



**User Manual for the  
*HE693PBX320***

**32 BUTTON / 32 LED  
DRIVER BOARD**

**First Edition  
20 July 1998**

**MAN0252-01**

## **PLC Setup:**

The HE693PBX320 is designed to connect to a GE Fanuc Series 90-30 PLC and communicate to it using GE Fanuc's SNP-X protocol. The serial port settings are fixed as follows:

- 19200 baud
- Odd parity
- 8 data bits
- 1 stop bit
- 0 mS modem turnaround time

The PLC should be configured with no level 2 passwords and any legal CPU ID. The PBX320 should be connected to one and only one SNP-X slave via a HE693CBL150 cable (available from Horner Electric).

The PBX320 will transfer the data from the 32 pushbuttons at power-up and whenever a change is detected in their state. The 32-bit value is sent to %I105 through %I136. The pushbuttons selected must provide a closed resistance of no more than 100 ohms.

The PBX320 will continuously read and update the 32 LEDs. The data is obtained from the PLC's %Q105 through %Q136. The user must ensure that the LED circuit does not exceed 200 mA per segment. The LEDs are scanned by the PBX320 at a 1/4 duty cycle. Only one DIGIT driver will be energized at a time, up to 8 SEGMENT drivers will be energized at once.

The PBX320 requires 24 Volts DC applied to the removable P4 screw terminal connector. Pin 1 should be connected to +24, pin 2 is ground. The mounting hole near P4 is designed to act as the frame ground connection and should be electrically attached to the chassis.

The following table indicate the connector pin-outs:

### **P4 (Power Connection)**

Pin 1	+24VDC
Pin 2	Ground

## **P1 (SNP-X Connection)**

Pin 1	Shield	
Pin 2	Not used	
Pin 3	Not used	
Pin 4	Not used	
Pin 5	Not used	
Pin 6	RTS-	(output from PBX320)
Pin 7	Ground	
Pin 8	CTS+	(input to PBX320)
Pin 9	Resistor termination	
Pin 10	RXD-	(input to PBX320)
Pin 11	RXD+	(input to PBX320)
Pin 12	TXD-	(output from PBX320)
Pin 13	TXD+	(output from PBX320)
Pin 14	RTS+	(output from PBX320)
Pin 15	CTS-	(input to PBX320)

## **P2 (LED Driver Connection)**

Pin 1	Digit 0	Each "digit" driver drives 8 anodes
Pin 2	Digit 1	
Pin 3	Digit 2	
Pin 4	Digit 4	
Pin 5	Segment 0	Each "segment" driver drives 4 cathodes
Pin 6	Segment 1	
Pin 7	Segment 2	
Pin 8	Segment 3	
Pin 9	Segment 4	
Pin 10	Segment 5	
Pin 11	Segment 6	
Pin 12	Segment 7	

### P3 (Switch Matrix Connection)

Pin 1	Column 0
Pin 2	Column 1
Pin 3	Column 2
Pin 4	Column 3
Pin 5	Row 0
Pin 6	Row 1
Pin 7	Row 2
Pin 8	Row 3
Pin 9	Row 4
Pin 10	Row 5
Pin 11	Row 6
Pin 12	Row 7

### HE693PBX320 Printed Circuit Board Component Layout (component side)

