2. Equipment Description

2.1 Overview

Introduction

This section describes the assemblies that comprise the High-Performance Process Manager (HPM) subsystem which is a node on the Universal Control Network (UCN). The UCN interfaces with the Local Control Network (LCN) through a Network Interface Module (NIM). The modules (nodes) on the LCN comprise the TPS system.

Component part numbers

The Honeywell part numbers for the items described in this section are listed in “Spare Parts”. See subsections “Periodic Maintenance Parts” and “Optimum Replaceable Unit (ORU) Parts”.

2.2 Power System Controls

Power Supply Module Control

Two methods of power controlling power

Control of ac power to the Power Supply Modules is provided by two methods when the High-Performance Process Manager cabinet contains the normal Standard Power System components.

AC power control

All ac power to the cabinet, which includes any Cabinet Fan assemblies, is controlled by a dedicated circuit breaker that is supplied by the user for each Power Supply Module in the Power System. Additional ac Power Supply Module control is provided by a power switch that is mounted at the front of each module.

DC power control

Since the Standard Power System can contain redundant Power Supply Modules, placing a module’s power switch in the off position does not necessarily remove power from the card files and FTAs in the cabinet because the second module will continue to supply power unless its Power switch is in the off position.

If the Standard Power System contains a Battery Backup Pack, 24 Vdc power will continue to be supplied to the card files and FTAs unless the **BATTERY** switch is placed in the off position, or the Battery Backup Pack is discharged. All three switches must be in the off position to completely remove power from the card files.

AC Only Power System

In a cabinet that contains an AC Only Power System, no Battery Backup Pack exists to provide 24 Vdc power to the card files and FTAs, so control of dc power to the card files and FTAs is provided exclusively by user supplied ac circuit breakers. When redundant Power Supply Modules exist, each module has its own circuit breaker that is provided by the user. There is no on-off switch at the front of the Power Supply Module.

HPMM/IOP Card Power Interrupt Switches

24 Vdc power interruption

The HPMM High-Performance Comm/Control and High-Performance I/O Link cards, and each IOP card have a 24 Vdc power interrupt switch that is activated by unlocking and lifting the upper card extractor/insertion lever. Activating either HPMM card’s interrupt switch removes power from both HPMM cards and the HPM UCN Interface module in the card file, while activating an IOP card power

interrupt switch removes power only from that IOP card. Power is removed only while the switch is activated.

WARNING

The loss of power to an analog or digital output IOP causes the loss of the IOP's outputs to the field connections. Analog output IOP outputs drop to a nonpowered state (-6.9%), and the digital output IOP outputs are set to their off state.

The nonpowered state of the output IOPs should result in a safe condition for personnel, the plant, and the process under control.

2.3 HPM Subsystem Overview

Major assemblies

The High-Performance Process Manager subsystem (HPM) is comprised of the major assemblies that are described in the following subsections. Figure 1 is a view of a single cabinet containing a nonredundant HPMM and identifies some of the High-Performance Process Manager assemblies. The High-Performance Process Manager major assemblies are:

- Left 7-Slot Card File (Slots 1 through 7)
- Right 7-Slot Card File (Slots 9 through 15)
- 15-Slot Card File
- IOP Only Card File (in PM/APM upgraded cabinets)
- Input/Output Processors (IOPs)
- Field Termination Assemblies (FTAs)
- Power Systems

Card file types

Three types of card files can accommodate both High-Performance Process Manager Module (HPMM) and Input/Output Processor (IOP) cards, or may have IOP cards only. The HPMM card set occupies slots 1 and 2 in both the Left 7-Slot and 15-Slot card files. The HPMM card set occupies slots 9 and 10 in the Right 7-Slot card file. All card slots accept IOPs.

An older "IOP Only" card file may exist in a HPM cabinet that was upgraded to an HPM from a PM or APM. This older card file cannot support an HPMM card set. It is restricted to IOP cards and optional I/O Link Extender cards.

