November 13, 1996
GFK-1126M

IMPORTANT PRODUCT INFORMATION

READ THIS INFORMATION FIRST

Product: **IC693 CPU Firmware, Release 7.00, for Full Production**
IC693CPU351-EJ
IC693CPU352-BA

This is a feature release of the IC693 PLC firmware. This release introduces a new model, the IC693CPU352, which supports floating point math operations. This release of firmware also doubles the amount of user memory available in the IC693CPU313 and IC693CPU323, from 6K bytes to 12K bytes. No new hardware is required for this increase in user program memory. Additionally, the serial ports on a CPU 351 and CPU 352 can now be configured using IC641 programming software, release 7.00. Also included in this release is the ability to use the memory protection keyswitch on the CPU 351 and CPU 352 as a RUN / STOP keyswitch.

New Catalog Number	Replaces
IC693CPU351-EJ	IC693CPU351-BC, CD, DD, DE, DF, DG, DH, EH
IC693CPU352-BA	Not applicable - new product

Hardware and software identification for this release is summarized in the following table.

Catalog Number	Board Identification	Board Revision	EEPROM Location
IC693CPU351-EJ	CV3A2	44A737904-G01R02 or later	U105 and U106
IC693CPU351-EJ	CA3A2	44A737909-G01R01 or later	U3
IC693CPU352-BA	CV3B2	44A737922-G01R02 or later	U105 and U106
IC693CPU352-BA	CA3A2	44A737909-G01R01 or later	U3

Packaging Note

The user manual is not shipped in the box with every product. User manuals are provided as a complete set in a library with IC641 Programming Software products, are available on CD-ROM, or can be ordered as individual manuals.

Upgrade Information

Upgrade kits are available to upgrade existing CPU 351 units with release 6.62 or earlier firmware to release 7.00 firmware. (Not applicable for CPU 352, which is a new product). This upgrade is optional. Existing units may be upgraded for a charge by ordering the field upgrade kit.

Upgrade Kit	For Upgrading	To
44A736935-G07	IC693CPU351-EH or earlier versions	IC693CPU351-EJ

Functional Compatibility

IC641 programming software version 7.00 or later must be used to take advantage of the new features.

Documentation

The following table lists the applicable documentation for the model 351 and model 352 CPU. Documentation is also available on CD-ROM, IC690CDR002*. (* current version will be shipped).

Catalog Number	User Manual
IC693CPU351-EJ	Programmable Controller Installation Manual (for IC693 Products)
IC693CPU352-BA	Programmable Controller Installation Manual (for IC693 Products)

Operational Notes

UVEPROM Change

1. The User Program, configuration, CPU ID (used for SNP communications), and status tables will automatically be cleared when the CPU firmware in UVEPROM or flash memory, as applicable, is changed. You will need to restore these if upgrading from a previous CPU version. The user program, configuration, and status tables can be restored from an IC641 programming software folder, or from memory card (except on CPU 351), EEPROM, or flash memory The SNP ID must be set separately, using IC641 programming software or the Hand-Held Programmer.

FIRMWARE UPGRADE PROCEDURE

2. The Model 351 CPU operating firmware is stored in flash memory. The firmware upgrade is provided on a floppy disk and must be serially downloaded from a Personal Computer. An IBM AT compatible or better PC with a minimum 640K of RAM, one 3.5" or high density 5.25" floppy drive, MS-DOS version 3.3 or later, a hard drive, and one RS-232 serial port is required. In addition, a serial cable is required. The following serial cable kit is available:

- IC690ACC901 Miniconverter Kit with cable (RS-232 / RS-485)

Optionally, the cable can be assembled from the following parts:

- IC690ACC900 RS-232 to RS-485 / 422 Converter Unit
- IC693CBL303 15-Pin RS-485 Serial Cable
- IC690CBL705 25-Pin RS-232 Serial Cable *
- IC690CBL702 9-Pin RS-232 Serial Cable *

* *Only one of these cables is required. Selection depends on PC Serial Port Connector.*

Ethernet Interface Module Compatibility

3. All IC693 Ethernet Interface (IC693CMM321) modules used with release 6.5 or later of the IC693 PLC should be updated to release 1.10 or later of the IC693CMM321. IC641TCP/IPEthernet software requires both CPU release 6.5 or later and IC693CMM321 release 1.10 or later

During a Run Mode (Alt-s) Program Store of a large program block (greater than 14 Kbytes). the Ethernet Interface module may timeout, causing communications to fail. Changing the Communication Window to Run-to-Completion mode, or storing the program in stop mode, will allow the Store to take place successfully.

