

# C&D TECHNOLOGIES

## Power Solutions

### 24 VOLT - 150 AMP MODULAR SWITCHED MODE RECTIFIER

Powercom Division  
Telecommunications Power Systems



### Features

- Bellcore Standards Based Design
- “Switched” Mode, High Frequency Operation
- Power Factor Corrected to greater than .98
- Input Line, Total Harmonic Distortion: < 5%
- Operating Efficiency of greater than 85%
- Compact Size (4.7 Watts per cubic inch)
- A Latching, Insertion/Extraction Lever securely holds each Module in place
- Capable of Hot-swap Insertion/Extraction
- Fool Proof, Shelf Interface Connections
- Built-in AC & DC Circuit Breakers
- Selectable Load Sharing Modes (Passive, Active or Off)
- Indefinite, Full Current, Short Circuit Capability
- “Soft” Turn-on (Output current ramps up slowly)
- Detects High Output Voltage & shuts itself down (prevents DC output from exceeding 30 Vdc)
- Operates with or without Back-up Batteries
- Can continuously withstand  $V_{in}$  of  $\leq 300$  Vac
- Digital, Front Panel, Output Current Meter

### Description

The HFM 24/150 Modular Switched Mode Rectifier is one of a growing family of rectifiers designed and manufactured by C&D Technologies. It is intended for use in applications requiring the parallel operation of multiple rectifier modules. The HFM 24/150 will operate in parallel with, and load share current with any other rectifiers that have a similar load sharing method. It's small size, modularity, and ease of installation make planning for future expansion both simple and economical. All of this makes the HFM 24/150 an ideal choice for applications where space is at a premium, such as microwave, PCS or Cellular.

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INPUT SPECIFICATIONS					
PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Operating Range	45-65 Single Phase, no taps required	183		264	Vac
Current	Adjustable	0		150	A
Efficiency				>85	%
Power Factor Correction (PFC)				>98	

MEASUREMENTS OF THE HFM24/150		
<b>MODULE</b>	Weight	25 lbs.
	Height	7U (12.25")
	Depth	15.25"
	Width	5.1"
<b>SHELF*</b>	Weight	18 lbs.
	Height	7U (12.25")
	Depth	15.25" Maximum
	Width	23" rack mount

\*These measurements are specifically for the 600A Power Shelf for up to 4 quantity HFM24/150. Please consult factory for other shelf and power plant options.

## General Features

### Hot Swap-ability

It is both safe and easy to either install or remove an HFM 24/150 rectifier into or from its interface shelf while other rectifier modules are operating in parallel with it. Rectifiers can be quickly swapped in or out of an operating (hot) power plant, without taking the plant off-line.

### Parallel Operation and Automatic Load Sharing

The rectifier offers three front panel select-able options for Load Sharing. Load Share can be turned OFF, or put into either the Passive or Active sharing modes. The Passive mode is for parallel operation with rectifiers other than the HFM 24/150. The Active mode is for parallel operation with other HFM 24/150 rectifiers.

### Output Current Limit

The rectifier's output current limit is front panel adjustable, from zero to 150 Amps DC. Its output voltage automatically folds back, if the load demands more current from the rectifier than the value that the limit is set at. The set limit can be displayed on the rectifier's built in digital display.

### Safety Agency approved

The HFM 24/150 rectifier has UL/CUL recognition, and complies with both UL 1950 and CSA 950 (File Number: E181908).

