

B1591-29 with R1711

Schaefer AC/DC Battery Charger



For illustrative purposes only

FEATURES

- Queensland Rail Type Approval C0192 - validated for signalling and level crossing applications.
- Natural convection cooling - no fans, reducing potential failure points and increasing long-term reliability.
- High-temperature operation up to 75°C for stable performance in signalling and equipment huts.
- Conformal-coated electronics and reinforced chassis resist humidity, vibration, and contamination common within the rail corridor.
- Supports parallel and redundant operation with active current sharing for load balancing and system redundancy.
- High transient protection, reverse polarity protection, and monitoring via Charger Fail and DC OK relay outputs.
- Eurocassette plug-in design for hot-swappable replacement in the R1711 subrack (supplied separately).

SPECIFICATIONS

INPUT			
Voltage range	115V AC $\pm 20\%$ or 230V AC $+15\%/-20\%$, unit switches off at under and overvoltage	Parallel Operation	Includes Current Sharing with Interrupt in case of faulty unit in parallel operation
Frequency	50/60Hz	Reverse Polarity Protection	Via anti-parallel diode in the output (output fuse required) installed externally in R1711 subrack.
Recommended Input Fuse / MCB	External, 16A time lag / K-characteristic related to fuses manufactured by ABB	Transient and Surge Protection	Varistor on Input and Output to meet 2kV transient/surge in accordance with EN61000-4-4 / EN61000-4-5
No-load Input Power	Approx. 6W	MECHANICAL	
Switch-on Time	300ms typical	Mounting Type	Eurocassette via 19" Subrack (R1711). R1711 is pre-configured for 2 x B1591-29 Battery Charger Modules for use in parallel / redundant operation.
Inrush Current	Limiting by thermistor	Dimensions	- B1591-29 Module: 6U x 21TE x 166.5mm / 262.5 x 106.3 x 166.5mm (WxHxD) - R1711 Subrack: 6U x 19" x 403.5mm / 266 x 482.10 x 403.5mm (WxHxD)
OUTPUT		Weight	- B1591-29 Module: 3.3kg - R1711 Subrack: Approx. 5kg
Voltage	13.8V DC (adjustable 12 ... 16V DC)	Increased Mechanical Strength	For shock and vibration in accordance with EN61373
Current	34A	Protection Category	Acc. to IP20
Recommended Output Fuse	External 50A time lag / B-characteristic related to fuses manufactured by ABB	Mounting Instructions	Only in provided position (cooling fin vertical). Above and below the unit at least 40mm distance to neighbouring parts.
Line Regulation ($\pm 10\%$)	0.1 %	ENVIRONMENTAL	
Load Regulation (10-90%)	< 2% (with external decoupling diode)	Cooling	Natural Convection
Efficiency at Full Load	Approx. 85%	Humidity	Up to 99% RH, non-condensing due to additional Tropical Protection (Conformal Coating) applied to all PCBs.
Switching Frequency	Approx. 33 kHz	Temperature Coefficient	0.02 %/°C typical
Ripple	$\leq 1\% +30\text{mVp-p}$	Operating Temperature	-20°C to +75°C
Load Transient (10-90-10%)	6 % typical	Internal Temperature	Switch 90°C heatsink temperature for emergency power off
Response Time to $\pm 1\%$	2ms typical	Load Derating	2.5 %/°C from +55°C
Turn-on Rise Time	Softstart, 300ms typical		
Overload Protection	Current limited to 70 ... 110 % of full load		
Overvoltage Protection	OVP switches off the module at $U_{out} = 18\text{V}$ (with automatic return to operation)		
Remote Sensing	Sense lines have to be connected to the output or to the load under regard of polarity		
Redundant Operation	Via externally installed decoupling diode in R1711 subrack		

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Storage Temperature	-40°C to +85°C
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ALARMS / MONITORING

