

## 960W, 20A 12-48Vdc Output UPS DIN Rail Modules

<https://product.tdk.com/en/power/dush>  
[www.emea.lambda.tdk.com/dush-series](https://www.emea.lambda.tdk.com/dush-series)



The DUSH960-1248 performs two functions to provide DC backup power in the event of a power loss. Under normal conditions the external AC-DC power supply will provide power to the load. The external power source also keeps the (external) batteries fully charged, via an internal bi-directional DC-DC converter. If the input source to the load is interrupted, the DC-DC converter will maintain a regulated output voltage, using the battery as the power source. Capable of operating from an input voltage of 10 to 60V, the DUSH series can be programmed to provide a regulated 10 to 58V output rated at 20A. Additionally, an unregulated 5A auxiliary output is available (-0M suffix model). Multiple battery technologies can be accommodated, including lead, nickel, lithium and supercapacitors, up to a capacity of 1000Ah. An integrated DC-DC buck/boost converter decouples the battery from the load voltage. The DUSH module can manage the health status of the battery by preventing deep discharging, enabling temperature-compensated charging, and monitoring the internal resistance through the PowerCMC user interface.

Features	Benefits
• DC-UPS with integrated DC-DC converter	• Operates from 10 to 60V Batteries
• Wide programmable input & output voltage range	• Can provide a 10 to 58V Output
• High Efficiency of up to 98%	• Enables Longer Battery Run Times
• LCD and Modbus Interfaces	• Allows Remote Maintenance and Adjustable Parameters
• Multiple battery technologies up to 1000Ah	• Flexible Use

Model Selector					
Model	Nominal Output Voltage (V)	Nominal Battery Voltage (V)	Maximum Battery Voltage (V)	Maximum Output Current (A)	Front Panel
DUSH960-1248-0M	12 - 48	12 - 48	10 - 58	20	LCD, Push Buttons & Auxiliary Output
DUSH960-1248-1M	12 - 48	12 - 48	10 - 58	20	LED Indicators

Related Products		
Type	Part Number(s)	Description
DUSH960-1248 Temperature Sensor	ACC-DUSH-DTX01-0X	10kΩ NTC sensor, with plug connector, cable length 1m
DUSH960-1248 Temperature Sensor	ACC-DUSH-DTX02-0X	10kΩ NTC sensor, with plug connector, cable length 2m
Redundancy module	<a href="#">DRM40</a>	20 to 40A DIN Rail Redundancy Module
Low power DIN rail power supplies	<a href="#">DRB15</a> , <a href="#">30</a> , <a href="#">50</a> , <a href="#">100</a>	15 to 100W AC-DC DIN rail power supplies
Mid to high power DIN rail power supplies	<a href="#">DRB120</a> , <a href="#">240</a> , <a href="#">480</a>	120 to 480W AC-DC DIN rail power supplies
Mid to high power premium DIN rail power supplies	<a href="#">DRF120</a> , <a href="#">240</a> , <a href="#">480</a> , <a href="#">960</a>	120 to 960W AC-DC DIN rail power supplies
3-phase DIN rail power supplies	<a href="#">DRB-3</a>	120 to 960W AC-DC 3-phase DIN rail power supplies
DIN rail mount filters	<a href="#">RSMN</a>	3A to 30A 250Vac 2 stage filters with pulse attenuation
DIN rail mount filters	<a href="#">RSEV</a>	6A to 30A 250Vac 2 stage filters
RSEV DIN rail mounting kit	<a href="#">DIN-RSEV</a>	RSEV DIN rail mounting kit