Card file designations

When a card file contains an HPMM card set, it is designated an HPMM card file. If the card file contains only IOP cards, the card file is designated 7-Slot or 15-Slot IOP card file. A card file can accommodate only one HPMM card set. A second HPMM card file must be added for HPMM redundancy.

Nonredundant 15-Slot HPMM card file

When configuring an HPM with a nonredundant HPMM by using a 15-Slot card file, the HPMM card file is typically installed in the bottom card file position of the cabinet.

Redundant 15-Slot HPMM card files

If an HPM is configured with redundant HPMMs by using 15-Slot card files, HPMM card files are installed in the bottom two card file positions in the cabinet. A redundancy cable is connected between the HPMM card files.

Nonredundant 7-Slot HPMM card file

When configuring an HPM with a nonredundant HPMM by using a 7-Slot card file, the HPMM card set are typically installed in a Left 7-Slot card file.

Redundant 7-Slot HPMM card files

If an HPM is configured with redundant HPMMs using 7-Slot card files, HPMM card sets are installed in both a Left 7-Slot card file and in a Right 7-Slot card file. The card files are normally mounted side-by-side in the bottom card file position of the cabinet. A redundancy cable is connected between the HPMM card files.

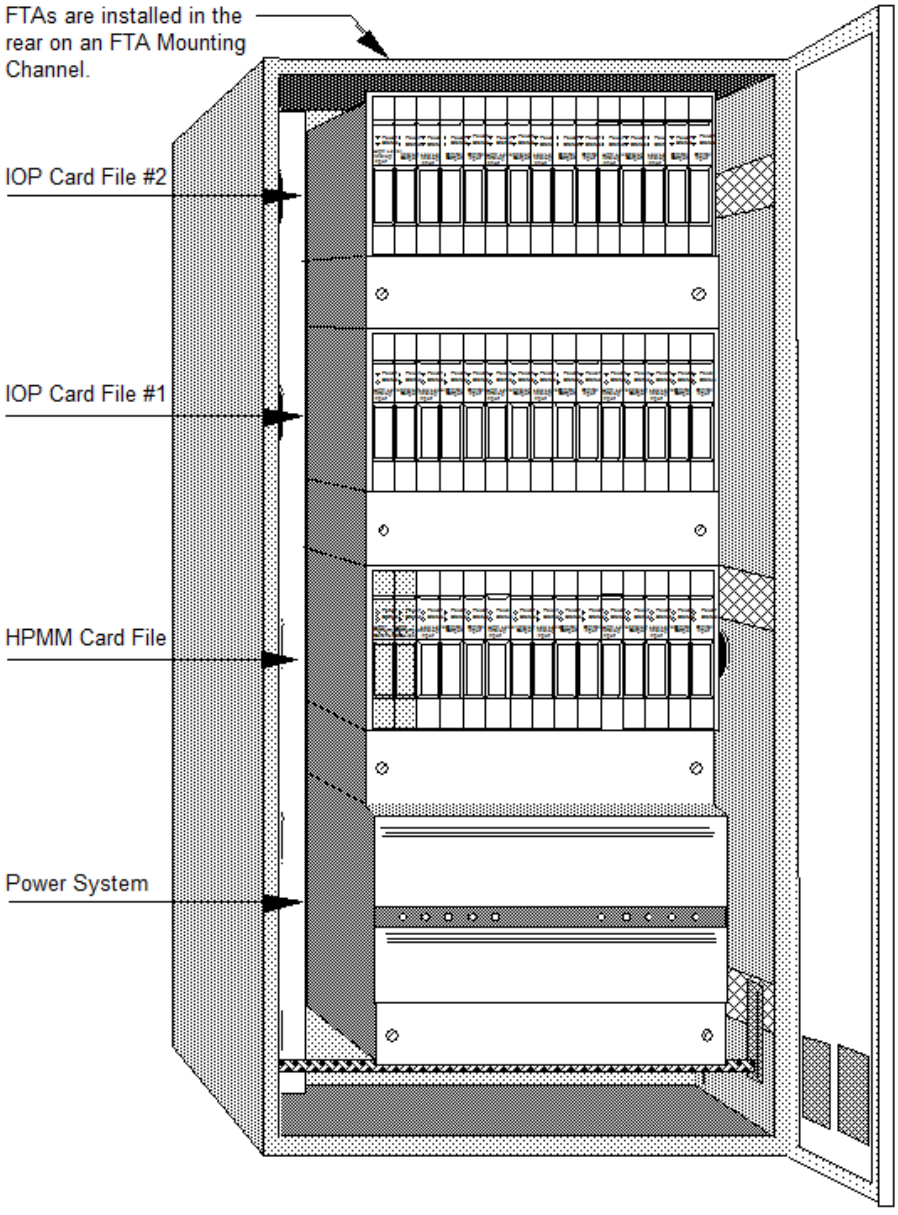
SHOCK HAZARD

Troubleshooting, opening any equipment and removing any panels or covers will expose the **user** to the risk of a shock hazard. There are no **user** serviceable parts inside this equipment. Refer all servicing only to **qualified service personnel**.

Nonredundant HPMM cabinet layout

The following figure is an illustration of an HPM cabinet that contains a nonredundant HPMM that is installed in left most card slots of the lower 15-Slot card file. IOPs are installed in the remaining slots of the lower card file and the 15-Slot card files above.

Figure 1 Cabinet Layout – HPM with Nonredundant HPMM



2.4 HPMM and IOP Card Files

Introduction

There are nine (9) card file models. Three models are not CE Compliant and six models are CE Compliant. The following table lists the nine card file models. All models are also available with conformal coating (a model number with a prefix of MC, rather than MU).

