POWERHOUSE DISTRIBUTIONS

ES1948 Series - Switching Mode Rectifier

The PHD ES1948-48V/39.6A is a switched mode rectifier (SMR) module designed to provide up to 39.6A of output current into a 48V nominal system. This rectifier has been designed especially to be used in conjunction with a battery to provide an uninterruptable DC power system. The low noise and high reliability make it ideally suited to telecommunications applications. The rectifiers are designed to slide and plug into a single magazine-SR1948-9 , designed for a 19" rack, which can accommodate up to 9 rectifiers and up to 32 rectifiers can be configured as a system using one control and supervisory unit (MCSU2048).

The ES1948 Switching Mode Rectifiers are highly compact, highly efficient, fully featured switch mode rectifiers which can operate in a modular rack environment with overall control from the control and supervisory unit MCSU2048. With overall control, such features as active current sharing, accurate battery voltage regulation, battery recharging current limit control, automatic battery equalization and battery temperature compensation are achieved.

The ES1948 rectifier modules incorporate a microcontroller-based control card which incorporates the control and supervisory facilities of the SMR. The microcontroller enables digital communications to the MCSU2048 as well as to the outside world (via the MCSU2048), so that it is possible to examine the operating parameters and, if necessary change them to suit a particular situation, from a remote location, even a distant one if a modem is used. This method of monitoring and control opens up entirely new methods of routine and emergency maintenance procedures.

INTERFACE BOARD AND OPTIONAL ACCESSORIES

MUIB: PHD's MUIB board combined with MCSU, external transducers and digital or analog I/O contacts to control and monitor a 24V or 48V or 110V DC power system. It provides a basic interface between the MCSU and the system environment.

MMIB (optional): PHD's MMIB board is an add-on module for the MCSU. It is used to monitor external AC power sources in either single phase or three phase configurations during operation.

BCM (optional): PHD's BCM board is an add-on module for the MCSU. It is used to monitor individual cells of a batteries during either float, equalize operation, or discharge. Each BCM board is capable of monitoring up to 24 cells(BCM) or 96 cells(BCM2).

SMM (optional): PHD's SMM board is an expansion of the MCSU. It allows the user to monitor the status of equipment that is external to PHD's DC power system. It can also be used to monitor a 3rd party DC power system. Using the same communication link and winCSU2000 software, the SMM can supervise numerous off-site systems from a central monitoring station.

WinCSU2000: PHD's WinCSU2000 software is an intuitive program designed for the Windows95,98 and NT environment. Working through MCSU and interface boards, you can monitor and control PHD's DC power system either locally or remotely through a modem.

MCSU NetAgent II: PHD has integrated various communication protocols over networking to enable the equipment's real-time remote monitoring and management via MCSU NetAgent II. It is equipped with a UTP RJ45 plug for 10Base-T or 100M fast Ethernet connecting through TCP/IP, UDP, HTTP, Telnet, SNTP, PPP or SMTP protocol to LAN and WAN. It also has a RS232 port to connect with an external modem to dial in via the PPP protocol to access an internet connection.

FEATURES:

- Innovative single phase and three phase input stage with wide input range (90-275VAC, 310-480VAC)
- Power factor > 0.99
- High efficiency
- Microprocessor based
- Active or passive load sharing
- Rear "push in to plug in" connection for AC, DC and communications link
- Weight less than 1.9kg
- Exceptional power density (>18W/in^3)

APPLICATIONS:

- Telephone Exchanges
- Cellular Phone/ Radio Base Stations
- Satellite Base Stations
- Microwave Links Remote Multiplexes
- Rural Telecomunications
- PABX's
- Railway Switching Controls
- Transmission and ISDN Equipment
- Power Plants
- Airport, Hospital, Banks

SMR

ES1948 Series

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SPECIFICATIONS	ES1948
Input	
Voltage	Wide Input Range: 90-275Vac or 310-480Vac
Frequency	44~66 Hz
Input Protection	13A HRC fuses at input of SMR(line and neutral); power circuit is turned off if the AC voltage exceeds 275Vac or falls to less than 90Vac
Current	<12A rms
Power Factor	>0.99 at full load; sinusoidal wave shape
THD	<5% at full load; satisfies requirements of EN61000-3-2
Efficiency	>91% at nominal mains voltage
Output	
Voltage	Float: -Adjustable 48~59V; Equalise: -Adjustable 50~61V
Current Limit	Adjustable 5~40A
Power (Max)	1900W at 48~60Vdc(input>185Vac); 900W at 48~60Vdc(input 90~185Vac)
Load Sharing	Better than ±5% of full scale with active current sharing from MCSU2048
Protection	Overvoltage - only faulty unit shuts down Overcurrent - can sustain short circuit at output terminals indefinitely Over-temperature - gradual reduction of current limit if heat-sink temperature exceeds pre-set limit
Static Regulation	Line- +0.1%; Load- +1.0%
Dynamic Regulation	+3% for 10~90% or 90~10% load variation; +1% for +25% step change in AC input voltage
Output Noise	< 2mVrms Psophometric weighting; < 10mVrms 10kHz - 100MHz; < 100mV peak to peak 0~30MHz bandwidth
Other	
Surge Protection	EN 61000-4-5
EMC	Emission: EN 61000-6-3,Immunity: EN61000-6-1
Inrush Current	<12 Arms peak at nominal mains voltage
Voltage Withstand Test	3.0 kVac – input and output (4.25 kVdc primary-secondary); 1.5 kVac – input earth (2.12 kVdc primary-ground); 0.75 kVdc – output earth
Environmental	
Audible Noise @ 1m	< 65dBA
Operating Temperature	Operating range -40°C ~ 70°C; derated power at 50°C ~ 70°C
Cooling	Two fan cooled, speed controlled and alarmed
Humidity	0~95% non-condensing
Mechanical	
Dimension (W x H x D)	41mm x 144mm x 287mm
Weight	<1.9kgs(4.19lbs)
Alarms	
Alarm & Status LED indication on SMR	On (Green) - SMR functioning normally Alarm (Yellow) - Blinking when any SMR alarm is present. Shutdown (Red) - Stays on when SMR has turned off due to a signal from the MCSU2048 or an internal fault
Rectifier Alarms	Low/High output voltage alarm; Over voltage shutdown alarm; Current limit alarm; Fan Alarm; Temperature alarm; Rectifier failure alarm