	GED Integrated Solutions 9280 Dutton Drive Twinsburg, Oh 44087	Document No.: APN-0154 Revision: A	Date: 12/17/2010
Description: B&R SafeLOGIC PLC Update Procedure			
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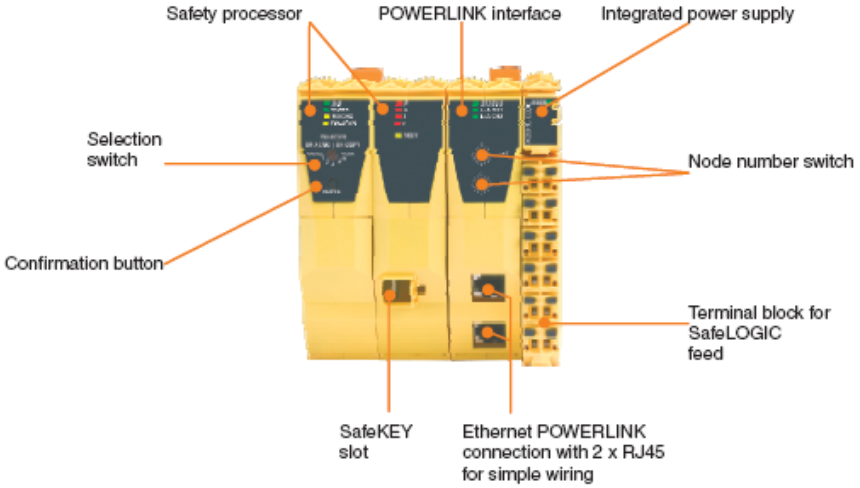
Revision History:		Changed By:	Date:
A) Original Release		SDL	12/17/2010

The SafeLOGIC PLC program may need to be updated if, after an X20 PLC program upgrade, you cannot achieve Master Start.

You will need the following:

- A SafeKEY (100-6388) containing the latest Safety PLC program. The SafeKEY can only be programmed using an X20 PLC and the appropriate software from B&R.
- Small Bladed Screwdriver or Jewelers Screwdriver.
- Flashlight.



(fig. 1)

IMPORTANT: Thoroughly read and understand the steps required before attempting to perform this update. It is important to understand that the following steps may not happen in the exact order as listed below.

1. Turn **OFF** the main power to the machine. Verify all the LEDs on the SafeLOGIC PLC are **OFF**.

2. Remove the existing SafeKEY and replace with the newly programmed SafeKEY.

(fig. 2)

Note: Make sure the grey clip on the SafeKEY is pulled out before attempting to remove the SafeKEY from SafeLOGIC Safety Processor. Don't forget to push the grey clip back in when the new SafeKEY is fully inserted into the SafeLOGIC Safety Processor.

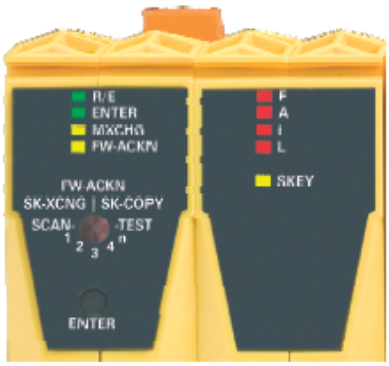
3. Reapply power to the machine.

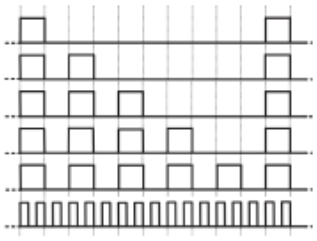
4. Watch the LEDs on the SafeLOGIC Safety Processor. Be patient as the boot up may take some time while the SafeLOGIC PLC reads the program on the new SafeKEY. Reboot times will vary between 30 seconds and one (1) minute.

5. Pay attention to the **R/E** LED. The LED should be green and blink on and off. This is normal as the safety PLC program is not running.