Charger Failure	Indicating with relay
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DC-OK with Relay (output voltage monitoring)	Switching threshold: $U_{OUT} > 10.8VDC$
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RELIABILITY

MTBF	Approx. 100.000 h at 40°C (in acc. to MIL-HDBK-217E Notice 1)
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SAFETY & STANDARDS

Safety / Construction	Acc. to EN/IEC 61010-2-201 + EN/IEC 61010-1
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Earth Leakage	< 3.5mA, acc. to EN/IEC 61010-2-201 + EN/IEC 61010-1
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EMC Compatibility	Acc. to EN 61000-6-2 / EN 61000-6-4 / EN 61000-4-4 / EN 61000-4-5
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Safety Class	1 (equipment with protective earth connection)
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Overvoltage Category	II
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Pollution Degree	2
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Maximum Installation Altitude	2000m
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Isolation Resistance	> 10 MΩ at 500V DC
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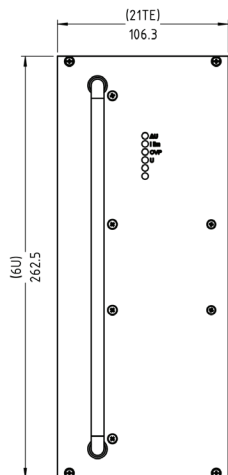
Isolation Test	Acc. to EN/IEC 61010-2-201 + EN/IEC 61010-1
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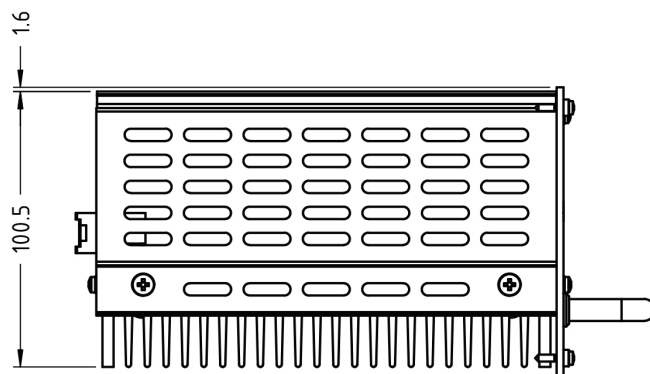
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TECHNICAL DRAWINGS - BATTERY CHARGER