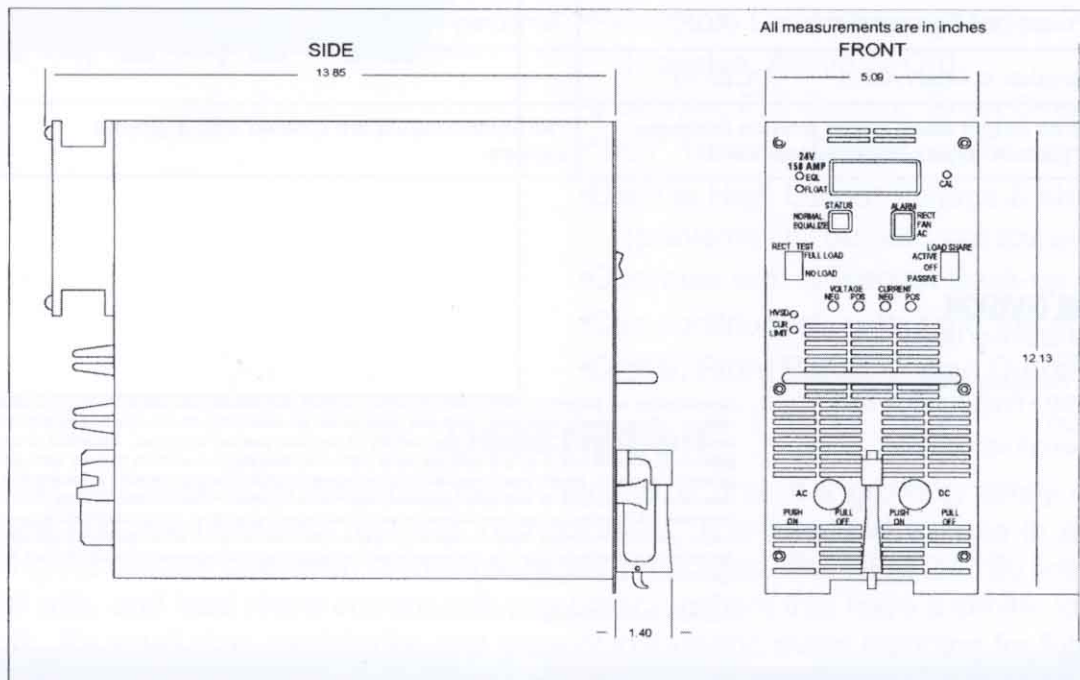
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### OUTPUT SPECIFICATIONS

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Voltage Adjustment Range	Float Voltage	24		28	Vdc
	Equalize Voltage	24		30	Vdc
Regulation	0-100% Load within specified input voltage and frequency range		+/- 0.5		%
Load Current Sharing	Within a 10-100% Rating			+/- 10	%
Hold-up Time	Nominal AC Line	>16			mS
Filtering: Voice Band				<32	dBmc
Filtering: Wide Band Noise	@ 20MHz			<350	mV p-p
ENVIRONMENTAL: Operating Temperature		-0		+50	°C
		+32		122	°F
Storage Temperature		-40		+85	°C
		-58		185	°F
Humidity	Non-condensing	0		95	%
Altitude		0		13,858	Ft.
				4,224	m
Heat Dissipation	@27V		2440		Btu/hr
Audible Noise	5ft. above the floor and 2ft. from the plant		<62		dBa



### Protection, Alarms and Controls

#### Protection

- Surge Protection - The HFM 24/150 will withstand lightning induced surges on the AC input lines, that do not exceed those specified in IEEE C62.41-1980.
- Under and Over Voltage Lock-out - Rectifier operation is inhibited, if the AC input voltage is either below 183 Vac or over 264 Vac. The line detection circuits have enough hysteresis to prevent "Hic-up Syndrome".

#### Alarms

Rectifier Failure Alarm (RFA): If the HFM 24/150 rectifier fails to perform normally (for various different reasons) it issues an RFA. An RFA consists of a closed pair of form A contacts and lit red front panel LED labeled RECT. An RFA is generated for any of the following reasons:

- Internally sensed output over voltage (HVSD)
- An externally received shut down command
- unacceptably high ambient operating temperature
- Cooling fan failure or insufficient airflow
- AC input voltage too high or too low
- A tripped input or output circuit breaker
- Low Output Current - Rectifier output current has decreased below 7.5 Amps DC.

#### CONTROLS

ALARM OUTPUTS		CONTROL INPUTS	
Rectifier Fail Alarm	(RFA)	High Voltage Shutdown	(HVSD)*
Thermal Shutdown Occurring	(THSD)	Restart	(RS)*
Open Sense Lead Has Occurred	(OS)	Equalize	(EQ)*
AC Power Has Failed Alarm	(ACF)	Temporary Restraint	(TR)*
DC Breaker Is Open Alarm	(DCBKR)		
<b>NOTE: All output alarm relays provide customer with "Form A" type contact connections</b>		<b>*All control inputs are initiated with a ground closure.</b>	

#### POWERCOM DIVISION

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