

IMPORTANT PRODUCT INFORMATION

READ THIS INFORMATION FIRST

**Product: PROFIBUS DP Master for IC693 PLCs
IC693PBM200-BC with firmware version 1.16**

Version 1.16 of the IC693 PROFIBUS Master module (IC693PBM200) firmware corrects the following defects, which are described in detail on page 4. No new features were added.

- Latent Output Data Sent to Slaves
- “Backplane Communications with PLC fault; lost request” with CPU374
- Slave Diagnostics Word Only Reports Address of First Slave with Faults
- Slave Status Bits not Updated After Storing Configuration with More Slaves

All previous firmware versions are replaced by this release. The new firmware is backward compatible with all previous firmware and hardware versions of the IC693PBM200.

Update Strategy

This firmware release is available as field upgrade kit (part number 44A752220-G02). The field upgrade kit is orderable in disk form from the factory and is available as a free download on the GE Fanuc web site.

Certification

This product meets the following certifications:

- PTO
- CE
- CUL, Class 1, Div. 2, Group ABCD

Operating Notes

Rack/Slot Location Limitations

The IC693PBM200 PROFIBUS Master Module may be operated only in the main rack of an IC693 system; operation in expansion or remote racks is not supported.

Migrating from the HE693PBM101 PROFIBUS Master Module

The following issues should be considered when attempting to migrate applications that used the HE693PBM101 to the IC693PBM200:

- The size of the slave status area for the IC693PBM200 is 128 points by default, compared to the 64 points used by the HE693PBM101. You may need to consider reducing the size of the slave status area to match the previous module’s usage.
- When the PLC is not scanning its I/O, the IC693PBM200 enters Clear Mode. The HE693PBM101 does not.
- In the HE693PBM101, the slave status bits are arranged by the order in which they appeared in the configuration. In the IC693PBM200, the slave status bits are arranged in order by bus address.
- With the HE693PBM101, separate bits and data areas for each slave are used to detect and retrieve diagnostic data from the slaves. A word of optional input data in the IC693PBM200 informs the application program that a slave has diagnostic data. The data is then retrieved from the slave using a COMM_REQ function block. So the Diagnostic Flag area, the Diag_Data Slave Addr area, and the Diag Data area used by the HE693PBM101 are not present in the IC693PBM200.

- The HE693PBM101 has one Module Revision input word. In the IC693PBM200, this input word has been combined with the new Slave Diag ID input word to form an optional 2-word input area.
- The IC693PBM200 uses 16 fewer sync/freeze control bits and these bits have different semantics. The bits are now optional.
- You may wish to disable fault reporting in the IC693PBM200 to match the behavior of the HE693PBM101.

PLC Modes

While the PLC is in either Run or Stop I/O Scan modes, the IC693PBM200 scans all configured slaves, sending outputs and reading inputs. When the PLC is not scanning I/O, the module continues to scan all I/O but enters Clear mode. In Clear mode, zeroed data is sent to all of the configured slaves. When the PLC again transitions to either *Run* or *Stop I/O Scan* mode, output transmission resumes using the most recently-supplied output data.

Network Scan Operation

The Master module scans the PROFIBUS network as fast as possible, determined by the number of slaves and the amount of data per slave (and processing of COMMREQs, if any). The module's scanning of the network is asynchronous with respect to the PLC's logic sweep.

PROFIBUS Identification Number Byte-Swapped in the Get Device Diagnostics COMMREQ

The PROFIBUS Identification number for the device queried by the Get Device Diagnostics COMMREQ (command number 4) is byte-swapped. (The high-order byte is reported in the low-order byte of the specified PLC CPU memory location, and the low-order byte is reported in the high-order byte of the specified PLC CPU memory location.)

Get Device Diagnostics COMMREQ Writes Non-zero Data to Extra Byte in PLC Memory if PROFIBUS Diagnostic Response has an Odd-byte Length

If the diagnostic information returned from a PROFIBUS device by the Get Device Diagnostics COMMREQ (command number four) has an odd-byte length, and the response is written to word-oriented PLC CPU reference memory (%R, %AI, %AQ), there is always an extra byte left in the reference memory. This byte may contain non-zero data.

