SECTION 1 - INTRODUCTION

OVERVIEW

The IMMFP02 Multi-Function Processor Module (MFP) is one of the workhorses of the INFI 90® control module line. It is a multiple loop analog, sequential, batch and advanced controller that provides powerful solutions to process control problems. It also handles data acquisition and information processing requirements providing true peer-to-peer communications. The comprehensive set of function codes supported by this module handles even the most complex control strategies. The INFI 90 system uses a variety of analog and digital I/O modules to communicate with and control the process. The MFP module communicates with a maximum of 64 modules in any combination (see Figure 1-1).

The MFP module has three operating modes: execute, configure and error. In the execute mode, the MFP module executes control algorithms while constantly checking itself for errors. When an error is found, the front panel LEDs display an error code corresponding to the type of error found. In the configure mode, it is possible to edit existing or add new control algorithms. In this mode, the MFP module does not execute control algorithms. If the MFP module finds an error while in execute mode, it automatically goes into error mode. Refer to the Section 4 of this instruction for operating mode details.

A one megabaud CPU to CPU communication link allows the MFP module to accommodate redundant processors. This link enables a backup MFP module to wait in a hot standby mode while the primary MFP module executes the control algorithms. If the primary MFP module goes off-line for any reason, a bumpless transfer of control to the backup MFP module occurs.

INTENDED USER

Personnel installing, operating, or maintaining the MFP module should read this manual before performing any installation, operation, or maintenance procedures. Installation requires an engineer or technician with experience handling electronic circuitry. Formal training in INFI 90 systems and configuration (especially function codes) would help when configuring the MFP module.

HARDWARE DESCRIPTION

The multi-function processor module consists of a faceplate and circuit board.

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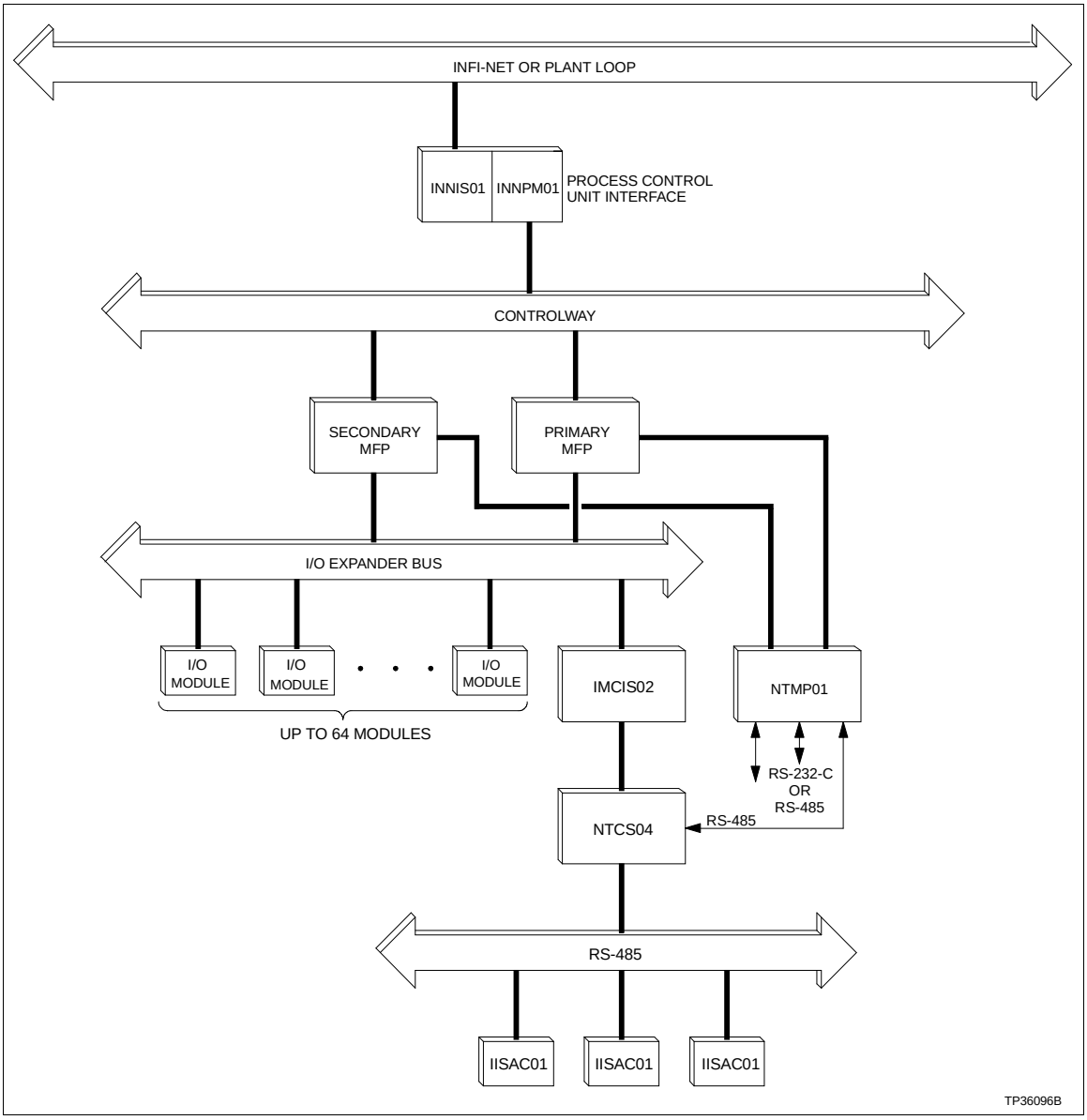

Figure 1-1. Example IMMFP02 Module Applications

Faceplate

The MFP faceplate measures 35.56 millimeters wide by 177.80 millimeters high (1.4 inches wide by seven inches high). Two latching screws, one at the top, the other at the bottom, lock the module assembly into the module mounting unit. A transparent window on the faceplate permits viewing of LEDs one through eight and the status LED. These LEDs display operating information. A small hole directly below the window provides access to the combination stop/reset pushbutton. Besides locking the module in place, the faceplate also protects the circuit components and promotes proper air flow within the cabinet.

Circuit Board

The circuit board features state-of-the-art circuitry. On the board are nonvolatile random access memory (NVRAM), random access memory (RAM), read only memory (ROM), a microprocessor running at 16 megahertz, direct memory access (DMA) circuits, Bailey custom bus circuits and various support circuitry. The board attaches to the faceplate with two screws. The module assembly occupies one slot in a module mounting unit.

HARDWARE APPLICATION

The multi-function processor module is ideally suited for applications requiring multiple loop control and module I/O. Since it handles both analog and digital signals, the MFP module fits into virtually any control scheme.

FEATURES

The MFP module has the following features:

- A high speed redundancy link.
- A serial communication port for station support.
- Two general purpose serial channels.
- Direct memory access circuitry.
- 512 kilobytes of RAM memory.
- 256 kilobytes of NVRAM memory.

INSTRUCTION CONTENT

This manual consists of eight sections and four appendices:

Introduction — This section provides an overview of the module, a description of the hardware, a glossary of unique terms, and a table of physical, electrical, and environmental specifications.

Description and Operation — How the key circuits function is explained in this section.

Installation — The handling, inspection, hardware configuration, and installation aspects of the module are described in this section.

Operating Procedures — Front panel indicators and controls, and everyday operations are discussed in this section.

Troubleshooting — This section features detailed flow charts and tables that enable quick diagnosis of error conditions and provide corrective actions.

Maintenance — Scheduled module maintenance is covered by this section.

Repair/Replacement Procedures — This section describes how to maintain and replace the module.