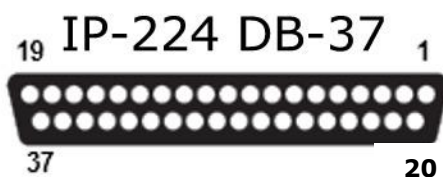


Telex Radio Dispatch System Integration

IP-224 Quick Reference

Notes

IP-224 DB-37 Radio Connector Pinout



Pin Number	Pin Name	Description
1	TX+ Audio	20mVpp to 40Vpp Adjustable (Balanced)
2	TX- Audio	20mVpp to 40Vpp Adjustable (Balanced)
3	CTCSS/Spare Audio Output	10mVpp to 10Vpp Adjustable
4	RSSI Input	User selectable 5/10Vdc Maximum
5	PTT Relay Common Contact	1 Amp @ 63V AC/DC
6	MON Relay N.C. Contact	1 Amp @ 63V AC/DC
7	MON Relay N.O. Contact	1 Amp @ 63V AC/DC
8	Function #1 Relay Common Contact	1 Amp @ 63V AC/DC
9	Function #2 Relay N.C Contact	1 Amp @ 63V AC/DC
10	Function #2 Relay N.O. Contact	1 Amp @ 63V AC/DC
11	Digital I/O #0	±36VDC Withstand Rating
12	Digital I/O #2	±36VDC Withstand Rating
13	Digital I/O #4	±36VDC Withstand Rating
14	Digital I/O #6	±36VDC Withstand Rating
15	COR Input	±36VDC Withstand Rating
16	RS-485/CAN D+	+5VDC Maximum
17	RS-232/TTL TXD	RS-232—Voltage Range: ±25VDC Maximum TTL —Voltage Range 0 to +5VDC Maximum
18	USB VBus/+5Vdc Output	+5VDC, 1 Amp output (Maximum)
19	USB D+	+5VDC Maximum
20	RX+ Audio	10mVpp to 10Vpp Adjustable (Balanced)
21	RX- Audio	10mVpp to 10Vpp Adjustable (Balanced)
22	CTCSS/Spare Audio Input ^a	10mVpp to 10Vpp Adjustable
23	PTT Relay N.C. Contact	1 Amp @ 63V AC/DC
24	PTT Relay N.O. Contact	1 Amp @ 63V AC/DC
25	MON Relay Common Contact	1 Amp @ 63V AC/DC
26	Function #1 Relay N.C. Contact	1 Amp @ 63V AC/DC
27	Function #1 Relay N.O. Contact	1 Amp @ 63V AC/DC
28	Function #2 Relay Common Contact	1 Amp @ 63V AC/DC
29	Ground	
30	Digital I/O #1	±36VDC Withstand Rating
31	Digital I/O #3	±36VDC Withstand Rating
32	Digital I/O #5	±36VDC Withstand Rating
33	Digital I/O #7	±36VDC Withstand Rating
34	RS-485 Busy	+5VDC Maximum
35	RS-485/CAN D-	+5VDC Maximum
36	RS-232/TTL RXD	RS-232—Voltage Range: ±25VDC Maximum TTL—Voltage Range: 0 to +5VDC Maximum
37	USB D-	+5VDC Maximum

Note: Local record audio has moved to the DB9 Connector

IP-224 DB-9 Accessory Connector Pinout

Pin Number	Pin Name	Description
1	Recorder Line 1 Output+	20mVpp to 8Vpp Adjustable (Balanced)
2	N/C	
3	N/C	
4	N/C	
5	Ground	
6	Recorder Line 1 Output-	20mVpp to 8Vpp Adjustable (Balanced)
7	N/C	
8	Recorder Line 2 Output+	20mVpp to 8Vpp Adjustable (Balanced)
9	Recorder Line 2 Output-	20mVpp to 8Vpp Adjustable (Balanced)

IP-224 RJ Front Radio Connector Pinouts

RJ-12 CONNECTORS RADIO 1 and 2

Pin Number	Description	Banjo-6 Pin
1	CTCSS/Spare Audio Input	1
2	RX Audio	BK
3	TX- Audio	R
4	TX+ Audio	G
5	Ground	Y
6	CTCSS/Spare Audio Output	6

