



**HYTEC ELECTRONICS Ltd**

HEAD OFFICE: 5 CRADOCK ROAD, READING, BERKS. RG2 0JT, UK  
Telephone: +44 (0) 118 9757770 Fax: +44 (0)118 9757566

E-mail: [sales@hytec-electronics.co.uk](mailto:sales@hytec-electronics.co.uk)

**8904**  
**8-Channel RS-232**  
**DIN-Rail Mounted Connector Board**

**USERS MANUAL**

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### 1.INTRODUCTION



The Hytec 8904 is a DIN-Rail mounted board which allows connection to the IP-SI-8515 and IP-SI-8516 serial I/O cards using 9-way D-type connectors. It connects to the IP cards via a straight-through transition board type 8304 using a 50-way SCSI cable.

- 8 off 9-way D-type sockets connect to serial peripheral equipment.
- SCSI socket connects to transition board
- Supports one serial IP card. (Four units can be used for four serial IP cards mounted on one 8002 Carrier Board.)
- Each 9-way socket carries Tx/Rx/RTS/CTS/GND connections.
- Common mode bias resistors for differential inputs
- CTS lines brought to circuit pads
- +12V brought to 8 off circuit pads via optional pull-up resistor.
- Transient voltage protection

## 2. PRODUCT SPECIFICATIONS

Size:	DIN-rail mounted module approx 150x75x45mm
Operating temp:	0 to 45 deg C ambient
Power Requirements:	+12V connection to IP card for pull-up resistors (optional use)
Number of channels:	8
Number of signals:	4 (Tx/Rx/RTS/CTS) plus 2 Gnd connections
Connectors:	SCSI 50-way socket for connection to transition board 8 off 9-way D-type sockets with female retainers
Transient protection:	18V clamp rising to 40V max @ 10A

## 3. BOARD DESCRIPTION

The board is primarily intended to route 8 serial channels from the IP-SI-8515 (or 8516) card to 8 off 9-way D-type sockets. The IP card would normally be plugged onto one site of a carrier board (e.g.8002) and the signals routed to the rear of a VME64X crate using a straight-through transition board (e.g. 8304). One 8904 is required per 8515 card. Four are required if a full complement of 8515s are sited on an 8002 Carrier Board. Connections to the 8304 Transition Board, (which routes all four sets to 4off SCSI sockets), are made using 50-way SCSI cables. Each one of 8 sets of signals comprising Tx, Rx, /RTS, /CTS and Gnd is routed through to Sockets 1-8 from the 50-way SCSI socket.

The +12V fused output is brought through from the IP-SI-8515 card to 8 pull-up resistor located in RN1. These are made available for patching on pads TP1-TP8.

/CTS0- /CTS7 are connected to pads TP17-TP24.

The Aux1-Aux8 lines, (TTL level inputs on the 8515), are connected to pads TP9-TP16 for optional use.

## 4. OPERATION

### 4.1 Connection to Transition Board

Connect the unit to the SCSI socket on the transition board for the relevant carrier board site (e.g. lowest of the four connectors for an 8515 plugged into site A)

### 4.2 Connection to RS-232 Equipment

For each 9-way equipment connection use twisted pair cable to connect Rx of the receiving equipment to pin3 and its Ground return to pin5. Connect Tx of the receiving equipment to pin2 and its Ground the return to pin5 or alternatively to pin1.

If RTS/CTS control is to be used connect these using twisted pairs in a similar fashion

