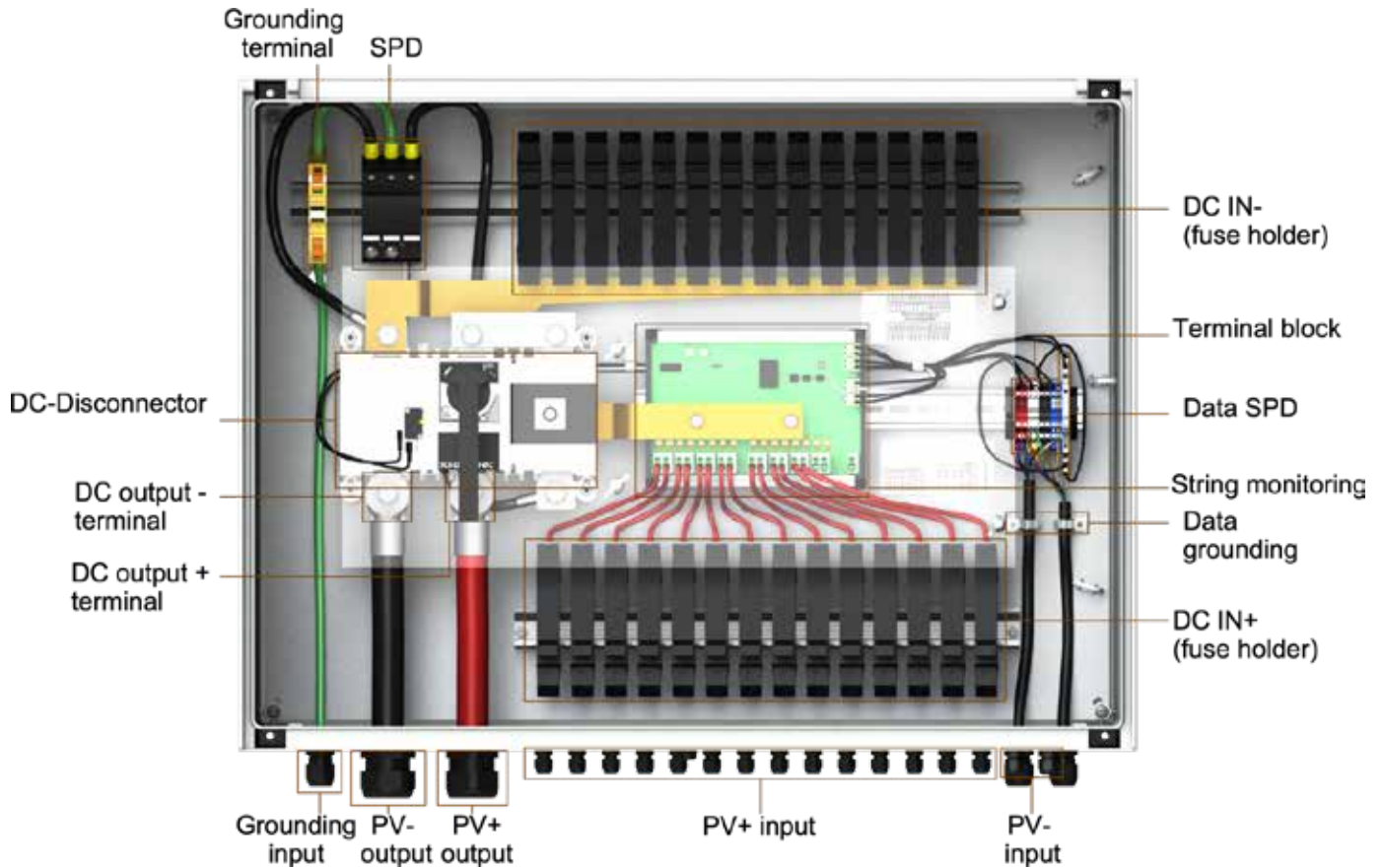
MSB-1141-20-1500-  
WFD-01  
Multiple screw connections

MSB-1141-20-1500-  
MFD-01  
MC4 EVO2

MSB-1141-20-1500-  
SFD-01  
Sunclix

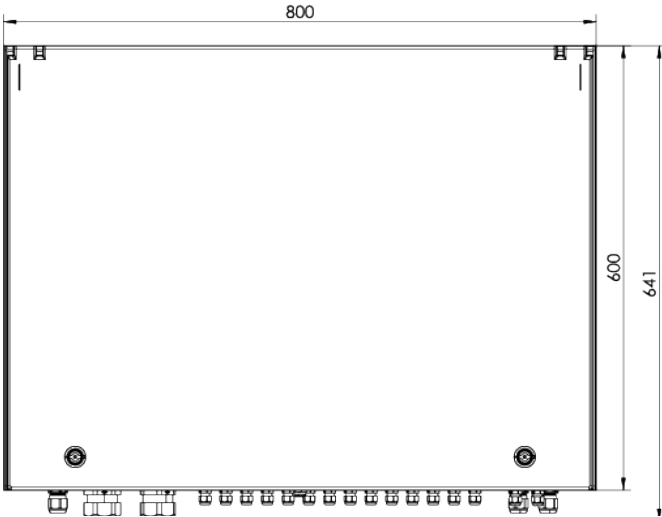
# MSB-1141-20-1500-VFD-01-E-HI

Ready-to-connect combiner box for PV systems - 14 strings, 1500 VDC  
 incl. DC load-break switch (400A), overvoltage protection (SPD type 2), monitoring,  
**single screw connections**, PV fuses and remote signaling contact (HI).

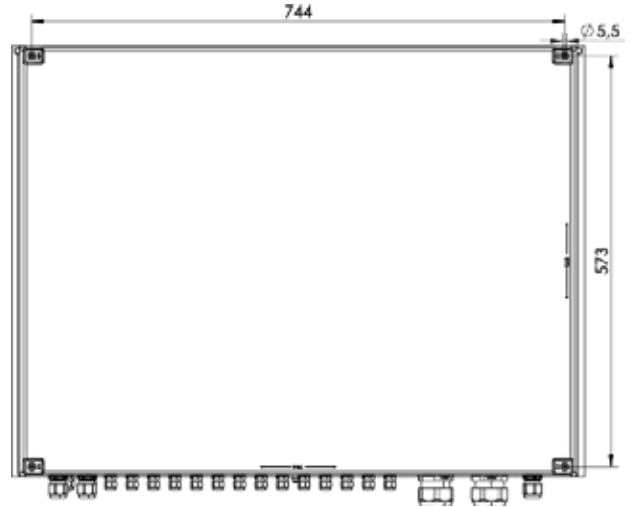


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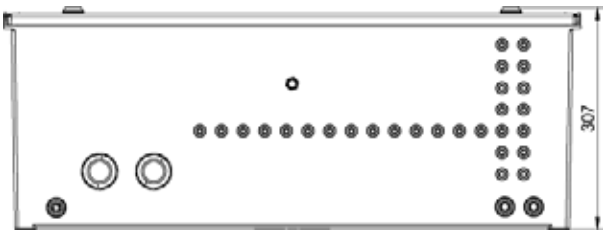
Front view



Rear view



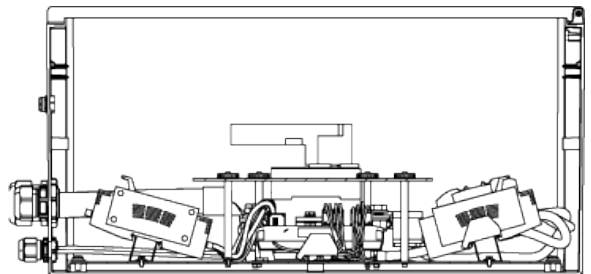
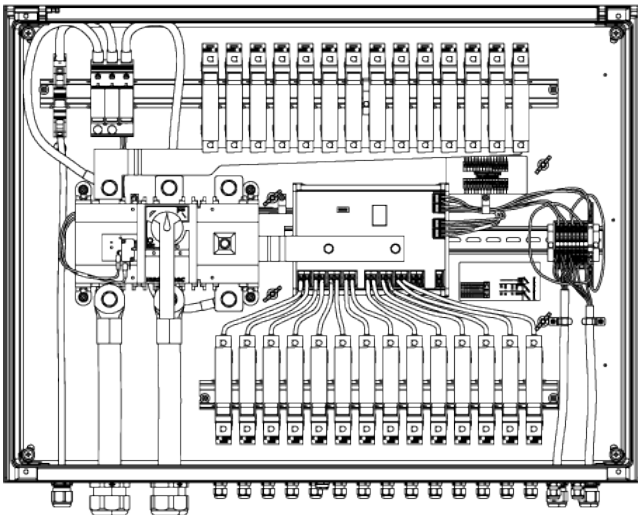
Connections