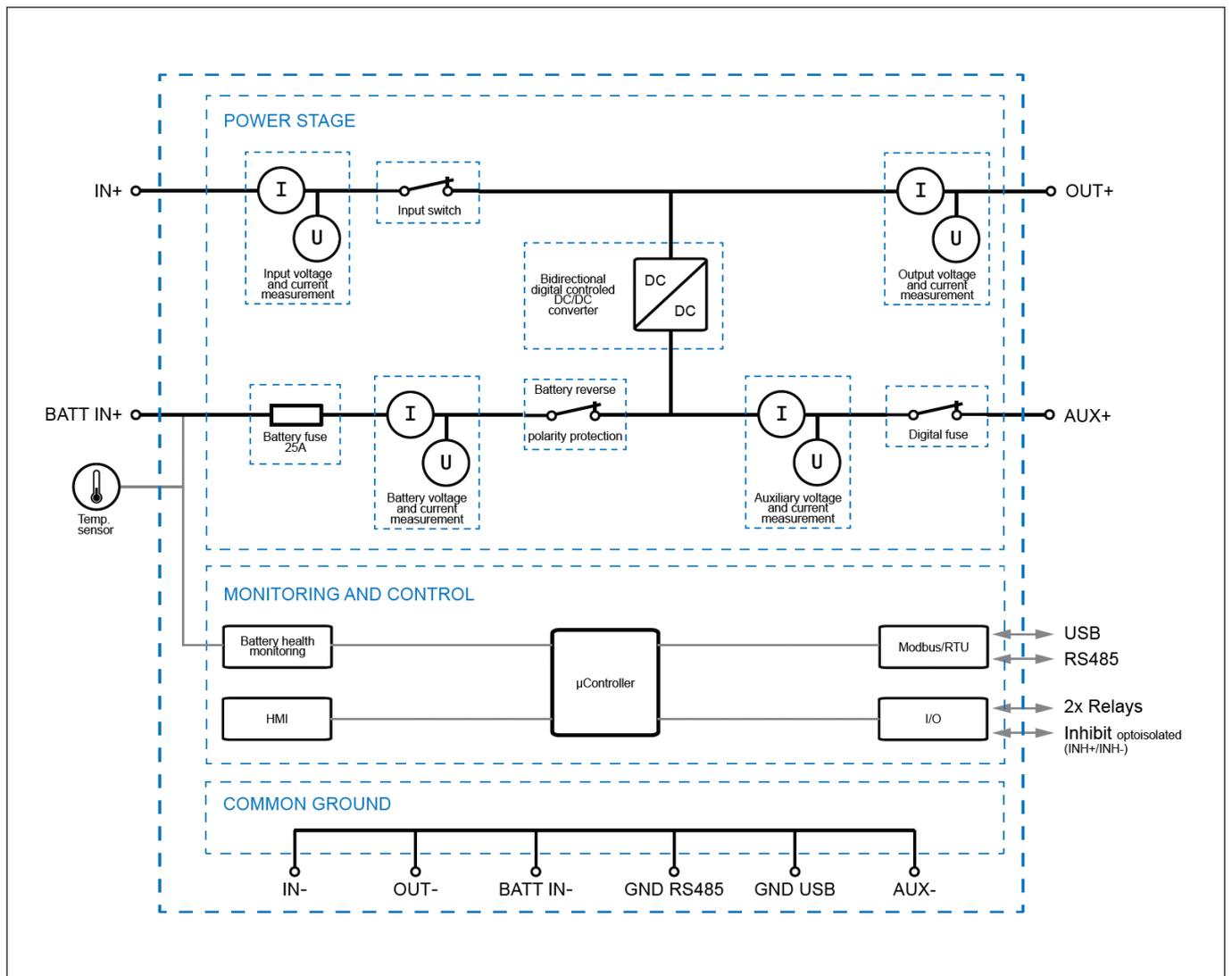
Specifications		
Model	DUSH960-1248-0M	DUSH960-1248-1M
<b>Input</b>		
Input Voltage Range (Operating)	Vdc	10 - 60
Input Voltage Range (Nominal)	Vdc	12 - 48
Charge Current (Maximum)	A	20
Discharge Current (Maximum)	A	21
Storage Technologies	-	Lead, Nickel, Lithium, Supercaps. DUSH firmware provides charging profiles
Hold Up Time	-	Configurable, up to deep-discharge threshold of the battery
Battery Reverse Input Protection	-	Yes
Conducted & Radiated EMI	-	EN55032-B CISPR32-B
Immunity	-	See immunity table
Safety Certifications and Markings	-	IEC/EN/UL/CSA61010-1, IEC/UL 61010-2-201, IEC/EN/UL/CSA62368-1 (Ed.3), CE Mark and UKCA Mark