### 4.3 Connection to RS-485 Equipment



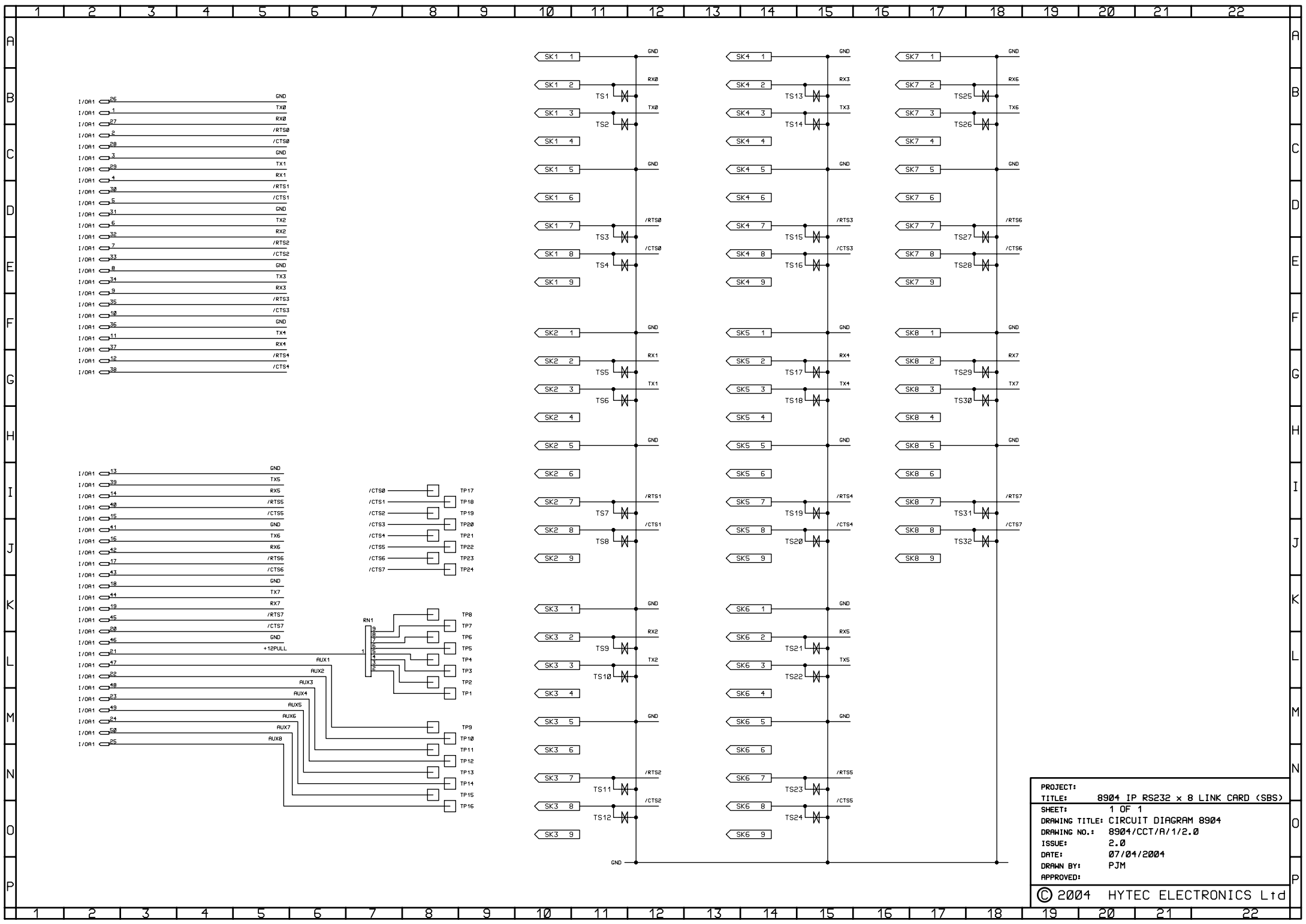
Use a twisted pair to connect Rx- and Rx+ of the receiving equipment to pin3 (Tx-) and pin2 (Tx+). If full duplex is used connect Tx- and Tx+ of the receiving equipment to pin7 (Rx-) and pin8 (Rx+). Connect the Ground to pins 1 or 5.

### 5.8904 Serial Connection DIN-Rail Board Pin-out

SCSI 50-way	9-way Socket	8515 RS-232	8516 RS-485	Comment
26	SK1-1 & 5	GND	GND	
1	SK1-3	Tx0	Tx0-	For RS-485 in
27	SK1-2	Rx0	Tx0+	HD mode Tx
2	SK1-7	/RTS0	Rx0-	pins double as
28	SK1-8	/CTS0	Rx0+	Rx pins
3	SK2-1 & 5	GND	GND	
29	SK2-3	Tx1	Tx1-	
4	SK2-2	Rx1	Tx1+	
30	SK2-7	/RTS1	Rx1-	
5	SK2-8	/CTS1	Rx1+	
31	SK3-1 & 5	GND	GND	
6	SK3-3	Tx2	Tx2-	
32	SK3-2	Rx2	Tx2+	
7	SK3-7	/RTS2	Rx2-	
33	SK3-8	/CTS2	Rx2+	
8	SK4-1 & 5	GND	GND	
34	SK4-3	Tx3	Tx3-	
9	SK4-2	Rx3	Tx3+	
35	SK4-7	/RTS3	Rx3-	
10	SK4-8	/CTS3	Rx3+	
36	SK5-1 & 5	GND	GND	
11	SK5-3	Tx4	Tx4-	
37	SK5-2	Rx4	Tx4+	
12	SK5-7	/RTS4	Rx4-	
38	SK5-8	/CTS4	Rx4+	
13	SK6-1 & 5	GND	GND	
39	SK6-3	Tx5	Tx5-	
14	SK6-2	Rx5	Tx5+	
40	SK6-7	/RTS5	Rx5-	
15	SK6-8	/CTS5	Rx5+	
41	SK7-1 & 5	GND	GND	
16	SK7-3	Tx6	Tx6-	
42	SK7-2	Rx6	Tx6+	
17	SK7-7	/RTS6	Rx6-	
43	SK7-8	/CTS6	Rx6+	
18	SK8-1 & 5	GND	GND	
44	SK8-3	Tx7	Tx7-	
19	SK8-2	Rx7	Tx7+	
45	SK8-7	/RTS7	Rx7-	
20	SK8-8	/CTS7	Rx7+	
46		GND	GND	
21		+12V	+5V	TP1-TP8 *
47		TTL I/P1	N/C	TP9
22		TTL I/P2	N/C	TP10
48		TTL I/P3	N/C	TP11
23		TTL I/P4	N/C	TP12
49		TTL I/P5	N/C	TP13



24		TTL I/P6	N/C	TP14
50		TTL I/P7	N/C	TP15
25		TTL I/P8	N/C	TP16



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