Side view

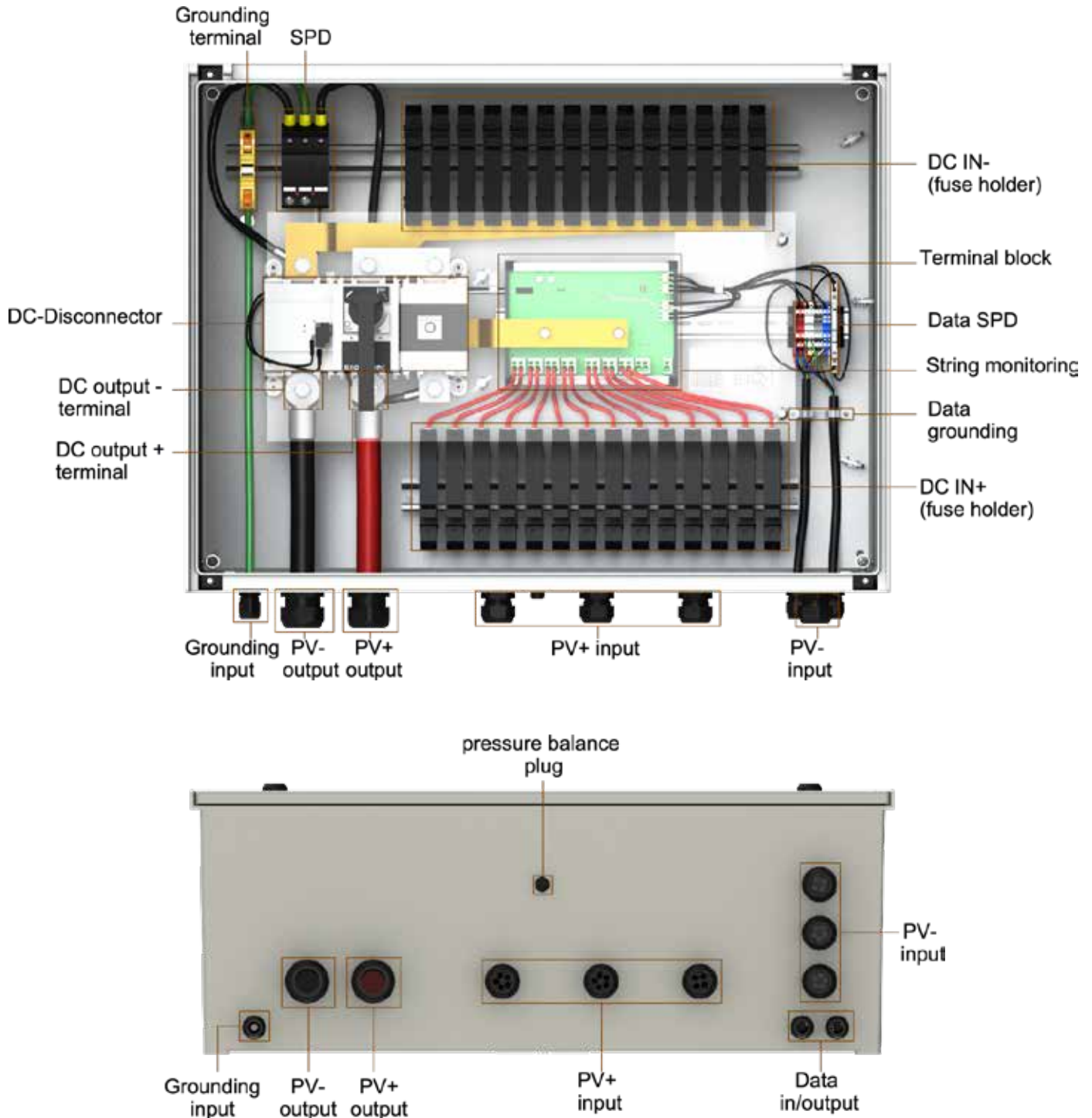


Wiring



# MSB-1141-20-1500-WFD-01-E-HI

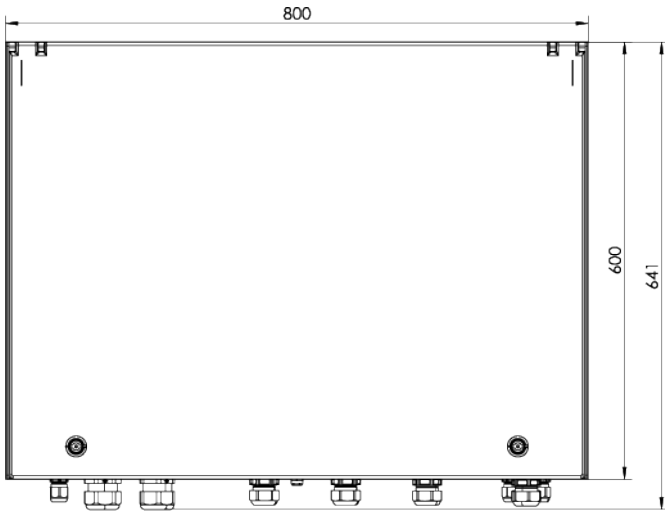
Ready-to-connect combiner box for PV systems - 14 strings, 1500 VDC  
incl. DC load-break switch (400A), overvoltage protection (SPD type 2), monitoring,  
**multi screw connections**, PV fuses and remote signaling contact (HI).



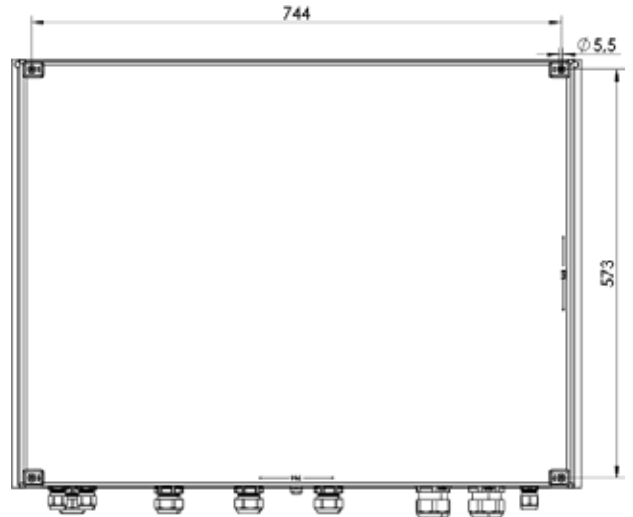


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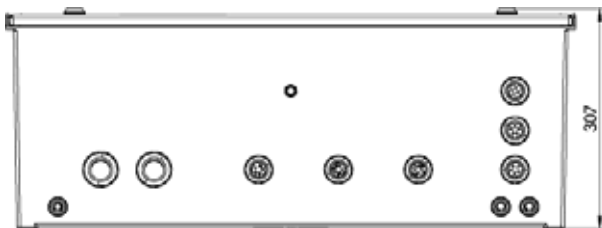
Front view



Rear view



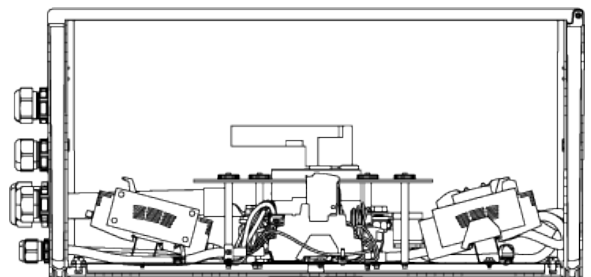
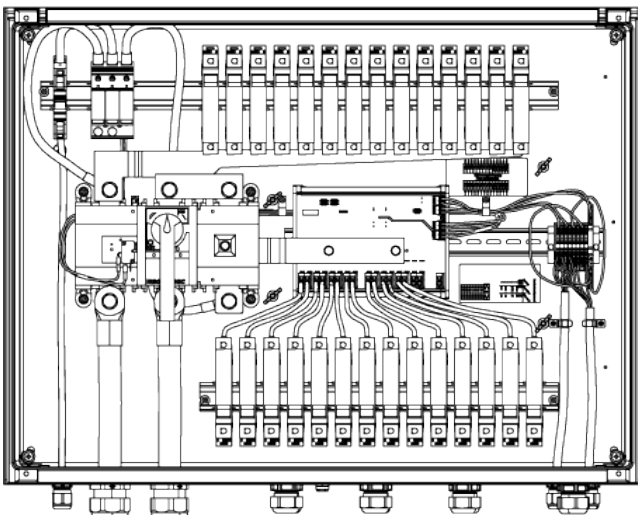
Connections