Immunity				
Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	8kV air, 4kV contact	A	<a href="#">See full report on line</a>
Radiated Susceptibility	EN61000-4-3	10V/m, 3V/m	A	
Electrical Fast Transient Burst	EN61000-4-4	1kV	A	
Magnetic Field	EN61000-4-8	30A/m	A	

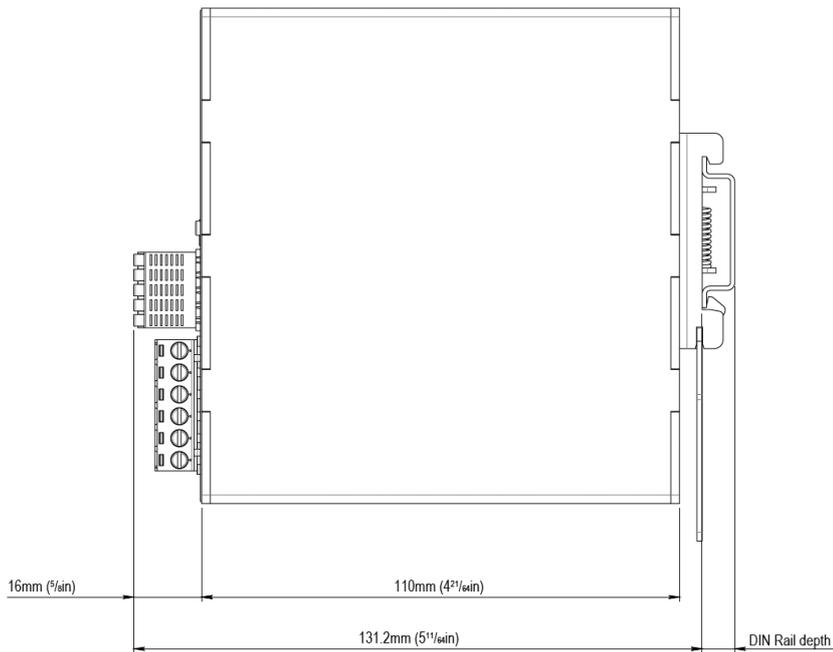
Specifications		
Model	DUSH960-1248-0M	DUSH960-1248-1M
<b>Output</b>		
Output Power at 48V	W	960
Charge Current Range	A	0.5 - 20
Discharge Current Range	A	0.5 - 21
Deep Discharge Voltage	V	5 - 58
Battery Capacity Range	Ah	1 - 1000
Ripple & Noise	mV(pk-pk)	<690
Minimum Load	-	No minimum load required
Overcurrent Protection	A	Normal operation: See input power supply specification. Backup mode: >25
Overvoltage Protection	V	Normal operation: See input power supply specification. Backup mode: lout_bat <62
Overtemperature Protection	-	Yes
Remote On/Off	-	Yes, inhibit or enable, isolated
Status Signals	-	Via LCD, Modbus or PowerCMC
Indicators	-	LED on front panel
Auxiliary Output (DUSH960-1248-0M Model Only)	-	Unregulated 5A output equal to battery discharge voltage
Parallel Operation	-	Not possible
Series Operation	-	Not possible
Interfaces	-	RS485 and USB, Modbus/RTU protocol
<b>Environmental</b>		
Operating Temperature	°C	-25 to +70. Derate linearly to 15A from 50 to 70
Storage Temperature	°C	-40 to +85
Humidity (non condensing)	%RH	Operating and storage: 95 max
Cooling	-	Convection
Altitude	m	3000 nominal, 6,000 not safety certified
Withstand Voltage	-	Non-isolated
Isolation Resistance	MΩ	Not applicable
Vibration (Mounted on DIN rail)	-	IEC 60068-2-6. 2g / 10 to 500Hz, 2 hours/direction X,Y,Z
Shock (Mounted on DIN rail)	-	IEC 60068-2-27. 30g / 11ms ±5ms, 2 bumps/direction, 9 bumps total

