## CHAPTER 1:  INTRODUCTION

**1.1        General Overview**

1.1.1    The Profibus Slave User Manual describes the operation, configuration, and physical characteristics of the PROFIBUS Slave device. The Horner APG HE693PBM100/101 and HE693PBS105 provide the GE Fanuc PLC with a flexible communications interface to PROFIBUS networks for Decentralized Peripherals (DP).

1.1.2    The HE693PBM100/HE693PBS105 operate as PROFIBUS DP modules only. They do not support the other types of Profibus (FMS, PA).  The PROFIBUS utilizes a Master-Slave type of communication with the HE693PBM100/101 functioning as the master device, and the HE693PBS105 functioning as the slave device.  Decentralized Peripherals (The Slave) include but are not limited to: input/output devices, drives, valves, and measuring transmitters.  DP's are mainly used to connect programmable controllers to the above devices via a high-speed serial link.  Baud rates of up to 12 MBd can be obtained through PROFIBUS.

1.1.3    Up to 32 devices (masters or slaves) can be connected in one segment without using repeaters, or up to 64 devices can be connected using repeaters.

1.1.4    Master devices are used to determine the data communication on the bus. One master can service several slaves.  Several Masters can participate on the bus simultaneously, but a slave can only receive outputs from one master.

1.1.5    The slave devices are peripheral devices that include input/output devices, valves, and drives.  Slaves do not have bus access rights and can only acknowledge received messages or send messages to the master when requested to do so.  Data from the Slaves can be read by any master.  All connected Slaves have the same priority.

*For further information on the PROFIBUS Network, visit their website at* http://www.profibus.com

**1.2    System Requirements:**

## *IMPORTANT:*

1.2.1    **The HE693PBS105 requires a CPU351 (or higher) with Firmware Version 8.0 (or better.  CIMPLICITY® Control Version 2.0 or higher is required to configure the modules.  *Logicmaster® software and earlier versions of CPU Firmware can NOT support these modules*.**