Side view

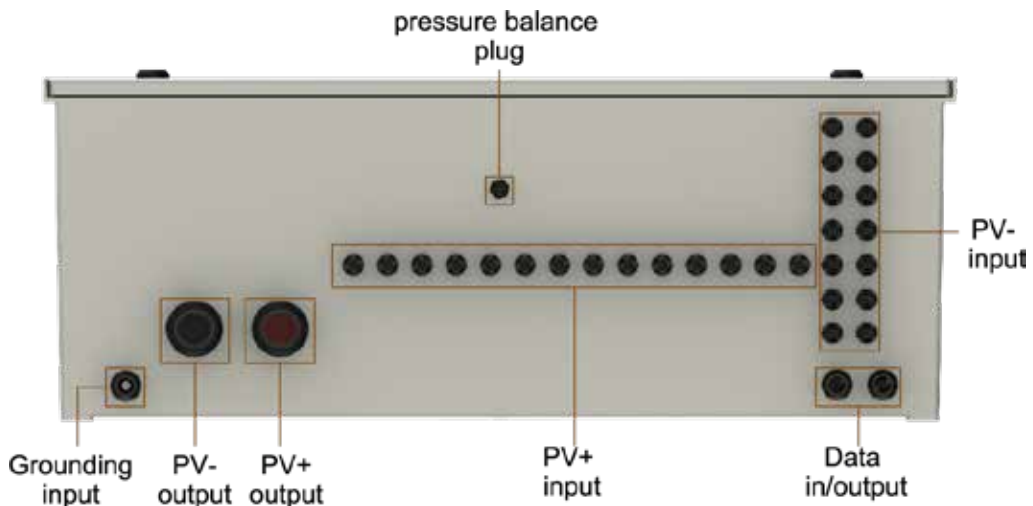
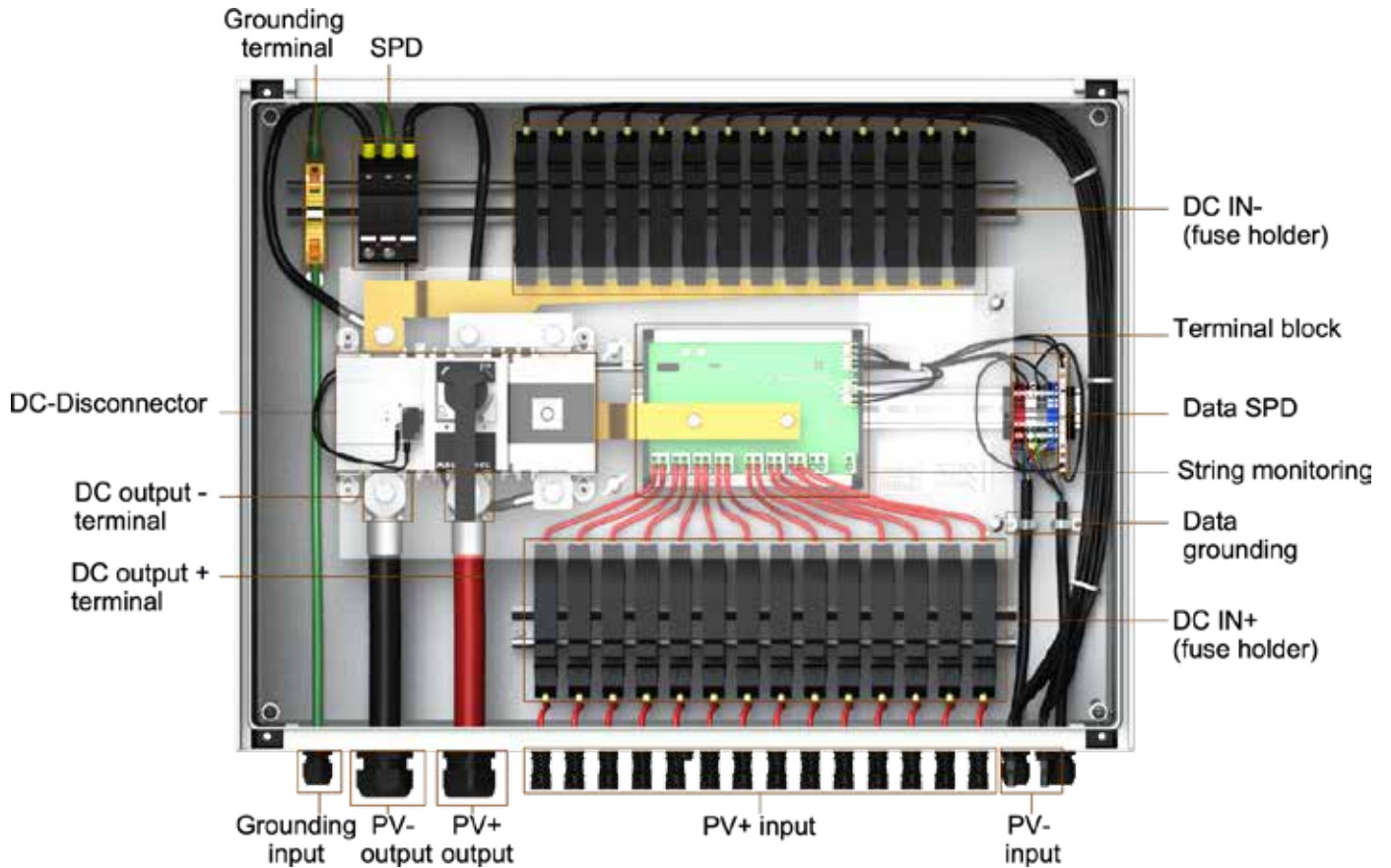


Wiring



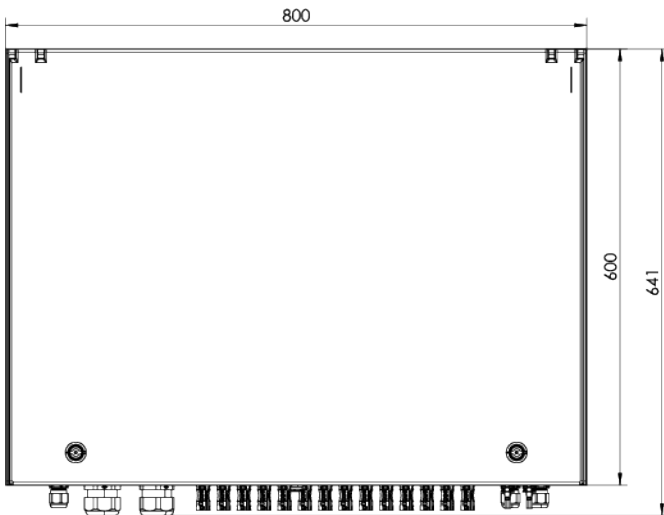
# MSB-1141-20-1500-MFD-01-E-HI

Ready-to-connect combiner box for PV systems - 14 strings, 1500 VDC  
 incl. DC load-break switch (400A), overvoltage protection (SPD type 2), monitoring,  
**MC4 EVO2-plugs**, PV fuses and remote signaling contact (HI).

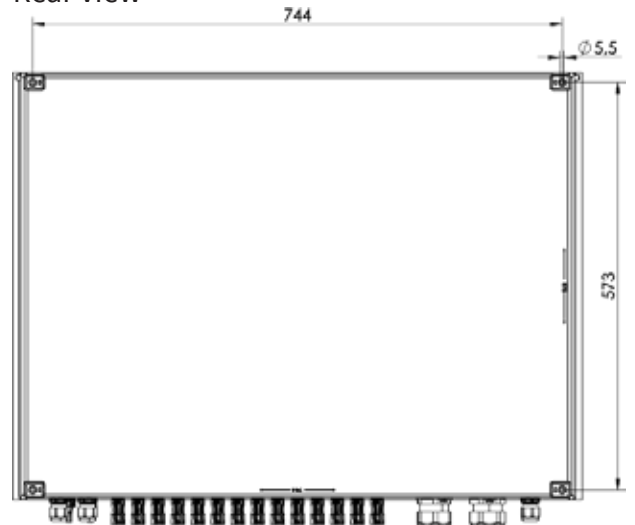


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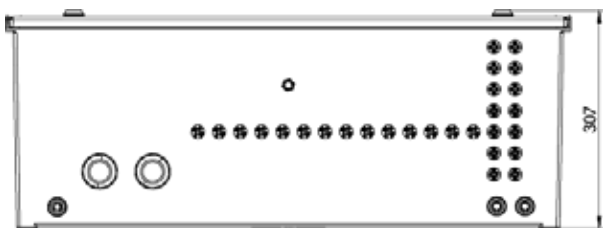
Front view



Rear view



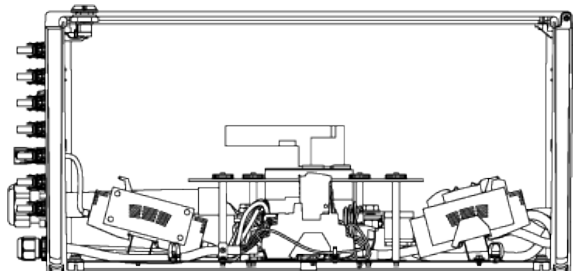
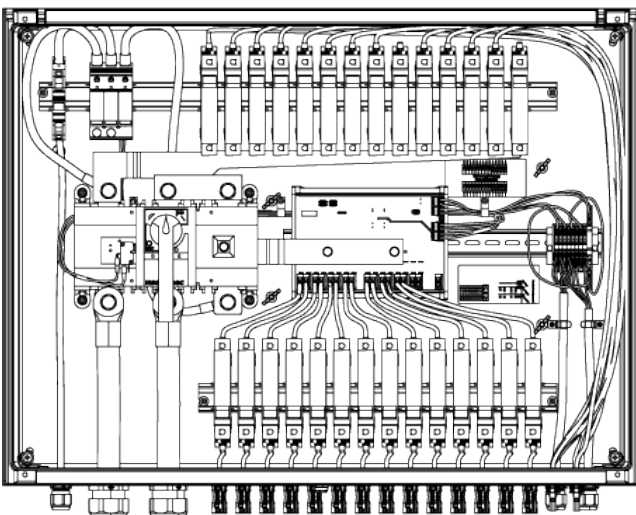
Connections