Specifications			
Model	DUSH960-1248-0M		DUSH960-1248-1M
<b>Other</b>			
Weight (Typ)	g	500	470
Size (WxHxD)	mm	54 x 115 x 131.2	
Size (WxHxD)	Inches	2.13 x 4.53 x 5.17	
Connectors		Push-in terminals	
DIN Rail Type	-	Suitable for mounting on TS-35/7.5 or TS35/15 DIN Rails	
MTBF - Telcordia SR-332 issue 4 (25°C)	Hours	2,630,000	
Warranty	yrs	3	

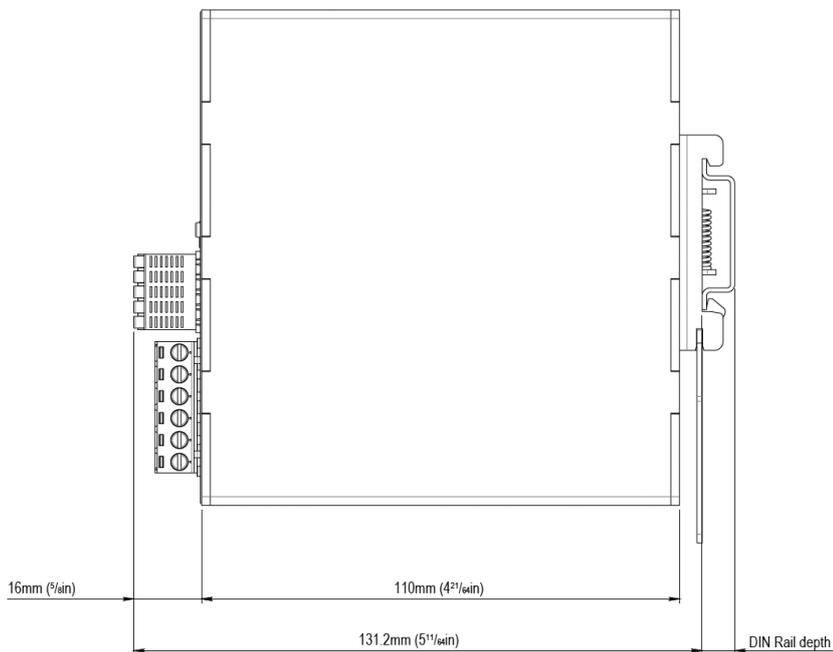
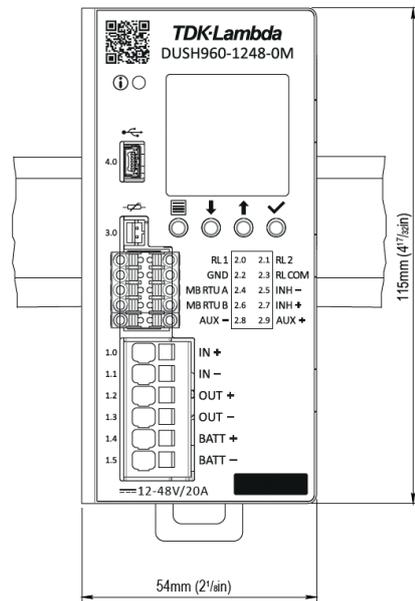
## DUSH Block Diagram



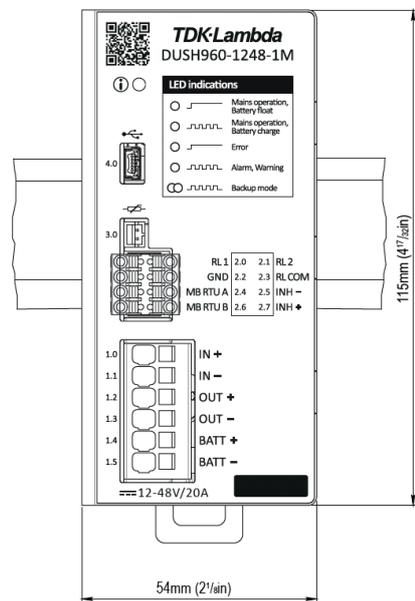
**Outline Drawings**



DUSH960-1248-0M dimensions



DUSH960-1248-1M dimensions





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