### 1.3      Physical Layout of PBS105:
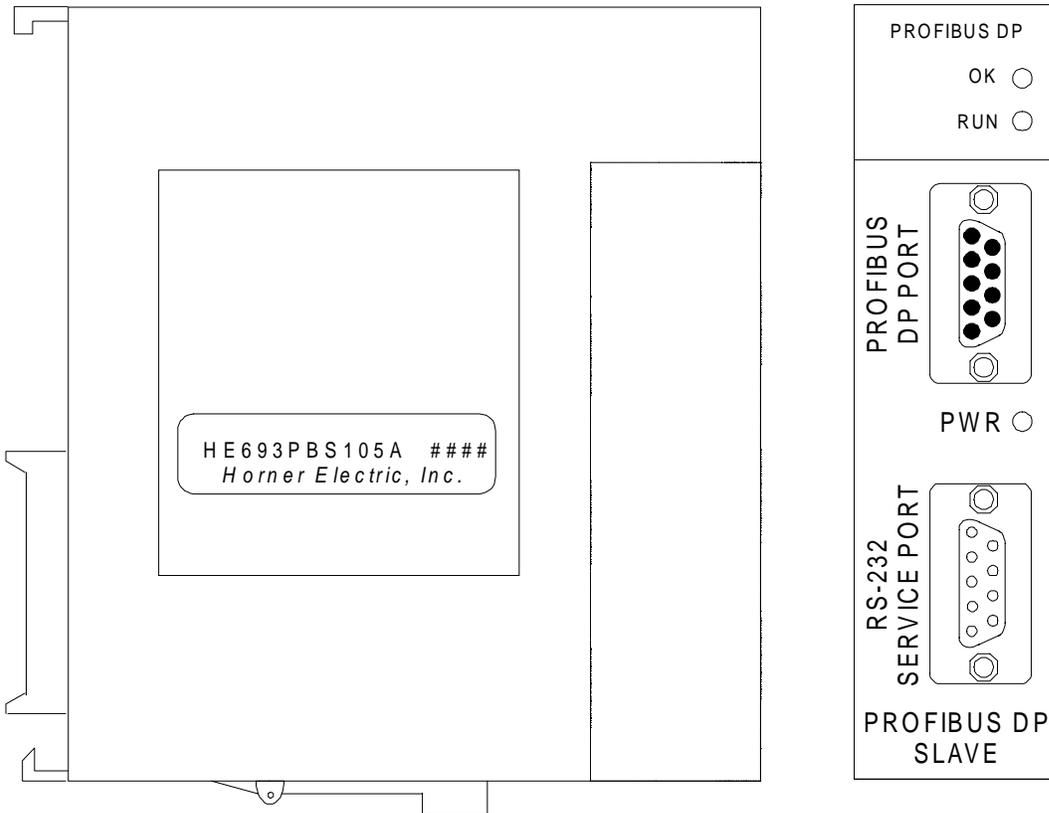


**Figure 1.1 - PBS105 Module (Front Cover and Side View)**

### 1.4      LED Operation of PBS105:

1.4.1    There are three visible LED's on the PBS105, the OK LED, RUN LED, and the POWER LED.  Various combinations of these LED's will indicate different states of the Slave.  **See Table 1.1** for the states indicated by the LED's.

| Table 1.1 – LED Operation | | | |
|---|---|---|---|
| OK LED | RUN LED | POWER LED | Meaning |
| Off | Off | Off | Module not receiving any power. |
| Yellow | Red | Green | Module has good power, but has not received valid configuration from CPU, and is not communicating on the Profibus-DP network. |
| Green | Red | Green | Module has good power, has received valid configuration from CPU, but is not communicating on the Profibus-DP network. |
| Green | Green | Green | Module has good power, has received valid configuration from CPU, and is communicating on the Profibus-DP network. |
| Red | Blinking between yellow and green | Yellow | A fault has occurred.  Refer to the following description to determine fault. |

| Table 1. 2 – Fault Conditions | |
|---|---|
| **Pulse Count** | **Meaning** |
| 2 | An error encountered during system initialization. |
| 3 | A mismatch between PLC I/O length and Profibus-DP network map has occurred. |
| The blinking RUN light indicates a fault, to determine the fault; simply count the number of green pulses (the LED will pause for 2 seconds, pulse green a number of times, then repeat the cycle).  **Table 1-2** describes the fault as represented by the number of green pulses. | |

### 1.5    Profibus DP Connector

1.5.1    The 9-pin Profibus DP connector is for physical connection between the slaves and the master.  For further information on the cable and connectors, see **Chapter 3** in this manual.


### 1.6    RS-232 Connector

1.6.1    The RS-232 Service Port is used to upgrade the firmware specific to the slave.  This port uses a standard RS-232 9-pin connector.
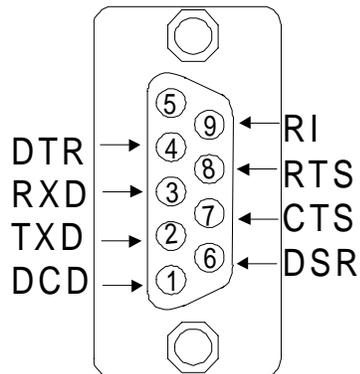
**Figure 1.2 - Pin-out for the
RS-232 connector.**

**1.7      PBS105 Status**

*1.7.1    PLC Status Bit Definition*

| Table 1.3 – PLC Status Bit Definition | | |
|---|---|---|
| **Status Word Bits** | **Meaning** | **Values** |
| 15-12 | Baud Rate | 0= 12M<br>1= 6M<br>2= 3M<br>3= 1.5M<br>4= 500K<br>5= 187.5K<br>6= 93.75K<br>8= 19.2K<br>9= 9.6K |
| 11-10 | DP State | 0= Wait PRM<br>1= Wait CFG<br>2= Data Exchange<br>3= Error |
| 9 | On-line | 0= Off-line |
| 8 | PLC Config | 1= Good PLC Configuration |
| 7-4 | Major Rev | 0-9 Firmware Major Rev. level |
| 3-0 | Minor Rev | 0-9 Firmware Minor Rev. level |