#### GFK-0539C August 1997

The IC697 Remote I/O Scanner (IC697BEM733/735) is an intelligent module that mounts in a remote IC697 rack, and interfaces IC697 I/O modules to an IC66\* bus.

#### **Features**

- Can be located up to 7500 feet (2275 meters) from controller.
- Supports standard IC697 discrete and analog I/O modules.
- Supports PCM, ADS, and analog expander modules.
- Handles up to 128 bytes of inputs and 128 bytes of outputs per remote drop.
- Configurable with MS-DOS<sup>®</sup> programming software configuration function or with an IC66\* Hand-held Monitor.
- Compatible with all types of IC66\* host.
- Supports both CPU and IC66\* bus redundancy.
- Each remote drop can include up to eight racks<sup>†</sup>, with a Remote I/O Scanner located in rack 0.
- Up to 30 remote drops can be located on the same IC66\* bus.

Together, a Remote I/O Scanner and the modules it serves make up a remote drop on the IC66\* bus. A

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remote drop can consist of up to eight racks, linked by Bus Transmitter and Bus Receiver modules. 9-slot and/or 5-slot IC697 racks can be used. The maximum distance from the first rack to the last rack in a remote drop is 50 feet (15 meters).

The Remote I/O Scanner can handle any mix of discrete and analog inputs and outputs up to a total of 1024 discrete inputs and 1024 discrete outputs, or 64 analog inputs and 64 analog outputs (regardless of the number of racks in the remote drop). A remote drop can include all presently-available IC697 discrete modules, analog modules, and analog expander modules. Bus Transmitter, Bus Receiver, PCM, and ADS modules can also be placed in a remote drop. A remote drop cannot have any I/O module interrupts, bus controllers, communications modules, or other modules that depend on COMREQ instructions for their operations.

The Remote I/O Scanner is ideally suited for use in an IC697 PLC system. However, any type of PLC or computer capable of controlling an IC66\* bus can be used as the host. Suitable hosts include IC660 PLCs, IC655 PLCs, and computers equipped with a PCIM (Personal Computer Interface Module), QBIM (Q-Bus Interface Module), or a third-party GENI-based interface.

†RemoteI/OScannerIC697BEM733/735Borlaterrequired.\*IC660 or IC661 products.



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# **Module Description**

The Remote I/O Scanner consists of a single circuit board, with a hinged door which serves as a faceplate. The module does not require batteries; the faceplate battery holder is not used.



### LEDs

The Remote I/O Scanner has three LEDs that show through the transparent portion at the top of the door.

- Module OK lights when the module has passed its powerup diagnostic tests. If this LED flashes, it indicates a problem. If this LED is off, there is a fatal error that will cause the Remote I/O Scanner to go to stop/faulted mode.
- I/O Enabled lights when the Remote I/O Scanner is receiving output data from the CPU. If this LED flashes, either I/O data is forced or there is a Device Number conflict.
- Bus B Active on a dual (redundant) bus, this LED lights when Bus B is active.

The following table summarizes the LED indications.

Module OK	I/O Enabled	Meaning
On	On	Normal Operation
Blinking	On	Fault detected
On	Blinking	I/Odataforced
Altemate blinking	Altemate blinking	Fault detected, and I/O data forced
Synchronous blinking	Synchronous blinking	Device Number conflict
On	Off	Outputs not being updated from CPU
Off	Off	No power or fatal error

#### Connectors

- 9-pin male D Connector: the upper connector. Used for attaching an IC66\* Hand-held Monitor.
- 15-pin female D Connector: the center connector is an RS-422 compatible RS-485 serial port, for direct connection of a serial programmer or for connection to a multidrop communications network.
- The IC66\* bus terminal strip is attached to the connector at the bottom of the module. Because the terminal strip is removable, it is possible to service or replace the module while the system is operating without disrupting bus communications.

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Configuration can be done with:

- MS-DOS programming software release 3.0 or later. This software provides full configuration of I/O modules and allows selection of module options.
- An IC66\* Hand-held Monitor, version 4.0 or later. The HHM automatically assigns I/O references to the modules in the remote drop. *The I/O modules in the remote drop operate in default mode if a Hand-held Monitor is used to enter or change configuration.* If the remote drop includes any analog expanders, a Hand-held Monitor cannot be used for configuration.

#### **IC697 PLC Configuration**

If the system host is an IC697 PLC, each Remote I/O Scanner must be added to the PLC configuration. With MS-DOS programming software release 3.0 or later, a separate program folder should be created for each remote drop. The folders should be organized so that the remote drop folders are located in the central PLC folder. The *Remote I/O Scanner User's Manual* gives complete configuration instructions.

ModuleType	IC697RemoteI/OScanner/C697BEM733/735
LEDs	Module OK, I/O Enabled, Bus B Active
Size	Occupies single slot in IC697 remote rack
Ports	One 15-pin RS-422/485 compatible serial port, one 9-pin IC66* Hand-held Monitor port.
Current Required from +5V Bus	0.8 amps
Bus Type	Daisy-chained bus cable; single twisted pair plus shield or Twinax. Fiber optics cable and modems can also be used.
Bus Termination	75, 100, 120, or 150 ohm resistor at both ends of electrical bus cable.
BaudRate	Configurable. 153.6 Kbaud standard, 153.6 Kbaud extended, 76.8 Kbaud, or 38.4 Kbaud.
MaximumBusLength	7500 feet (2275 meters) at 38.4 Kbaud, 4500 feet (1365 meters) at 76.8 Kbaud, 3500 feet (1060 meters) at 153.6 Kbaud extended, 2000 feet 605 meters) at 153.6 Kbaud, standard. Maximum length at each baud rate also depends on cable type. The <i>IC66* I/O System User's Manual</i> provides a complete list of cable types, showing correspondingbus lengths and baud rates.
Maximum Number of Devices per Bus	32 devices at 153.6 Kbaud standard, 153.6 Kbaud extended, or 76.8 Kbaud. 16 devices at 38.4 Kbaud. Includes bus controller and Hand- held Monitor.
Maximum Number of Remote Drops per Bus	Depends on baud rate as follows:
153.6K baud extended 153.6K baud extended 76.8K baud	Up to 20 fully-loaded drops, or up to 30 drops if not fully-loaded. Up to 20 fully-loaded drops, or up to 30 drops if not fully-loaded. Up to 10 fully-loaded drops, or up to 30 drops if not fully-loaded.

#### Specifications †

Refer to GFK-0867B, or later for product standards and general specifications. For installations requiring compliance to more stringent requirements (for example, FCC or European Union Directives), refer to *Installation Requirements for Conformance to Standards.* 

Note: For Conformal Coat option, or Low Temperature Testing option please consult the factory for price and availability.

## For More Information,

Please refer to these related publications:

Remote I/O Scanner Module User's Manual. Programmable Controller Installation Manual. Programming Software User's Manual.

Programmable Controller Reference Manual.