E84 Serial to Parallel Controller (SPC)

KLA01002

The GCI **E84 Serial to Parallel Controller (E84 SPC)** is an off-the-shelf solution used by 300mm equipment manufacturers to provide SEMI E84 compliant communications for their products. With its built-in Load and Unload algorithms it is the perfect E84 communications solution for process tools, stockers, load ports, FOUP buffers, smart storage shelves and simulation load ports.

The **E84 SPC** easily integrates with equipment controllers through a standard serial communications connection. All handshaking functions are performed automatically with error detection and reporting, requiring only a minimal amount of communications overhead with the equipment controller. Alternatively, the **E84 SPC** can be implemented as a stand-alone controller utilizing its placement and presence sensor inputs. The **E84 SPC** is mounted in an extruded aluminum enclosure. The **E84 SPC** can optionally be ordered without the enclosure for mounting into standard three inch Snap Track.

An Amp Mate-n-lock connector (AMP P/N 1-794617-2) is provided for all external wiring, including the RS232 interface (transmit, receive, and ground), three auxiliary inputs (for use with load port placement and presence sensors), one auxiliary output, and system power.

A female DB-25 connector provides a fully compliant passive E84 PI/O interface to connect with the factory AMHS or optical transceiver device. It provides 16 optically-isolated E84 I/O signals plus three reserved optical transceiver signals: Select, Mode, and Go. LEDs are provided to indicate the state of each PI/O interface signal. The +24V signal is available to power an optical transceiver device.

An API consisting of a line-based ASCII message set provides the software interface to the host controller. The API provides an automatic mode of operation to perform the E84 Load and Unload handshakes with minimal host intervention. Manual mode allows the host controller to control and monitor individual PI/O signals.

The **E84 SPC** requires a single +18 to 30 VDC 200 mA power source.

SPC Enclosure Connector

Pin	Signal
7	OUTPUT-
8	GND
9	GND
10	GND
11	RX
12	GND
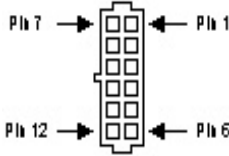
| Pin	Signal
1	OUTPUT+
2	INPUT3
3	INPUT2
4	INPUT1
5	TX
6	+24V

Connections for power, RS-232, and Auxiliary I/O (FOUP sensors) are made through an Amp mate-n-lock connector (mating connector is AMP P/N 1-794617-2, which is included with the SPC).

E84 Interface Connector

| Pin	Signal	Pin	Signal
1	L_REQ	14	VALID
2	U_REQ	15	CS_0
3	VA	16	CS_1
4	READY	17	AM_AVBL
5	VS_0	18	TR_REQ
6	VS_1	19	BUSY
7	HO_AVBL	20	COMPT
8	ES	21	CONT
9	-	22	-
10	SELECT	23	+24V
11	MODE	24	GND
12	GO	25	Signal COM
13	-	Shell	GND

E84 inputs and outputs are connected through a female DB-25 connector, in full compliance with E84.

E84 Interface I/O
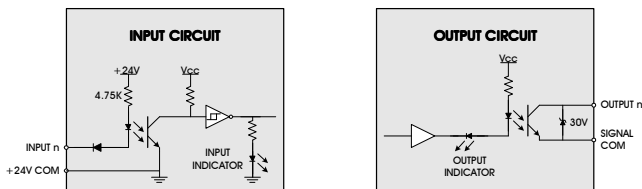
E84 signal Input and Output Circuits

SPC Demo Application
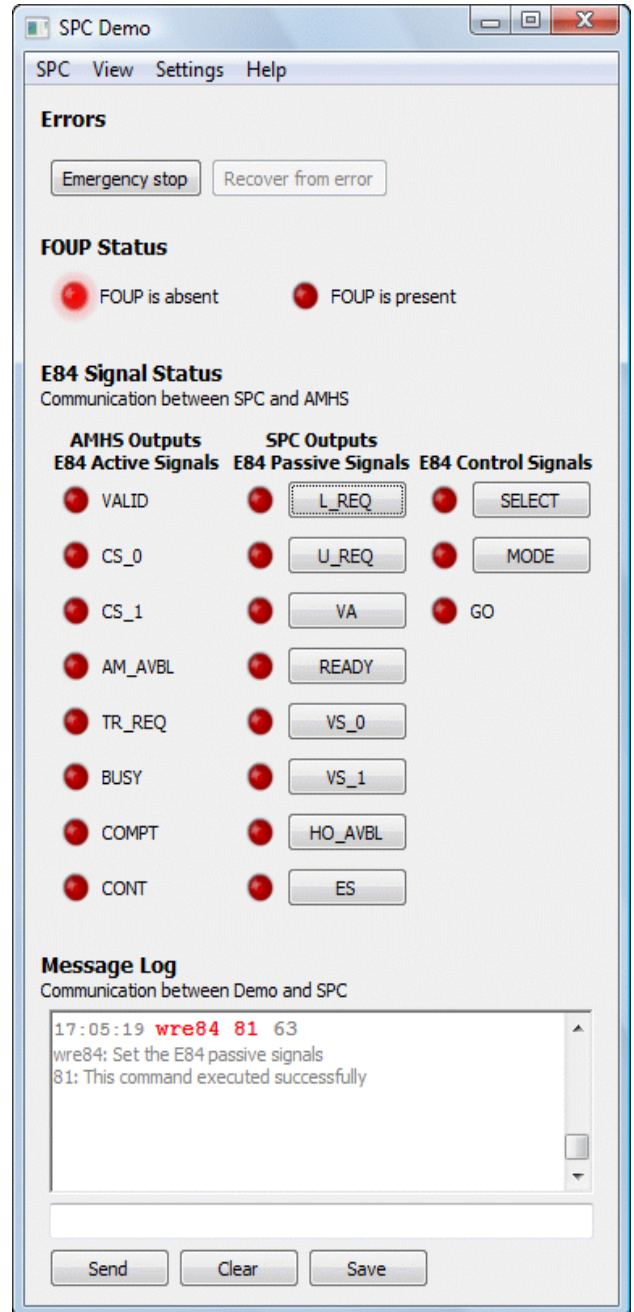
The SPC Demo software provides a control panel and an instant-messenger experience for investigating communication with the SPC.