CMM Operation

4. When using an on-board serial port (port 1 or port2) on a model 351 or 352 PLC as an SNP Master connected to an IC693CMM311 under a heavy load, if the CMM does not respond to a request, then a time-out error will occur on the COMM_REQ issuing the request, and the COMM_REQ should be reissued by the application.

GCM Compatibility

5. Board revision R08 or later of the IC693CMM301 should be used with the IC693CPU352.

Battery-Less Operation

6. When using an IC693CPU340, IC693CPU341, IC693CPU351, or IC693CPU352 CPU in a battery-less system, a standard 0.1 *berg* jumper should be installed across either of the two power supply battery connectors to ensure proper operation of the CPU. This jumper should not be installed if a battery is plugged into either the power supply or CPU battery connector.

Retentive Warning

7. The *USE WRN* message may be displayed inappropriately by the Hand-Held Programmer. The program check function can be used to determine if a coil is being used multiple times.

New Features and Functionality

Floating Point Operations - CPU 352

1. This release introduces a new model, the IC693CPU352, which supports floating point math operations.

User Memory Increased - CPU 313 and CPU 323

2. The amount of user memory available in the IC693CPU313 and IC693CPU323, has been increased from 6K bytes to 12K bytes. No new hardware is required for this increase in user program memory.

Serial Port Configuration - CPU 351 and CPU 352

3. The serial ports on a CPU 351 and CPU 352 can now be configured using IC641 programming software, release 7.00.

Memory Protect Keyswitch Functionality - CPU 351 and CPU 352

4. Also included in this release is the ability to use the memory protection keyswitch on the CPU 351 and CPU 352 CPUs as a RUN / STOP keyswitch.

Problems Resolved by This Release

ALT-S in Stop Mode

1. When using **Alt-s** in run mode, program memory became fragmented, and a resulting **Alt-s** in stop mode may not have worked. This problem has been fixed in release 7.00.

HHP Overrides

2. Override bits set with the Hand-Held Programmer would not be displayed correctly beyond the first byte of data. This problem has been fixed in release 7.00.

HHP Coil Use

3. Multiple Coil Use detection when the conflicting coil use was outside of the main block was not previously detected in release 6.61. This problem is now fixed in release 7.00.

HHP Subroutines

4. Editing subroutines with the Hand-Held Programmer in release 6.61 could result in a software fault. This problem has been fixed in release 7.00.

SHL Word (CPU 351)

5. In previous CPU 351 releases, the SHL_WORD function block did not support a shift where the number of words shifted by the N parameter was more than 127 bytes. This is now supported in release 7.00.

SFC Timers (CPU 351)

6. The use of SFC timers with function blocks in previous releases of the CPU 351 was not supported. This is now supported in release 7.00.

Restrictions and Open Problems

ALT-S Run Mode Store of Periodic Subroutine

1. An **Alt-s** Run Mode Store should not be used to add or delete a periodic subroutine; although editing a periodic subroutine with **Alt-s** in Run mode is allowed.

HHP Write to Flash or EEPROM with IC641 Programmer Connected

2. When using the HHP to write the program currently in memory into permanent storage (Flash or EEPROM), the IC641 programmer must not be connected at the

same time through other serial ports on the CPU 351, CPU 352, or an IC693CMM311. Other wise, incorrect data could be placed into the Flash / EEPROM area. To correctly store to Flash / EEPROM, either use the IC641 programmer, or disconnect the IC641 programmer while using the HHP to perform this function.

Changes and Additions to the User's Manual

The following will be added to a future version of the Hand-Held Programmer User's Manual.

If the SFC language is used to create a program, then the Hand-Held Programmer may not be used to edit this program, or to change the Coil Use setting while the SFC program is stored in the PLC.