Side view

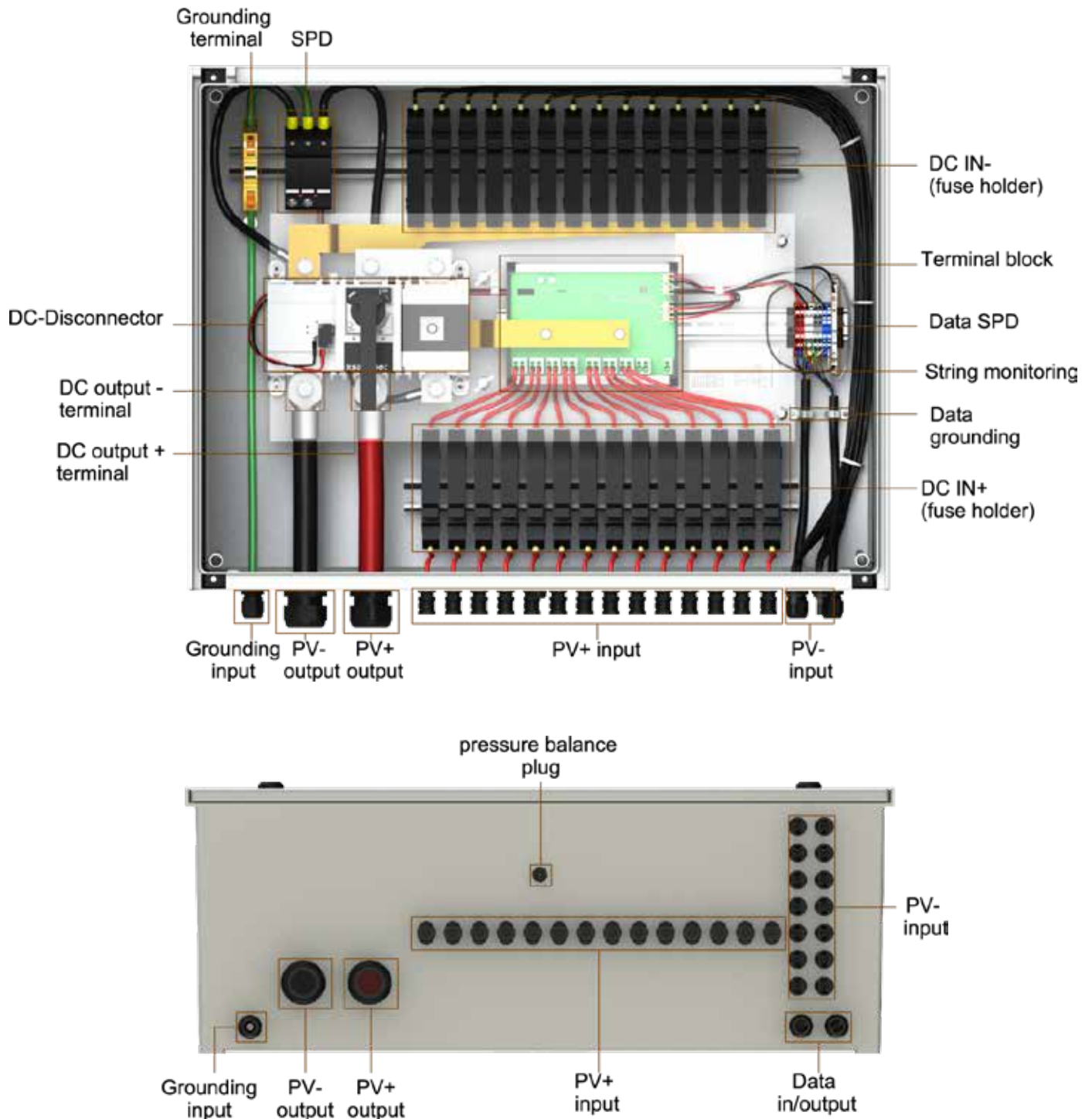


Wiring



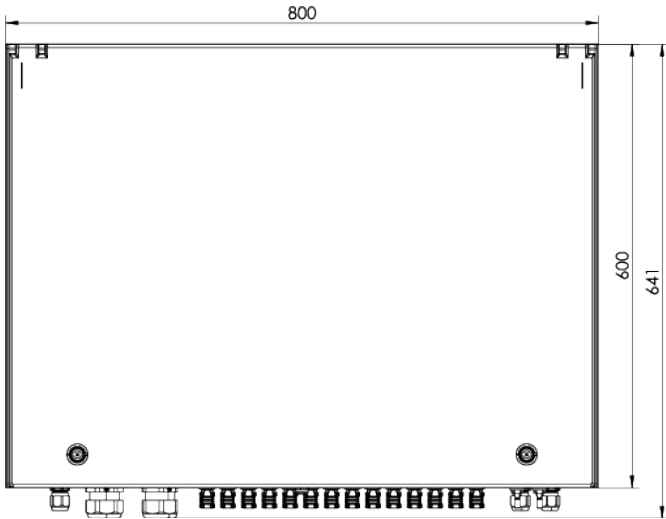
# MSB-1141-20-1500-SFD-01-E-HI

Ready-to-connect combiner box for PV systems - 14 strings, 1500 VDC  
incl. DC load-break switch (400A), overvoltage protection (SPD type 2), monitoring,  
**Sunclix-plugs**, PV fuses and remote signaling contact (HI).

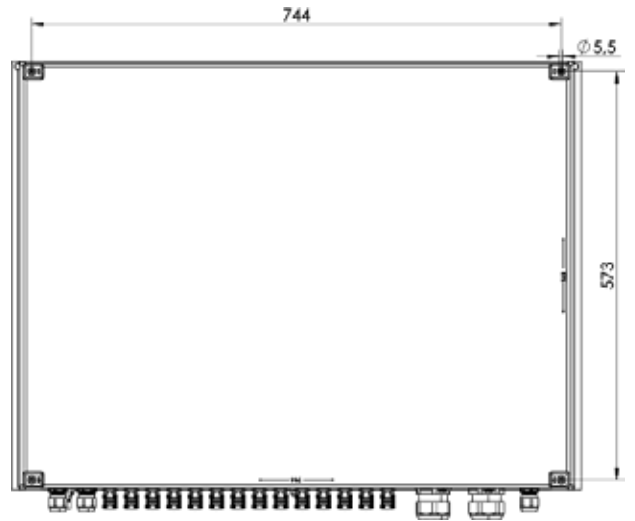


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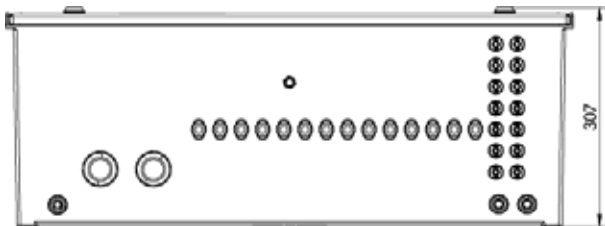
Front view



Rear view



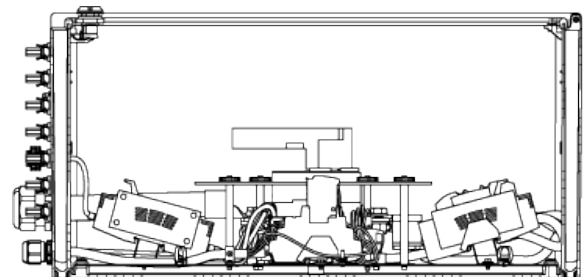
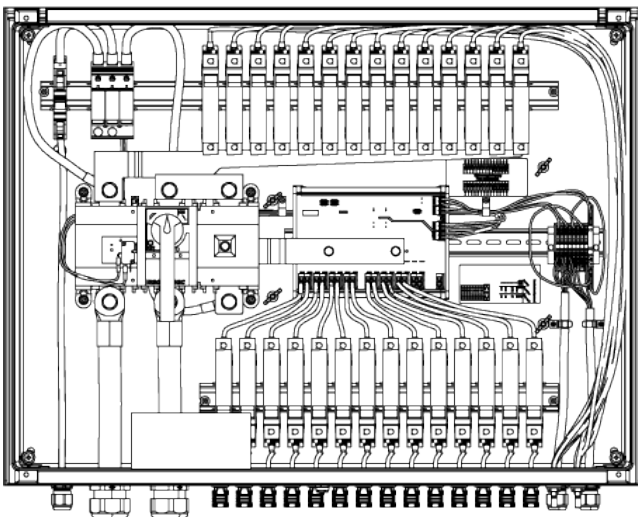
Connections



