
SECTION 1 - INTRODUCTION

OVERVIEW

The Analog Master Module (IMAMM03) is a microprocessor based INFI 90 module that accepts up to 64 high level, thermocouple, millivolt or Resistive Temperature Device (RTD) analog inputs. Analog Slave Modules (ASM) interface the analog signals directly from process field devices to the Analog Master Module (AMM). These include the IMASM01, IMASM02, IMASM03 or IMASM04. Each slave interfaces a different type of signal (e.g., high level, thermocouple, millivolt or RTD). The INFI 90 Analog Master and Slave Modules are direct functional replacements for corresponding Network 90 Analog Master and Slave Modules.

Function Codes (FC) configured in an AMM are algorithms that define specific functions performed by the AMM. An AMM can be configured to:

- Calculate fifth order polynomial adjustment.
- Calculate square root conversion before Engineering Unit (EU) conversion.
- Calculate square root conversion after EU conversion.
- Provide degree (°C or °F), millivolt, volt or EU values to the INFI 90 system.
- Send real values to an INFI 90 indicator station for display.

It also generates exception reports and alarms, and performs trending, thermocouple linearization and local/remote cold junction compensation.

This manual explains the purpose, operation, calibration and maintenance of analog master and slave modules. It addresses handling precautions and installation procedures. Figure 1-1 illustrates the INFI 90 communication levels, and the position of the AMM and ASM within these levels.

INTENDED USER

System engineers and technicians should read this manual before installing and operating the analog modules. A module should NOT be put into operation until this instruction is read and understood. Refer to the Table of Contents or Index to find specific information after the module is operating.

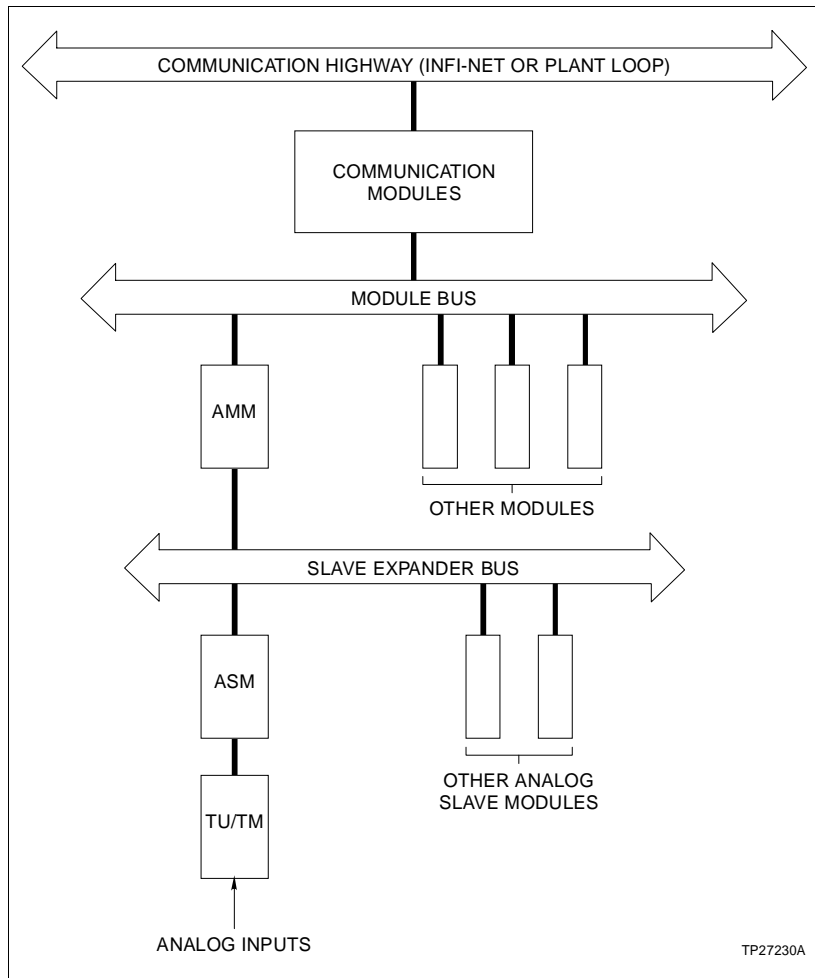


Figure 1-1. INFI 90 Communication Levels

MODULE DESCRIPTION

An AMM requires an ASM to condition and interface process field inputs; it can accept up to 64 individual inputs. To do this, it addresses up to eight separate input groups, each group with eight points. An IMASM01 can interface up to 16 inputs (two groups); an IMASM02, IMASM03 or IMASM04 can each interface up to eight inputs (one group).

The AMM and ASM are single printed circuit boards. Each module occupies one slot in a standard INFI 90 Module Mounting Unit (MMU). Two captive screws on the faceplate of a module secure it to the MMU.

Analog Master Module

The AMM has five front panel LEDs. The top LED indicates the module operating mode (i.e., EXECUTE, CONFIGURE or ERROR), and the remaining four indicate normal operation

and error conditions. A module reset switch (S1), accessed through the faceplate, can be used to reset the module circuitry. A hardware configuration switch (S2) sets the module run or diagnostic mode and address.

The AMM has three card edge connectors for external signals and power (P1, P2 and P3). P1 connects to the module bus to provide logic power (+5 VDC and ± 15 VDC) to operate the module logic circuits, and to establish communication with other modules (refer to Table 6-5). P2 connects to the slave expander bus to communicate with its slave modules (refer to Table 6-6). P3 cable connects the AMM either directly to a redundant AMM or to a Termination Unit (TU) or Termination Module (TM) (refer to Table 6-7).

Analog Slave Module

High Level ASM	<p>An IMASM01 can input 16 individual 4 to 20 mA, 1 to 5 VDC, 0 to 5 VDC, 0 to 10 VDC or -10 to +10 VDC (high level) analog signals; two groups of eight inputs. Switches (S1 and S2) on the module set the address (0 to 7) for each input group. Jumpers (JP1 and JP2) on the module can be used to disable or enable a group.</p> <p style="text-align: center;">NOTE: When used with the NIAI04 Termination Module, the IMASM01 inputs 15 signals.</p>
Thermocouple ASM	<p>An IMASM02 can input eight isolated thermocouple, -100 to +100 mV or 0 to 100 mV analog signals. A single switch (S1) on the module sets the input group address (0 to 7). A front panel LED indicates the module operating status (i.e., calibration or normal operation).</p>
100 Ohm RTD ASM	<p>An IMASM03 can input eight isolated three wire RTD inputs. An address switch (S1) on the module sets the input group address (0 to 7). A front panel LED indicates the module operating status.</p>
10 Ohm Copper RTD ASM	<p>An IMASM04 can input eight isolated three wire 10 ohm copper RTD inputs. Address switch (S1) on the module sets the input group address (0 to 7). A front panel LED indicates the module operating status.</p>

Each slave module has three card edge connectors for external signals and power (P1, P2 and P3). P1 connects to logic power (+5 VDC and ± 15 VDC) to operate the module logic circuits (refer to Table 6-8). P2 connects it to the slave expander bus to communicate with an AMM (refer to Table 6-9). A cable connects analog inputs from a TU/TM to P3 of the ASM (refer to Tables 6-10 thru 6-12). The terminal blocks (physical connection points) for field wiring are on the TU/TM.