6. Look below the **R/E** LED and make note of the LEDs below it.

7. Using the reference chart (*fig. 3*) below, determine the cause of their state(s).

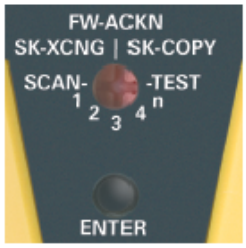


LED	Color	Status	Description
R/E		Off	Boot phase
	Green	On	Application found and executed
		Blinking	Application exists, but CPU is stopped (In the SafeDESIGNER download dialog box, "Automatic start" was not selected")
	Yellow	On	SafeDESIGNER is in debug mode
		Blinking	SafeDESIGNER is in debug mode, application stopped
		Blinking quickly	No application found on the SafeKEY
ENTER	Green	On	Authorization missing
		1x blinks for 0.8 s	Confirmation of correct entry
		Blinks (1 Hz) for 5 s	Faulty operation
MXCHG	Yellow	OUT 	Module configuration OK Exchange of 1 module detected Exchange of 2 modules detected Exchange of 3 modules detected Exchange of 4 modules detected Exchange of more than 4 modules detected Missing module detected
FW-ACKN	Yellow	Off	Firmware configuration OK
		Blinking	Firmware update executed
		On	SafeKEY was exchanged

(fig. 3)

8. At this point, the yellow **FW-ACKN** LED should be **ON**. Using the reference chart above, note that the SafeLOGIC Safety PLC has detected that the SafeKEY was exchanged.

9. Use the following reference chart (*fig. 4*) to determine the response needed to acknowledge that exchange.



Switch position	Functionality	Description
FW-ACKN	Acknowledge Firmware	Acknowledge the Firmware exchange
SK-XCNG	SafeKEY exchange	Acknowledge the SafeKEY exchange
SK-COPY	SafeKEY copy	Copy of the configuration data from the SafeKEY
SCAN	Scan	Perform module scan
Test	Test	Perform LED test
1,2,3,4,n	Module exchange	Confirming a module exchange with 1, 2, 3, 4 or more than 4 modules

(fig. 4)

10. To begin the acknowledgement of the SafeKEY exchange, rotate the **Selection Switch** to the **SK-XCHNG** position. Use a flashlight to verify the position of the switch. If the **Selection Switch** is incorrectly set, the proper acknowledgement will not be sent to the SafeLOGIC PLC.

11. Press **ENTER** (i.e., **Confirmation Button**) on the front of the SafeLOGIC Safety Processor. The Confirmation Button must be pressed for 0.5 sec. to 5 sec. to receive a confirmation. After 0.5 sec., the **ENTER** LED will turn **ON**. After releasing the Confirmation Button, the **ENTER** LED will remain ON for an extra 0.8 sec. Be aware of the following when pressing the **Confirmation Button**:

    - If the **Confirmation Button** is released before 0.5 sec, it has no effect.
    - If the **Confirmation Button** is pressed for longer than 5 sec., then the **ENTER** LED blinks for 5 sec. to display an error.

12. If properly executed, the SafeLOGIC PLC will reboot and the **FW-ACKN** LED will be **OFF**.

13. Check the other LEDs and cross-reference their state to the chart in *fig. 3*. After acknowledging a SafeKEY exchange, it is very common to have to acknowledge the number of modules exchanged as well.

14. In a ContourGrid machine, for example, the yellow **MXCHG** LED will begin to blink 4 times…stop…and then blink one more time before repeating. This cross-references to **4 Modules Detected** according to the chart in *fig. 3*.

15. Move the Selection Switch to the 4 position and then press the **Confirmation Button**.

16. After the SafeLOGIC PLC reboots, all the LEDs should be **OFF**. The SafeLOGIC PLC is now in run mode and you should be able to acheive Master Start on the machine. If they are not, follow the same logic in determining the state of the LEDs and resolving them using the **Selection Switch** and **Confirmation Button** until the LEDs are **OFF**.