Side view

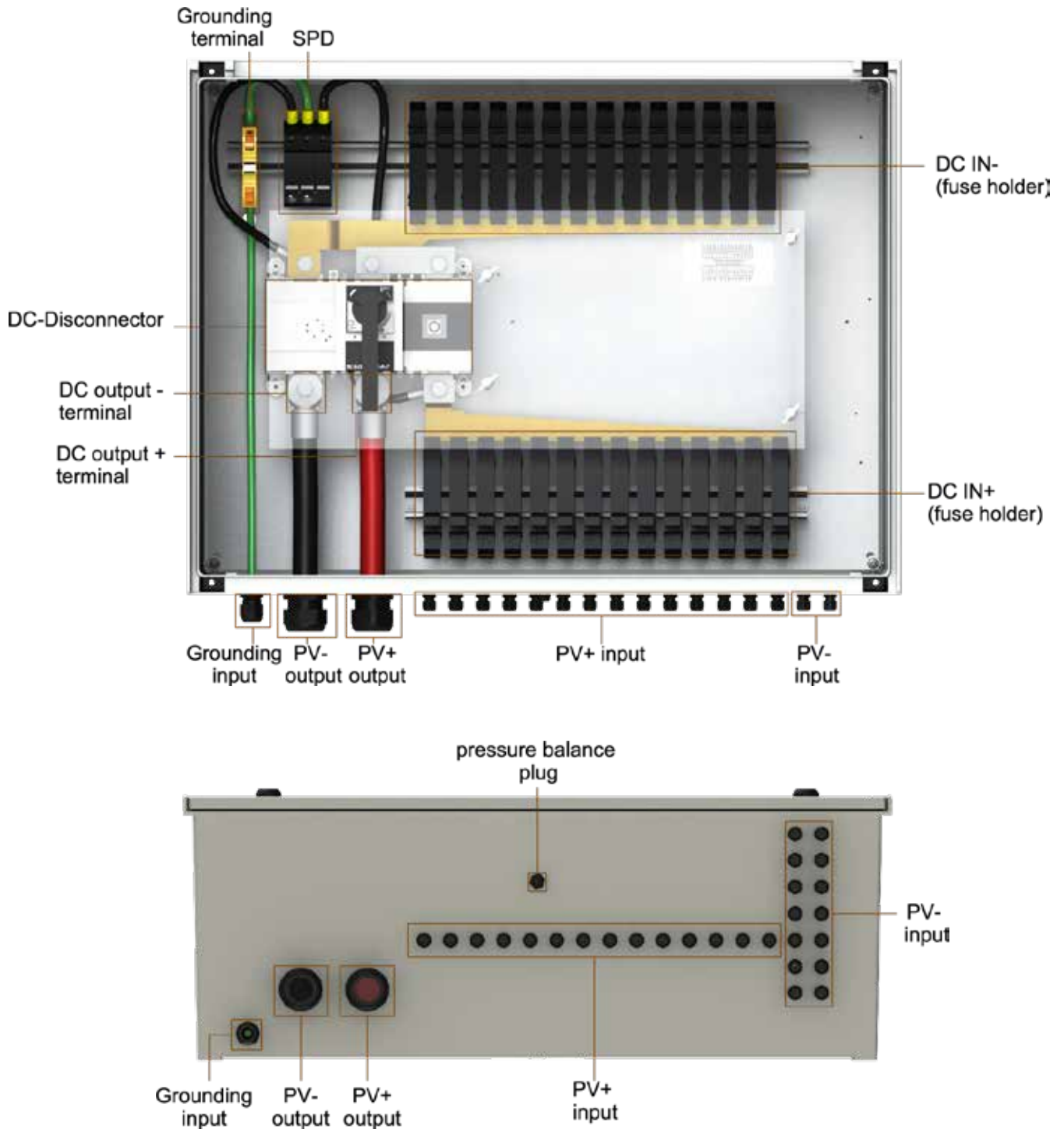


Wiring



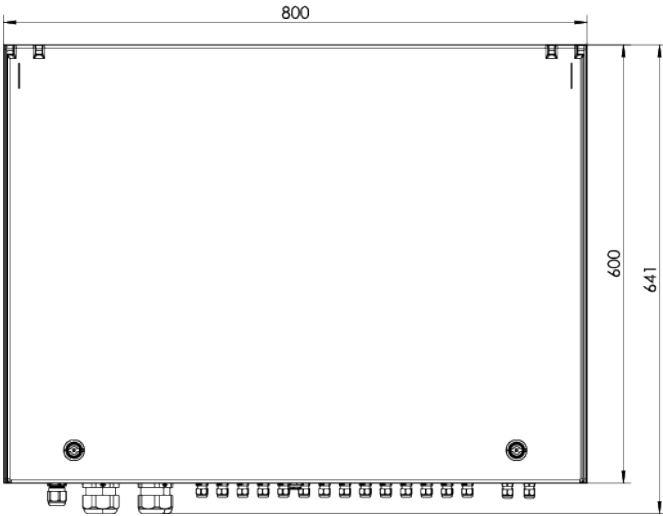
# MSB-1141-20-1500-VFD-01

Ready-to-connect combiner box for PV systems - 14 strings, 1500 VDC  
incl. DC load-break switch (400A), overvoltage protection (SPD type 2),  
**single screw connections**, PV fuses.

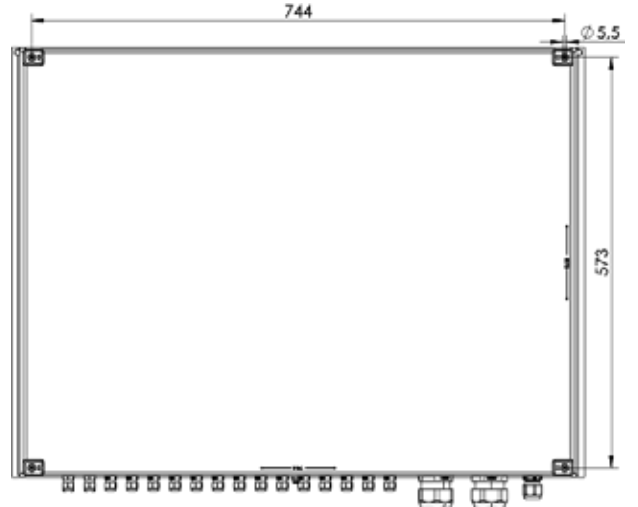


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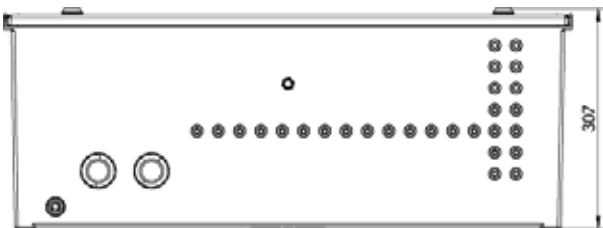
Front view



Rear view



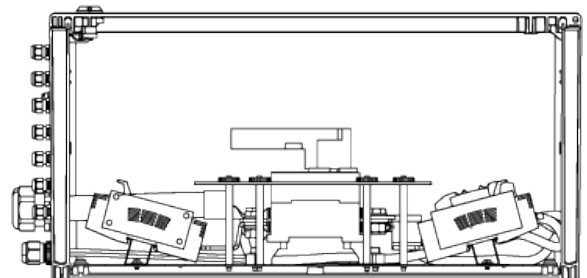
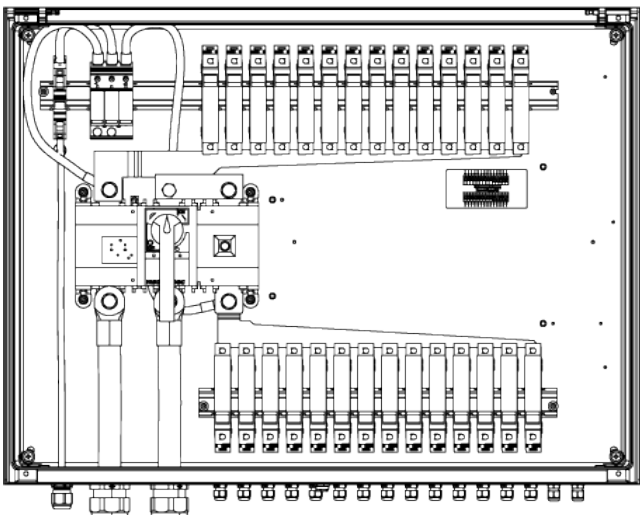
Connections