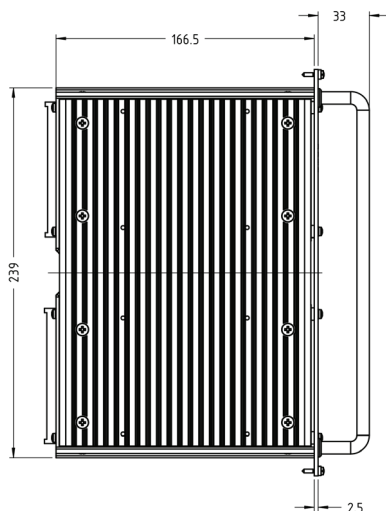
B1591-29-FRONT



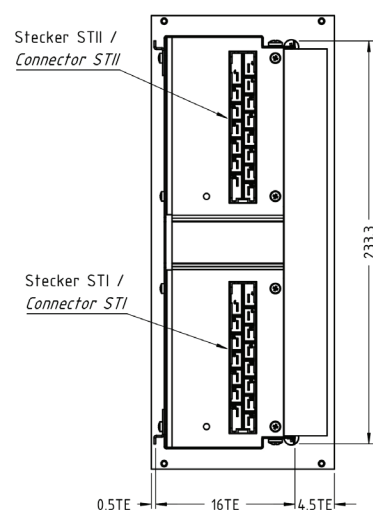
B1591-29-TOP



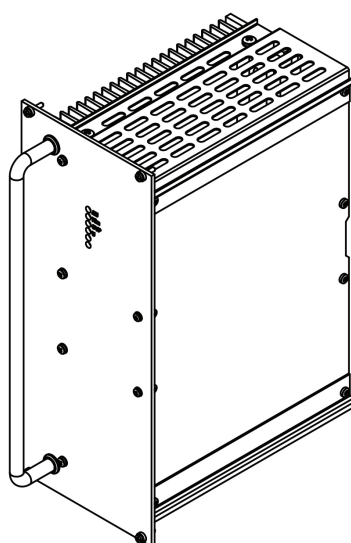
B1591-29-SIDE



B1591-29-REAR



B1591-29-ISOMETRIC



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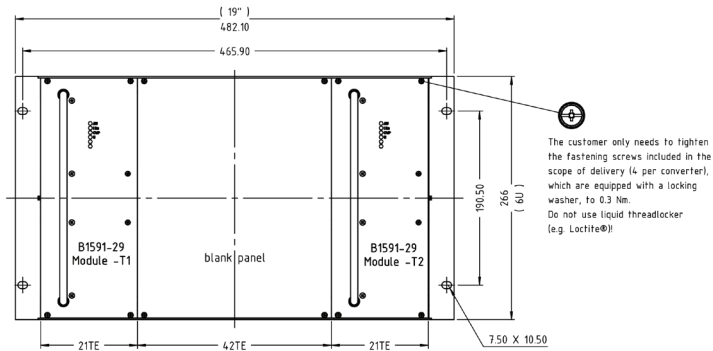
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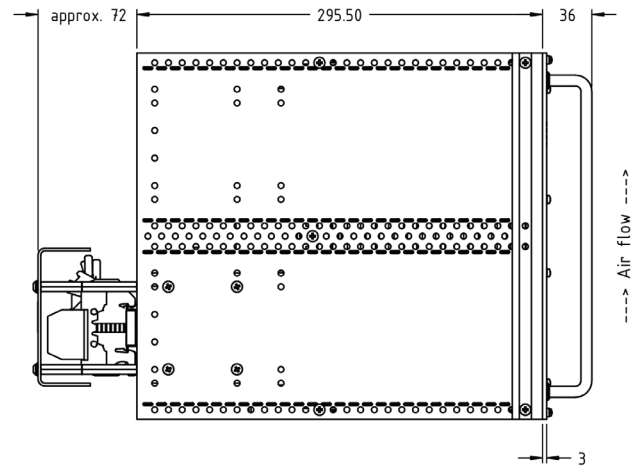
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TECHNICAL DRAWINGS - RACK SYSTEM

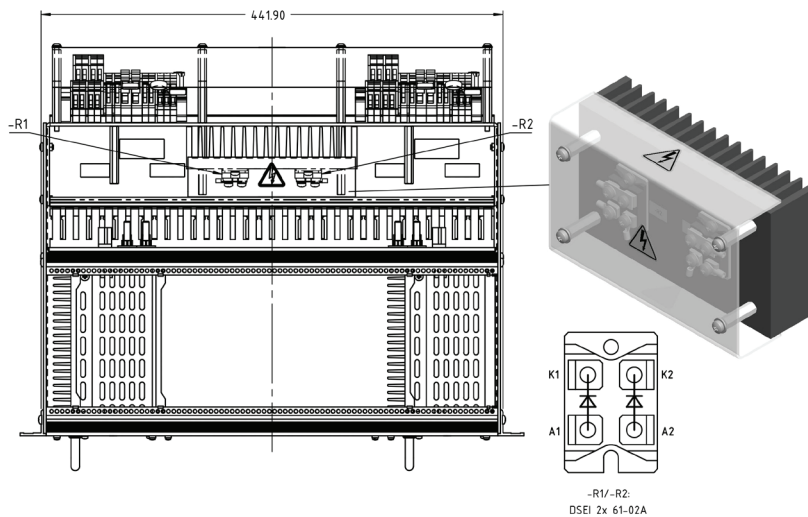
R1711-FRONT



R1711-SIDE



R1711-TOP



R1711-REAR

