ONICS™

# 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 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 ($3^{rd}$ and $9^{th}$) harmonics from the neutral and by canceling the $5^{th}$ and $7^{th}$ 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.

***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 ($3^{rd}$, $5^{th}$, $7^{th}$ & $9^{th}$) simultaneously | Meets IEEE Std 519 Harmonic Limits |
| Improves power quality by preventing voltage flat-topping and reducing neutral-to-ground voltage | Improves connected equipment reliability by lowering internal $I^2R$ losses and restoring power interruption ride-through capability |
| Diverts up to 90% of the neutral current leaving the panelboards | Eliminates need for double neutrals and reduces neutral-to-ground voltage |
| Reduces the crest factor and lowers the harmonic distortion level of the phase currents | Lowers operating costs by reducing losses and eliminating the need for K-rated transformers |
| Improves power factor and helps balance phase currents | Better utilization of system capacity, particularly beneficial in UPS and diesel generator applications |
| Reduces harmonic induced ground currents | Less video noise in broadcasting applications |
| Optional Transient Voltage Surge Suppression | Protects the loads against damage caused by transient voltages |
| Front access only, zero rear clearance, shallow depth, attractive and compact | Small footprint occupies little real estate and makes for easy installation |
| Equipped for either top or bottom cable entry | Ideal for raised or solid floor applications |
| Optional Capacitive Reactance Compensation (CRC) | Consumes capacitive reactive power to prevent leading PF problems when loads are equipped with PF corrected power supplies. |

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# HARMONIC MITIGATING REMOTE PANELBOARDS (HMRP)

**Technical Data**

## HMRP Model Number

**HMRP - 0 8 4 - 2 - 225 - HF3579 - M 1 A**

**Pole Positions**
084 = 2 Panelboards, 84 poles

**Voltage Rating**
2 = 120 / 208

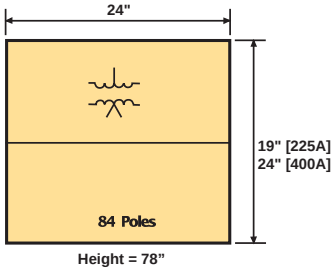
**Current Rating**
225 = 225 Amps
400 = 400 Amps

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

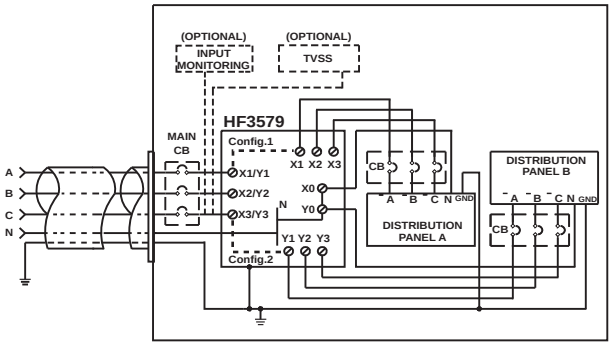
**Monitor**
M0 = No Power Monitor
M1 = Basic
M2 = Advanced

**Monitoring Configuration**
A = Single Monitor (Input only)

## HMRP Dimensions

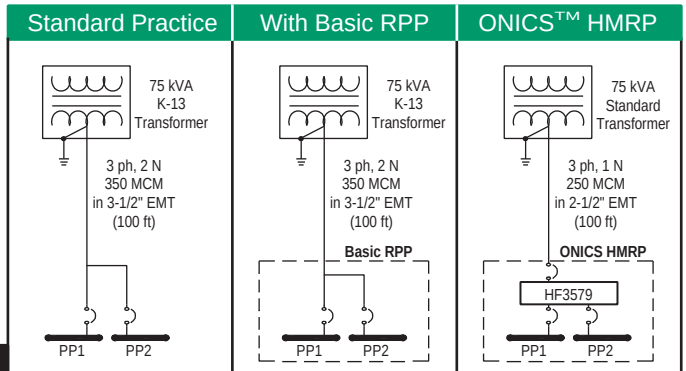



## HMRP Schematic




*NOTE: DO NOT GROUND NEUTRAL.*

## 'EASILY JUSTIFIABLE HARMONIC SOLUTION'




| 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<br>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 | | | ✓ |

### General Specifications

**Model: 225A *[400A]***

Voltage(In/Out)..... 120/208V, 3-ph, 4-wire
Current..... 225 Amp *[400 Amp]*
Frequency..... 60 Hz
Harmonics Treated..... 3rd, 5th, 7th, 9th & others
K-factor suitability..... 20
Crest factor suitability..... 4.5
Efficiency at full load..... > 98.7%
Heat Dissipated..... < 3200 BTU/hr *[< 6400 BTU/hr]*
Audible Sound Level.....< 43dB *[< 45dB]*
Ventilation.....Convection air cooled
Dimensions... 24"W x 19"D x 78"H *[24"W x 24"D x 78"H]*
Weight..... 580 lbs *[890 lbs]*
Panelboards..... 2 x 42-circuit, c/w 125 Amp main CB *[225 Amp main CB]*
Main CB..... 225 Amp *[400 Amp]*
Enclosure Finish.....Textured baked enamel, black
Enclosure Base..... Non-swivel casters and leveling feet

### Options

Enclosure Base..... Swivel casters and leveling feet
Input Power Monitor..... Basic or Advanced
TVSS (UL1449)..... 80kA or 100kA surge capacity with EMI/RFI noise filtering

**Notes:**

1. Estimated installed cost includes transformer, feeder and panelboards. 100 ft has been chosen as an average feeder length.
2. 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).
3. No need for K-rated transformer, double neutral or derated cables.
4. 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.
5. Simple payback is calculated by the difference in installed cost divided by energy savings per year.
6. 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.


**HMRP-PS01-B3**
**Effective: May 2006**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