Side view

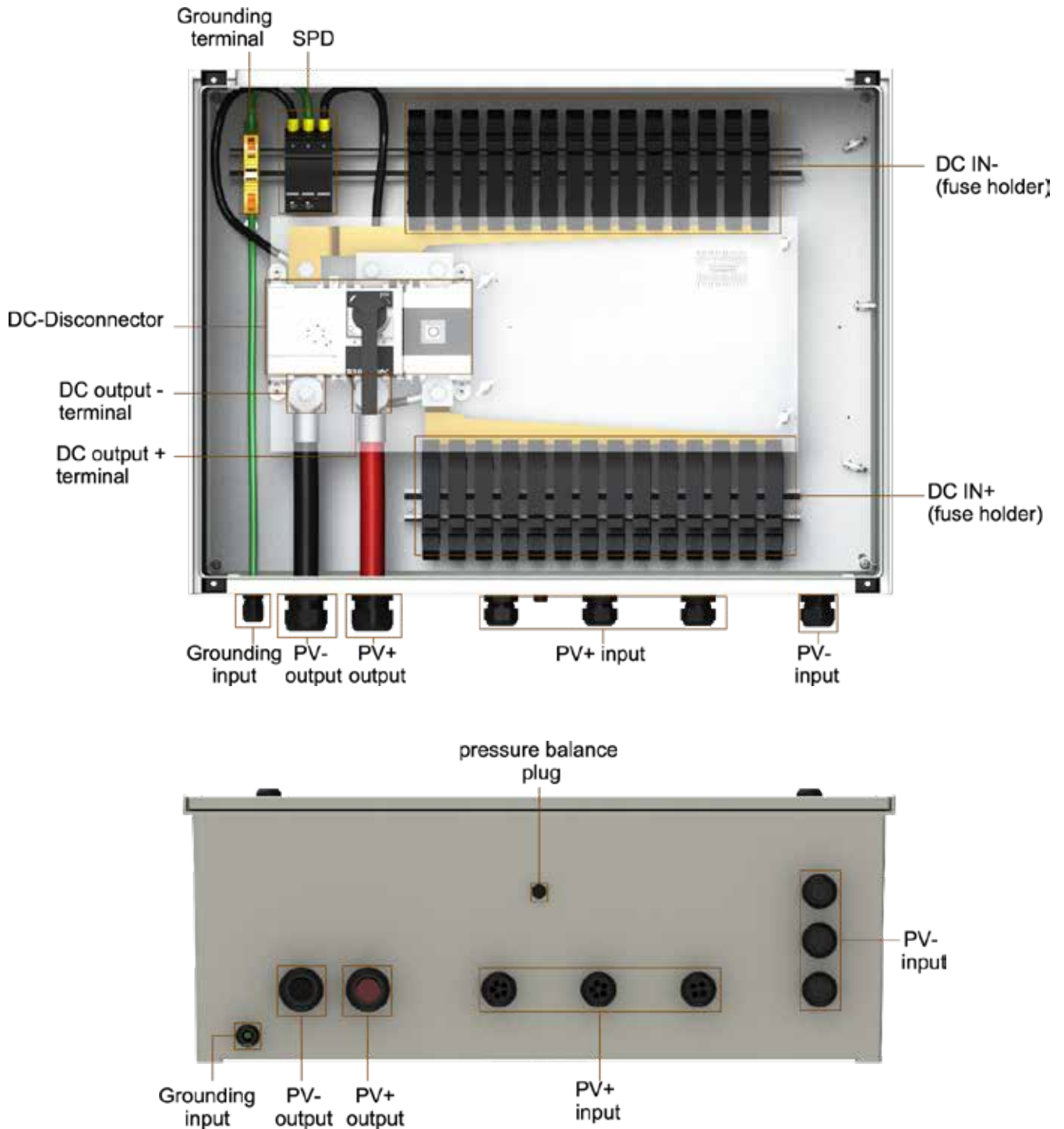


Wiring



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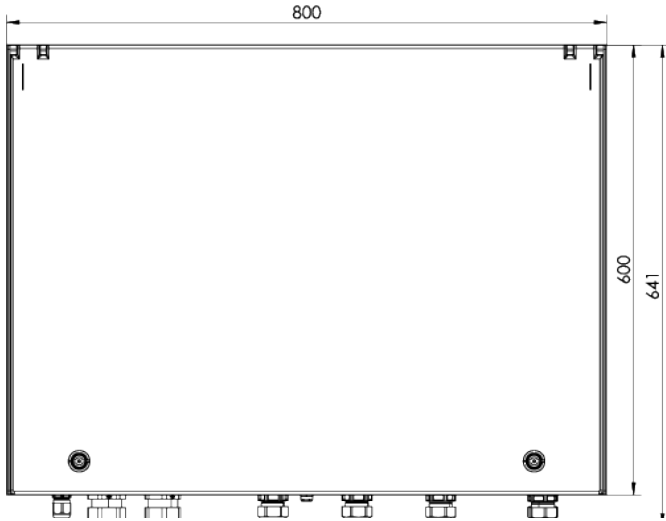
Ready-to-connect combiner box for PV systems - 14 strings, 1500 VDC  
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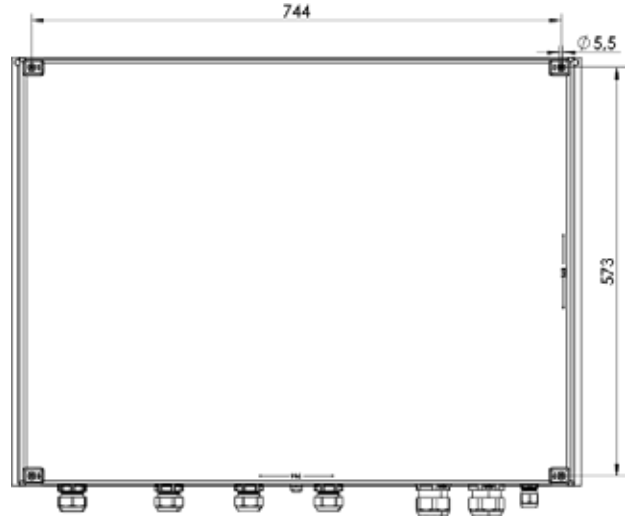


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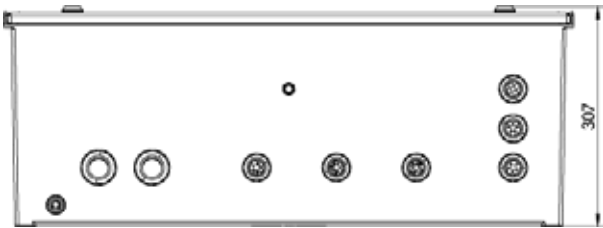
Front view



Rear view



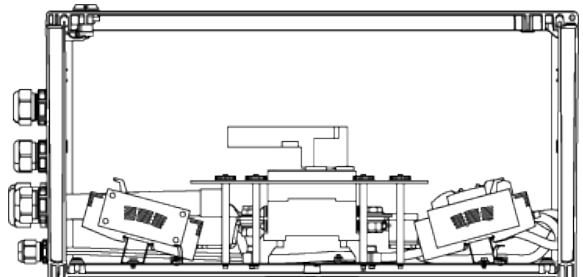
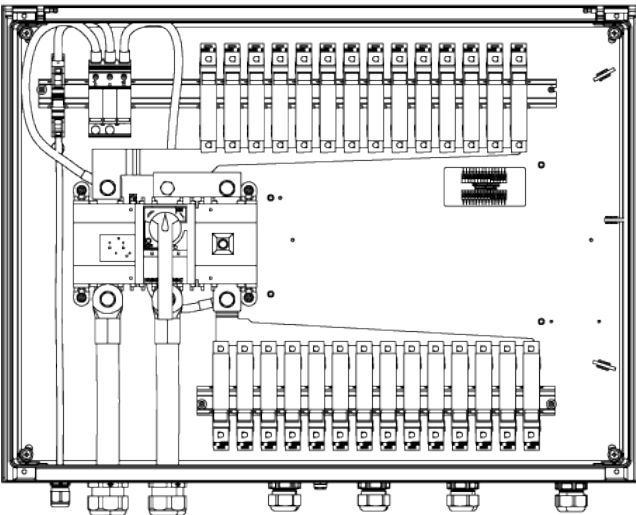
Connections



