

Chapter 5

Programming a New Hot Standby System

Follow the programming procedures in this chapter to install a new Hot Standby System. These procedures assume that you have properly installed your 984 Hot Standby System according to the *984 Hot Standby System Installation and Maintenance Manual* (GM-S911-001).

If you are upgrading an existing 984 controller to give it Hot Standby capability, refer to Chapter 6.

Hot Standby Programming Procedures

Procedure Programming a New Hot Standby System



Note Software label keys are shown in brackets [], and other keys are shown in bold type.

- Step 1** Select either controller, and connect the programming panel—e.g., P190, P230—to Modbus port 1. Place the S911 keyswitch on the controller in the RUN position. Place the keyswitch on the other controller in the OFFLINE position.
- Step 2** Load the 984 Configurator tape or disk file. Make sure the controller is in STOP mode before proceeding.
- Step 3** Use the software label keys to configure the controller for your application. Then use [MODULES] to load the HSBY loadable module from tape or disk file. Then write the configuration to the controller using [WRITE CONFIG].
- Step 4** Load the 984 Traffic Cop tape or disk file. Use the software label keys to configure the 800 Series I/O addressing.



Note Local I/O capabilities—such as those available in the 9894X and the 984-680/-685/-780/-785 Controllers—are not supported in Hot Standby Systems.

- Step 5** Load the 984 Programmer tape or disk file.
- Step 6** Enter the HSBY DX function block into network 1 of segment 1. Optionally, you may program ladder logic in network 2 of segment 1, if that logic is not used to control I/O. If the HSBY function block does not appear in the various DX menus, return to step 3.



Note Make sure that only horizontal shorts are used in the *Execute HSBY* input line to the HSBY function block. If contacts of any kind are used that cause the function block to disable, the integrity of the Hot Standby System will be upset.



Note You may set or reset certain bits in the HSBY command register through the [FULL REFERENCE] screen of your programmer.

- Step 7** Enter application ladder logic for segment 2 and all other segments.
- Step 8** Start the selected controller and debug the application program. Make sure all application devices operate according to design.
- Step 9** Load the 984 Tape Loader tape or disk file. Record your application program with a [DUMP 984] operation.

- Step 10** Connect the programming panel to Modbus port 1 on the other controller. Make sure the controller is in the STOP mode before proceeding.
- Step 11** Load the application program into this controller with a [LOAD 984] operation.
- Step 12** Start the controller.
- Step 13** Turn the keyswitch on the S911 to RUN. Verify the proper LED indications against Table 2.

Table 2 Hot Standby Normal Indications

Module	Led Indicator	Primary Controller	Standby Controller
S911	READY	ON	ON
	COMM ERROR	OFF	OFF
	PRIMARY	ON	OFF
	STANDBY	OFF	ON
S908/S929	READY	ON	ON
	COMM ACTIVE	ON	Blinking
	COMM ERROR	OFF	OFF
C916/C924	RUN	ON	ON
	READY/SAFE 84	OFF	OFF
984-680/-685/ -780/-785	RUN	ON	ON
	READY	ON	ON
	POWER OK	ON	ON

Your new 984 Hot Standby System is now set up. For further operating instructions, refer to the *984 Hot Standby System Installation and Maintenance Manual* (GM-S911-001).

Chapter 6

Programming a Retrofit Hot Standby System

Follow the programming procedures in this chapter to upgrade an existing standalone 984 controller to a Hot Standby System. These procedures assume that you have properly installed your 984 Hot Standby System according to the *984 Hot Standby System Installation and Maintenance Manual* (GM-S911-001).


If you are installing a new Hot Standby System, refer to Chapter 5.





Note Local I/O capabilities—available in the 984X chassis mount and in the 984-680/-685/-780/-785 slot mount Controllers—are not supported in Hot Standby Systems.

Retrofit Hot Standby Programming Procedures

Procedure Programming a Retrofit Hot Standby System

 **Note** Software label keys are shown in brackets [], and other keys are shown in bold type.

- Step 1** Connect a programming panel—e.g., a P190 or a P230—to Modbus port 1 on the original controller, which contains your application program. Turn the keyswitch on its S911 Hot Standby module to the RUN position. Make sure that the keyswitch on the other controller is in the OFFLINE position.
- Step 2** Load the 984 Tape Loader tape or disk file. Record your application program with a [DUMP 984] operation.
- Step 3** Load the 984 Configurator tape or disk file. Make sure the controller is in the STOP mode before proceeding.
- Step 4** Use [MODULES] to load the HSBY loadable module from tape or disk file. Write the configuration to the controller using [WRITE CONFIG].
- Step 5** Load the 984 Traffic Cop tape or disk file. Follow the appropriate software label keys to configure the 800 Series I/O addressing. (The Traffic Cop is lost when the system is reconfigured.)
- Step 6** Load the 984 Tape Loader tape or disk file. Reload your application program with a [RELOCATE LOGIC] operation.
- Step 7** Load the 984 Programmer tape or disk file.
- Step 8** Insert the HSBY DX function block into network 1 of segment 1. All existing logic automatically moves to the next network of segment 1. If the HSBY function block does not appear in the various DX menus, return to Step 3.
-  **Note** Make sure that only horizontal shorts are used in the top (*Execute HSBY*) input line to the HSBY function block. If contacts of any kind are used that cause the function block to disable, the integrity of the Hot Standby System will be upset.
-  **Note** You may set or reset certain bits in the HSBY command register through the [FULL REFERENCE] screen of your programmer.
- Step 9** Start the selected controller and debug the application program. Make sure all application devices operate according to design.

- Step 10** Load the 984 Tape Loader tape or disk file. Record your application program with a [DUMP 984] operation. This copy will supersede your previous backup copy.
- Step 11** Connect the programming panel to the Modbus port 1 of the other controller. Make sure the controller is in the STOP mode before proceeding.
- Step 12** Load the application program into this controller with a [LOAD 984] operation.
- Step 13** Start the controller.
- Step 14** Turn the keyswitch on the S911 to RUN. Verify the proper LED indications against Table 3.

Table 3 Hot Standby Normal Indications

Module	Led Indicator	Primary Controller	Standby Controller
S911	READY	ON	ON
	COMM ERROR	OFF	OFF
	PRIMARY	ON	OFF
	STANDBY	OFF	ON
S908/S929	READY	ON	ON
	COMM ACTIVE	ON	Blinking
	COMM ERROR	OFF	OFF
C916/C924	RUN	ON	ON
	READY/SAFE 84	OFF	OFF
984-680/-685/ -780/-785	RUN	ON	ON
	READY	ON	ON
	POWER OK	ON	ON

Your new 984 Hot Standby System is now set up. For further operating instructions, refer to the *984 Hot Standby System Installation and Maintenance Manual* (GM-S911-001).