Table 1 Card File Models

Card File Description	CE Compliant	Non-CE Compliant
Left 7-Slot HPMM or IOP	N/A	MU-HPFH01
Right 7-Slot HPMM or IOP	N/A	MU-HPFH11
15-Slot HPMM or IOP	N/A	MU-HPFX02
Left 7-Slot HPMM	MU-HPFH03	N/A
Right 7-Slot HPMM	MU-HPFH13	N/A
15-Slot HPMM	MU-HPFX03	N/A
Left 7-Slot IOP	MU-HPFI03	N/A
Right 7-Slot IOP	MU-HPFI13	N/A
15-Slot IOP	MU-HPFI23	N/A

HPMM and IOP card file differences

An HPMM card file and IOP card file differ only in the application. Electrically, their backpanels are the same.

Non-CE Compliant card file models

The non-CE Compliant card file models can be designated as an HPMM card file or an IOP card file by either installing an HPMM card set in the two left-most card slots or installing IOP cards.

CE Compliant card file models

Unlike the non-CE Compliant card file models, the CE Compliant card file models are designated either an HPMM card file or an IOP card file because even though their is no electrical difference in the backpanel, they differ mechanically. The addition of a ground plate and filtered IOP connectors in the two left-most slots prohibits the installation of an HPMM card set.

The card file is designated an IOP card file when the ground plate and filtered connectors are present.

The card file is designated an HPMM card file when the ground plate and filtered connectors are absent.

Conversion kit

A CE Compliant HPMM card file can be converted to an IOP card file with a model MU-ZPFI03 upgrade kit. The kit adds 2 filtered IOP adapter connectors to the two left-most card slots and a ground plate extension.

2.5 HPMM Card Files

Introduction

A High-Performance Process Manager (HPMM) card file is a 7-Slot or 15-Slot card file that is populated with an HPMM card set. The HPMM card set consists of following assemblies.

- High-Performance Comm/Control card
- High-Performance I/O Link card

- HPM UCN Interface module

The HPMM assemblies occupy the two left-most slot positions in the card file. The HPM UCN Interface module mounts in the connector beneath the High-Performance Comm/Control card in the first slot.

HPMM card file configurations

There are 3 HPMM card file configurations. They are as follows:

- Left 7-Slot HPMM card file
- Right 7-Slot HPMM card file
- 15-Slot HPMM card file