

Harmonic Mitigating Remote Panelboards (HMRP)

Reliable and effective Harmonic Treatment in an easily justifiable package

Taking the HARM out of HARMONICS!

The ONICS™ Harmonic Mitigating Remote Panelboard (HMRP) integrates MIRUS' patented and proven harmonic mitigating technology with two 42-circuit or 30-circuit distribution panelboards, optional monitoring and TVSS in an attractive, easy to install package. ONICS™ treats all four of the major current harmonics created by single-phase, switch-mode power supplies (SMPS) by diverting the triplen (3rd and 9th) harmonics from the neutral and by canceling the 5th and 7th harmonics through phase-shifting. Overheating of distribution transformers and their neutral conductors is no longer a problem. Voltage distortion is kept well within IEEE Std 519 limits thereby increasing the reliability of the connected equipment. Operating costs are reduced because harmonic induced losses in the power distribution system are lowered by the ONICS™ HMRP.

With the recent trend towards 'Green' Data Centers distributing power at 415/240V, the HMRP has been made available in a 480/277V - 415/240V model. This allows for standard 480V distribution to the HMRP. The Harmonic Filter and autotransformer are combined into one magnetic package to save space and reduce losses.



Ideal for broadcasting, telecommunications, Internet service providers, data processing, call centers and all office environments with personal computers.

Features & Benefits:

Treats all four major harmonics (3rd, 5th, 7th & 9th) simultaneously

Improves power quality by preventing voltage flat-topping and reducing neutral-to-ground voltage

Diverts up to 90% of the neutral current leaving the panelboards

Reduces the crest factor and lowers the harmonic distortion level of the phase currents

Improves power factor and helps balance phase currents

Reduces harmonic induced ground currents

Optional Transient Voltage Surge Suppression

Front and Left Side access only, zero rear clearance, shallow depth, attractive and compact

Equipped for either top or bottom cable entry

Optional Capacitive Reactance Compensation (CRC)

Meets IEEE Std 519 Harmonic Limits

Improves connected equipment reliability by lowering internal I²R losses and restoring power interruption ride-through capability

Eliminates need for double neutrals and reduces neutral-to-ground voltage

Lowers operating costs by reducing losses and eliminating the need for K-rated transformers

Better utilization of system capacity, particularly beneficial in UPS and diesel generator applications

Less video noise in broadcasting applications

Protects the loads against damage caused by transient voltages

Small footprint occupies little real estate and makes for easy installation

Ideal for raised or solid floor applications

Consumes capacitive reactive power to prevent leading PF problems when loads are equipped with PF corrected power supplies.

HARMONIC MITIGATING REMOTE PANELBOARDS (HMRP)

Technical Data

HMRP Model Number

HMRP - 0 8 4 - VV - 225 - HF3579 - M 1 A

Pole Positions

084 = 84 poles
060 = 60 Poles

Voltage Rating

A = 120 / 208
BI = 277/480 - 240/415
I = 240 / 415

Current Rating

100 = 100 Amps
225 = 225 Amps
400 = 400 Amps

Harmonic Filter

HF3579 = 3rd, 5th, 7th, 9th Harmonic Filter
HF3579CRC = Harmonic Filter with Capacitive Reactance Compensation
HF0000 = No Filter

Monitor

M0 = No Power Monitor
M1 = Basic
M2 = Advanced

Monitoring Configuration

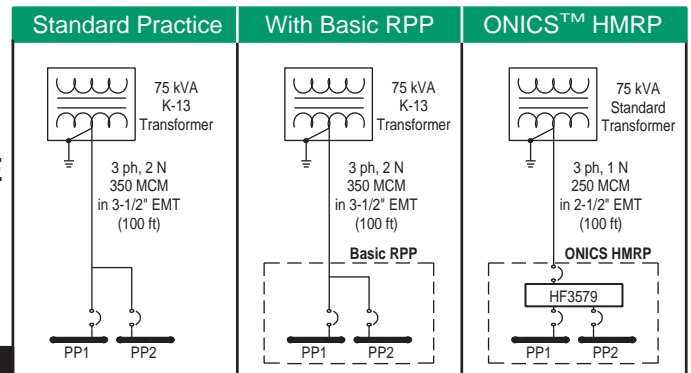
A = Single Monitor (Input only)