Side view

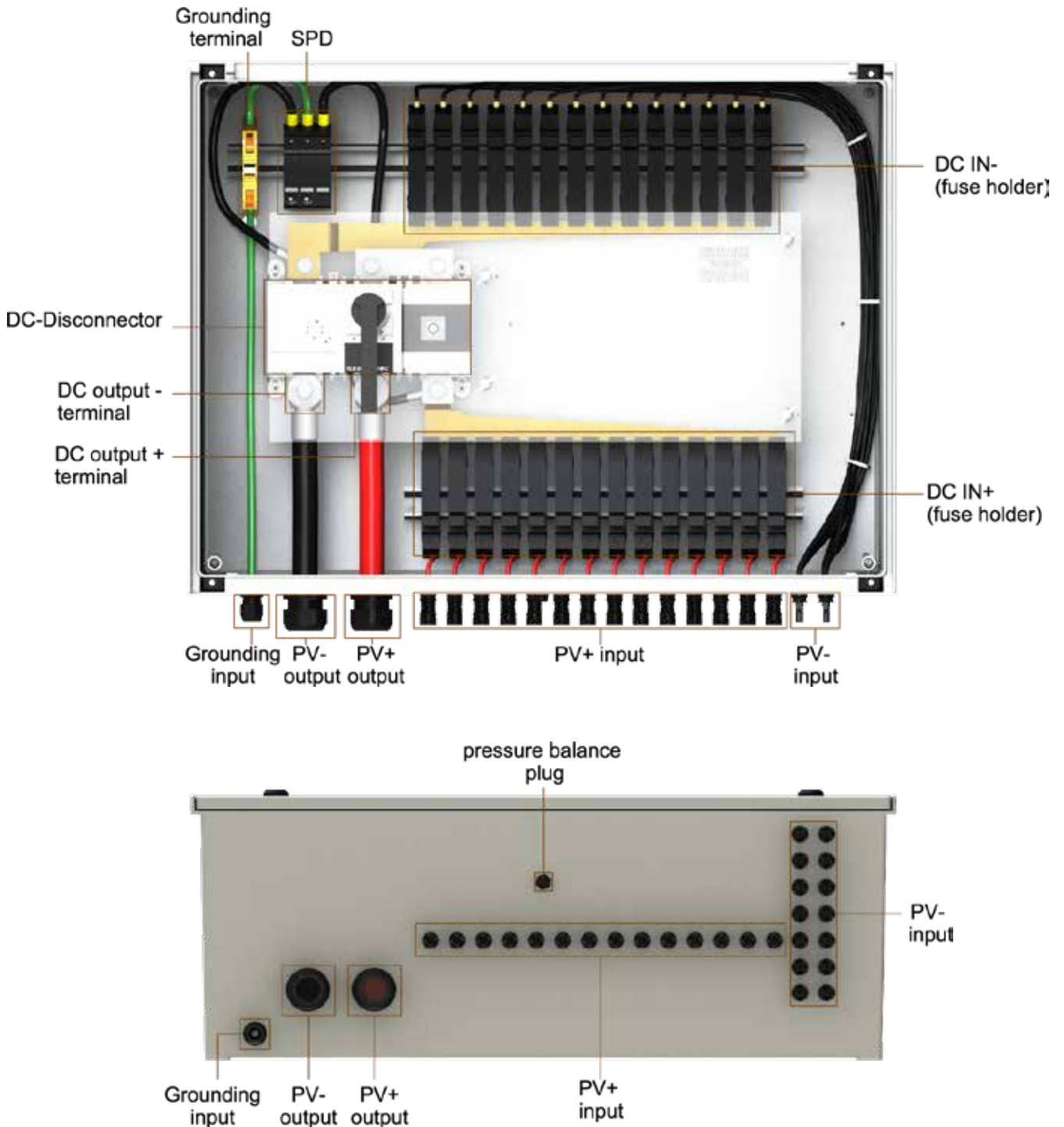


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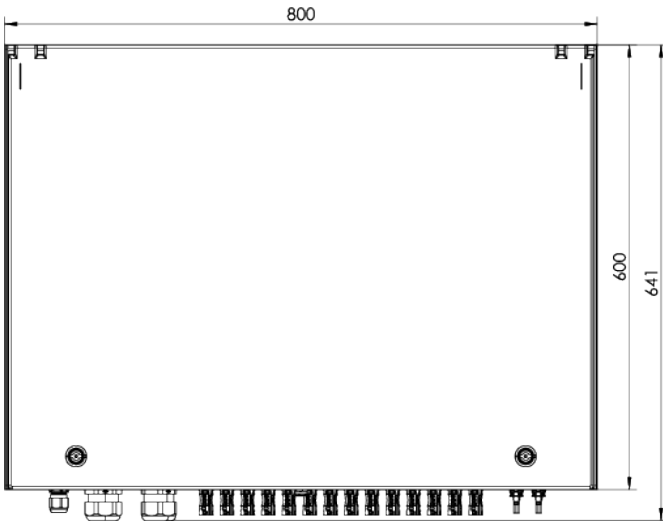
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Ready-to-connect combiner box for PV systems - 14 strings, 1500 VDC  
incl. DC load-break switch (400A), overvoltage protection (SPD type 2),  
**MC4 EVO2-plugs**, PV fuses.

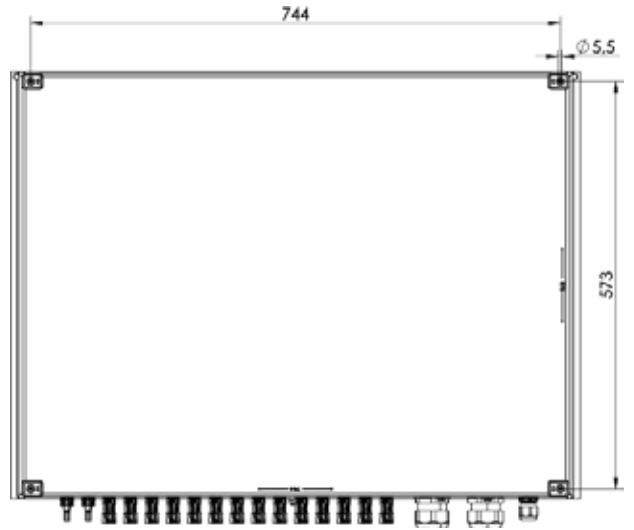


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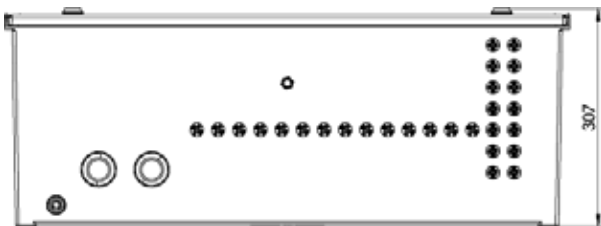
Front view



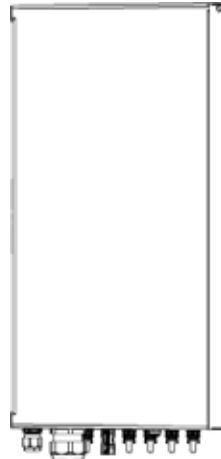
Rear view



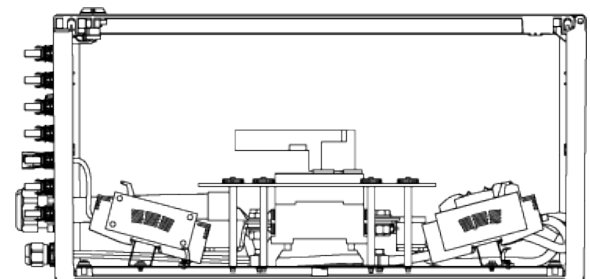
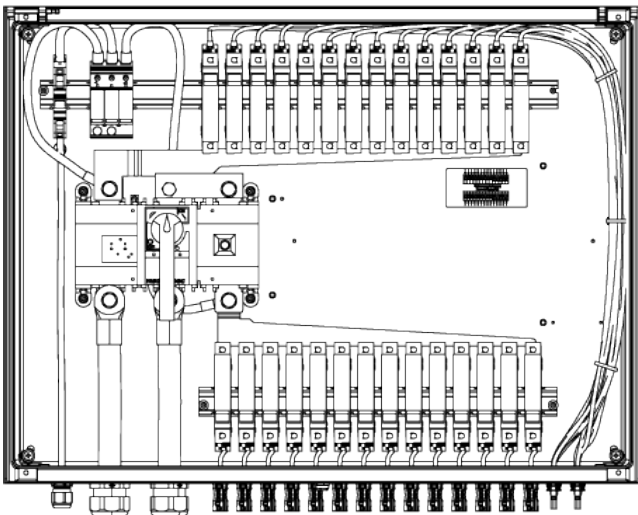
Connections