ID of Faulted Slave not Reported in Slave Diagnostics Word if Fault Occurred while Master Turned Off, or Master/Slave Disconnected from Network

If a slave encounters a new fault while the IC693PBM200 PROFIBUS Master is powered off or, while the master or slave is physically disconnected from the PROFIBUS network, the ID of that slave is not reported in the Slave Diagnostics Word after the master is powered on, or the master or slave is reconnected to the PROFIBUS network. A zero is reported instead.

Functional Compatibility

IC693CPU374 Compatibility

IC693PBM200 firmware version 1.16 or later is required to use this module with the IC693CPU374.

HHP Support

The Hand-Held Programmer (IC693PRG300) cannot be used to configure the IC693PBM200.

Programmer Version Requirements

The IC693PBM200 can be configured and programmed with CIMPLICITY® Machine Edition Logic Developer PLC version 2.6 or later. No other programmers support configuration of this module.

GFK-2119B

Network Configuration Limitations

The number and type of slave devices and the amount of data they can exchange with the master is constrained by the various memory resources within the PLC. Three types of PLC memory resources may constrain network configuration: Total Hardware Configuration Size, Individual Module Configuration Size, and Data Transfer Size Per Module.

Limitations on the Size of the Total Configuration

The amount of memory available for the PROFIBUS configuration is affected by the CPU model being used, the version of the CPU firmware, the number and type of other modules in the configuration, the number and type of slave devices configured, and the amount and type of communication in progress with an external programmer or HMI devices.

To check the current configuration size in Logic Developer PLC:

- In Logic Developer-PLC, select “Data View” for the hardware configuration (right click on hardware configuration and select Data View).
- On the Summary Tab, add up the “Data Size” fields of the components listed.

Logic Developer-PLC will not allow hardware configurations to be created that exceed 65,535 bytes. The hardware configuration size is further limited by the size of the user hardware configuration space available in each CPU model as specified in the following table:

Table 1. User Memory Limitations

CPU Model	Maximum User Memory Available for Hardware Configuration (Bytes)
311/313	4,736
331	4,673
341	8,192
350	16,512
351	81,920*
352, 360, 363, 364, 374	245,760*

*This memory must also contain the user program and the register, analog input, and analog output tables.

Individual Module Configuration Limitations

IC693 PLC CPU firmware releases 10.52 and earlier limit the size of the configuration for any one IC693PBM200 module due to internal system memory resources.

Internal system memory is also used for communication and real-time update processes, so the amount available at any one time varies. If a configuration is stored to the PLC CPU which includes a configuration for an IC693PBM200 module which exceeds this limit and the module is physically present, a System Mismatch fault will be entered into the PLC fault table. No indication of the failure is given if the module is not physically present.

Data Size Limitations

The amount of data that can be exchanged between the PLC CPU and the IC693PBM200 module is limited to 3,972 bytes of input data (data going from the IC693PBM200 module to the PLC CPU) and 3,972 bytes of output data (data going from the PLC CPU to the IC693PBM200 module).

Problems Resolved by this Revision

Latent Output Data Sent to Slaves

The IC693PBM200 PROFIBUS Master sends latent output data to slaves after a PLC CPU Stop to Run transition (Clear to Operate mode from the master's perspective) or after a network disconnect/reconnect event.

“Backplane Communications with PLC fault; lost request” with CPU 374

A “Backplane Communications with PLC fault; lost request” is intermittently logged in the PLC Fault table when using the IC693PBM200 PROFIBUS Master with an IC693CPU374. This fault occurs more frequently if the application program sends COMMREQs to the PBM200.

Slave Diagnostics Word Only Reports Address of First Slave with Faults

If there are multiple slaves with faults on a PROFIBUS network, the IC693PBM200 PROFIBUS Master only reports the address of the first slave it receives fault information from in the Slave Diagnostics Word. After the first slave's fault information is read using a Get Slave Diagnostics COMMREQ, the Slave Diagnostics Word goes to zero rather than reporting the address of the next slave with faults.

Slave Status Bits not Updated After Storing Configuration with More Slaves

If an IC693PBM200 PROFIBUS Master is configured with less than the maximum number of slaves, and a new configuration is stored to the module containing more slaves than were originally configured, some of the Slave Status Bits may not be updated after the configuration store completes. This produces a “dead spot” in the Slave Status Bits. The “dead spot” disappears if the PBM200 is turned off and back on.