General Specifications

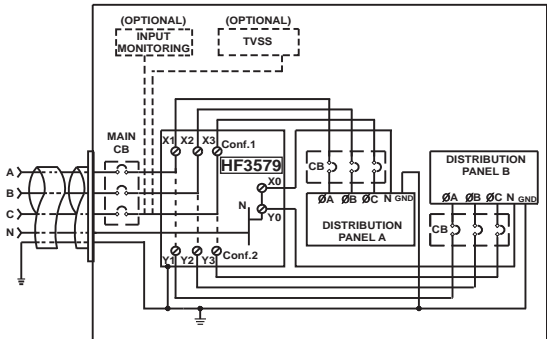
	225A	400A	100A	200A
Voltage - In/Out (3-ph, 4 - wire, 60Hz)	120/208V		277/480V - 240/415V	
Current (Amps)	180	320	100	200
Efficiency @ 35 to 65% Load	> 98.7%	> 99.1%	> 99.2%	> 99.2%
Heat Dissipation (BTU/hr)	< 3200	< 6400	<2800	<6700
Audible Sound Level	< 43dB	<45dB	< 43dB	< 45dB
Dimensions – W x D x H - in [mm]	24 x 19 x 78 10 x 483 x 1981	24 x 24 x 78 [610 x 610 x 1981]	24 x 24 x 78 [610 x 610 x 1981]	30 x 24 x 78 [762 x 610 x 1981]
Weight - lbs [kg]	580 [263]	890 [404]	600 [272]	1650 [750]
Panelboards (Poles)	2 x 42	2 x 42	2 x 30	2 x 42
Main	225	400	125	250
Harmonics Treated	3rd, 5th, 7th, 9th & others			
K-factor suitability	20			
Crest factor suitability	4.5			
Ventilation	Convection air cooled			
Enclosure Finish	Textured baked enamel, black			
Enclosure Base	Non-swivel casters and levelling feet			

Options Input Power Monitor..... Basic or Advanced
TVSS (UL1449)..... 80kA or 100kA surge capacity with EMI/RFI noise filtering

**'EASILY
JUSTIFIABLE
HARMONIC
SOLUTION'**

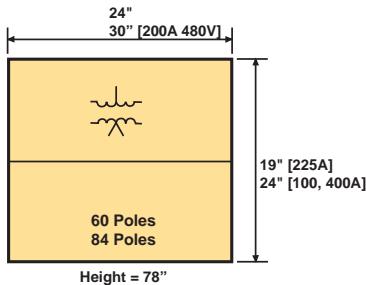


HMRP Schematic



NOTE: 1. Typical schematic for 225A and 400A Model.
2. DO NOT GROUND NEUTRAL.

HMRP Dimensions



Cost Benefit Analysis

	Standard Practice	With Basic RPP	ONICS™ HMRP
Installed Cost (\$US) ¹	\$11,230 ²	\$13,783 ²	\$13,725 ³
Energy Savings ⁴	n/a	n/a	\$450 / yr
Simple Payback ⁵			4.5 yrs Immediate
Eliminates transformer overheating	✓	✓	✓
Eliminates neutral overheating	✓	✓	✓
Reduces neutral current			✓
Reduces neutral-to-ground voltage			✓
Reduces voltage distortion			✓
Reduces current distortion			✓
Meets IEEE 519 limits			✓
Improves power factor			✓

Notes:

- Estimated installed cost includes transformer, feeder and panelboards. 100 ft has been chosen as an average feeder length.
- K-13 transformer, double neutral and 0.8 ampacity adjustment factor for more than 3 current carrying conductors in conduit. (As per NEC 2002 Section 310-15).
- No need for K-rated transformer, double neutral or derated cables.
- Estimated energy savings are due to lower harmonic losses while feeding typical 120V SMPS loads totaling 45 kW / 60 kVA at a rate of 7 cents / kWhr.
- Simple payback is calculated by the difference in installed cost divided by energy savings per year.
- Optional CRC provides a source of lagging reactive current up to 5% of full load rating to compensate for leading reactive power introduced by PF corrected power supplies.

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MIRUS International Inc.
31 Sun Pac Blvd.
Brampton, Ontario L6S 5P6
Tel: (905) 494-1120 Fax: (905) 494-1140
Toll Free: 1-888-TO MIRUS
Email: mirus@mirusinternational.com
Website: www.mirusinternational.com