Side view

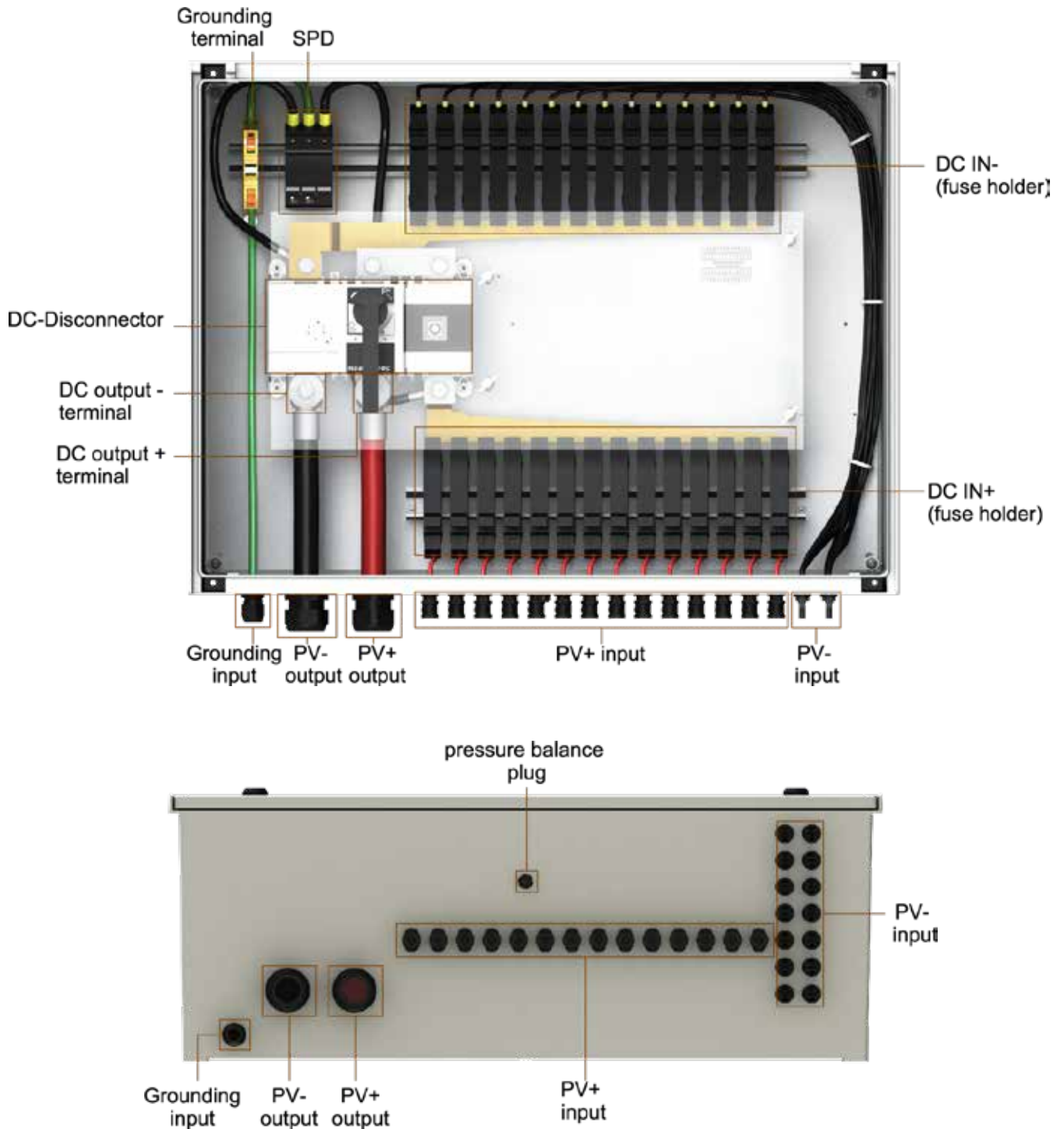


Wiring



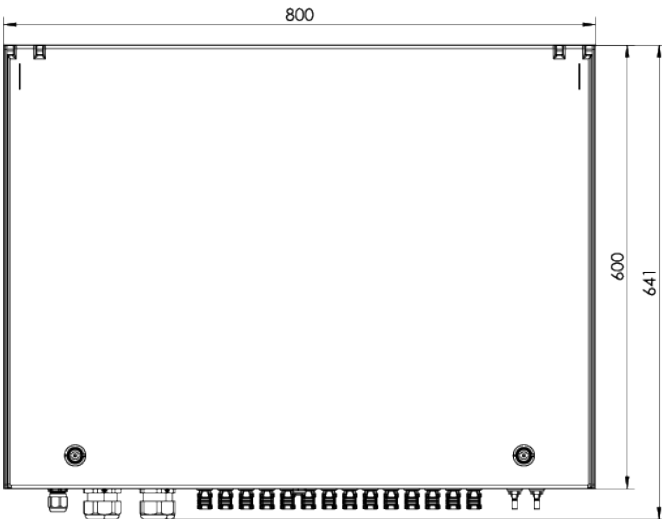
# MSB-1141-20-1500-SFD-01

Ready-to-connect combiner box for PV systems - 14 strings, 1500 VDC  
incl. DC load-break switch (400A), overvoltage protection (SPD type 2),  
**Sunclix plugs**, PV fuses.

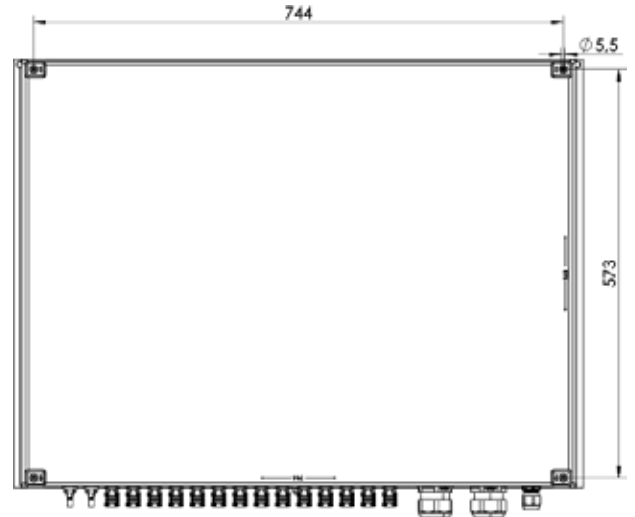


# DIMENSIONS

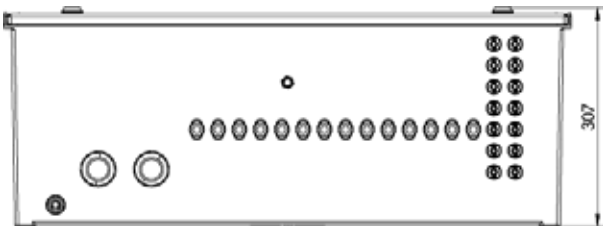
Front view



Rear view



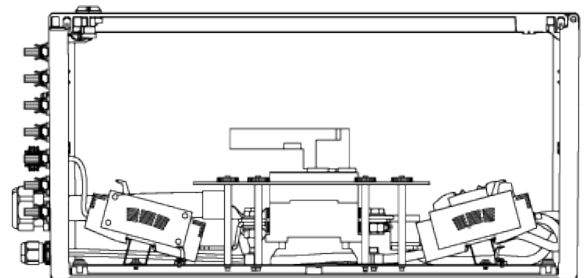
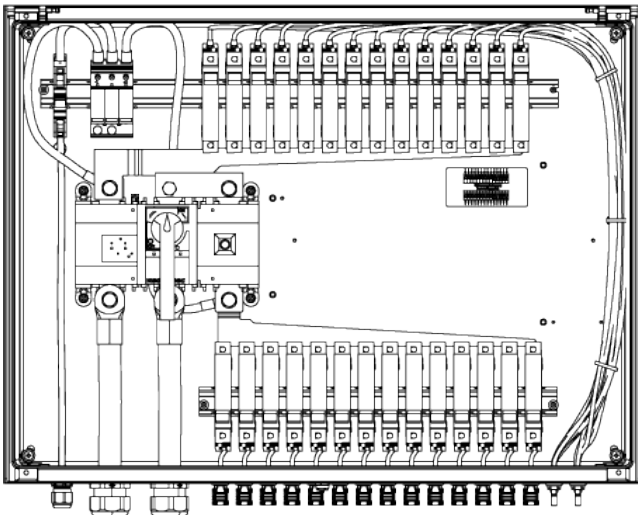
Connections



Side view



Wiring



# CHECKLIST

## Number of strings

<input type="checkbox"/>	5 strings	<input type="checkbox"/>	16 strings
<input type="checkbox"/>	8 strings	<input type="checkbox"/>	18 strings
<input type="checkbox"/>	10 strings	<input type="checkbox"/>	20 strings
<input type="checkbox"/>	12 strings	<input type="checkbox"/>	24 strings
<input type="checkbox"/>	14 strings	<input type="checkbox"/>	<input type="text"/> strings

## Surge protection SPD

<input type="checkbox"/>	Type 2
<input type="checkbox"/>	Type 1 + 2
<input type="checkbox"/>	without

## Fuses

<input type="checkbox"/>	Only plus
<input type="checkbox"/>	plus and minus
<input type="checkbox"/>	without

## Current control Monitoring

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

## Fuse value

<input type="checkbox"/>	15A
<input type="checkbox"/>	20A
<input type="checkbox"/>	25A
<input type="checkbox"/>	30A
<input type="checkbox"/>	32A
<input type="checkbox"/>	<input type="text"/> A

## Connection technology on the input side

<input type="checkbox"/>	Single screw connection
<input type="checkbox"/>	Multiple screw connection
<input type="checkbox"/>	Stäubli MDC4-EVO2 PV connector
<input type="checkbox"/>	Sunclix PV connectors
<input type="checkbox"/>	<input type="text"/>

## DC-Switch

<input type="checkbox"/>	without
<input type="checkbox"/>	1.500 Vdc - 400A (Standard)
<input type="checkbox"/>	<input type="text"/> Vdc <input type="text"/> A

## Connection of aluminum conductors

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
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# OUR COMPANY

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Merz Schaltgeräte GmbH + CO KG operates as a 100 % subsidiary of the Merz GmbH, member of the globally successful and expansive PCE Group. Merz Schaltgeräte GmbH + CO KG draws on the 70-year switch know-how of Merz GmbH.

# PRODUCTION

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# LABORATORY

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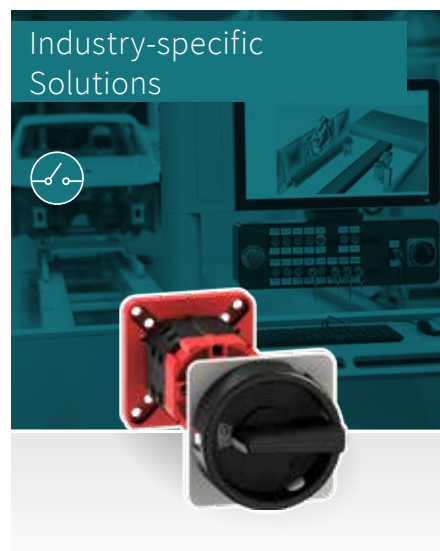
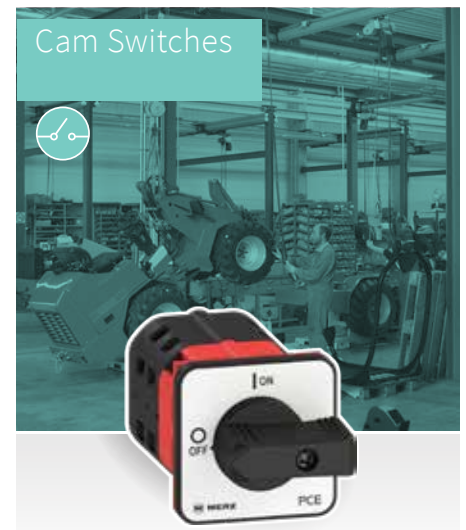
# APPLICATIONS

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# WHAT ELSE WE OFFER:

Further product brochures on the following switch categories:



Any questions?

We also find for your project the right switch. Contact us.

Our contact partners will be pleased to advise you.

Phone +49 (0) 7971 252-252  
[www.merz-schaltgeraete.de](http://www.merz-schaltgeraete.de)



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**MERZ Schaltgeräte GMBH + CO KG**

Kernerstraße 15      Phone +49 (0) 7971 252-252  
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[info@merz-schaltgeraete.de](mailto:info@merz-schaltgeraete.de)  
[www.merz-schaltgeraete.de](http://www.merz-schaltgeraete.de)



*switch to Quality!*