RJ-11 HANDSET CONNECTOR

Pin Number	Description
1	Microphone Audio Input
2	Ground
3	PTT Input
4	Speaker Audio Output

IP-224 Password Reset Procedure

1. Use menu keys to get to *View Unit Info*
2. Press the **Menu** button to display Unit Info
3. While info is being displayed, press "**Up, Up, Down, Down**" buttons in this sequence
4. Press **Menu** to reset password

IP-224 CTCSS Frequency Codes

Tone Number	Freq. (Hz)	Tone Number	Freq. (Hz)	Tone Number	Freq. (Hz)	Tone Number	Freq. (Hz)
1	33.0	17	71.9	33	123.0	49	183.5
2	35.4	18	74.4	34	127.3	50	186.2
3	36.6	19	77.0	35	131.8	51	189.9
4	37.9	20	79.7	36	136.5	52	192.8
5	39.6	21	82.5	37	141.3	53	196.6
6	44.4	22	85.4	38	146.2	54	199.5
7	47.5	23	88.5	39	151.4	55	203.5
8	49.2	24	91.5	40	156.7	56	206.5
9	51.2	25	94.8	41	159.8	57	210.7
10	53.0	26	97.4	42	162.2	58	218.1
11	54.9	27	100.0	43	165.5	59	225.7
12	56.8	28	103.5	44	167.9	60	229.1
13	58.8	29	107.2	45	171.3	61	233.6
14	63.0	30	110.9	46	173.8	62	241.8
15	67.0	31	114.8	47	177.3	63	250.3
16	69.4	32	118.8	48	179.9	64	254.1

IP-224 Digital Output Codes

The following tables define the Digital Output Codes for the DIG Outputs available on the DB-37.

(reprinted from the IP-224 manual)

Digital Output Table

TABLE 11. Digital Output Table

Value	DIG7	DIG6	DIG5	DIG4	DIG3	DIG2	DIG1	DIG0
0	L	L	L	L	L	L	L	L
1	L	L	L	L	L	L	L	H
2	L	L	L	L	L	L	H	L
3	L	L	L	L	L	L	H	H
4	L	L	L	L	L	H	L	L
5	L	L	L	L	L	H	L	H
6	L	L	L	L	L	H	H	L
7	L	L	L	L	L	H	H	H
8	L	L	L	L	H	L	L	L
9	L	L	L	L	H	L	L	H
10	L	L	L	L	H	L	H	L
11	L	L	L	L	H	L	H	H
12	L	L	L	L	H	H	L	L
13	L	L	L	L	H	H	L	H
14	L	L	L	L	H	H	H	L
15	L	L	L	L	H	H	H	H
16	L	L	L	H	L	L	L	L
17	L	L	L	H	L	L	L	H
18	L	L	L	H	L	L	H	L
19	L	L	L	H	L	L	H	H
20	L	L	L	H	L	H	L	L
21	L	L	L	H	L	H	L	H
22	L	L	L	H	L	H	H	L
23	L	L	L	H	L	H	H	H
24	L	L	L	H	H	L	L	L
25	L	L	L	H	H	L	L	H

TABLE 11. Digital Output Table

Value	DIG7	DIG6	DIG5	DIG4	DIG3	DIG2	DIG1	DIG0
26	L	L	L	H	H	L	H	L
27	L	L	L	H	H	L	H	H
28	L	L	L	H	H	H	L	L
29	L	L	L	H	H	H	L	H
30	L	L	L	H	H	H	H	L
31	L	L	L	H	H	H	H	H
32	L	L	H	L	L	L	L	L
33	L	L	H	L	L	L	L	H
34	L	L	H	L	L	L	H	L
35	L	L	H	L	L	L	H	H
36	L	L	H	L	L	H	L	L
37	L	L	H	L	L	H	L	H
38	L	L	H	L	L	H	H	L
39	L	L	H	L	L	H	H	H
40	L	L	H	L	H	L	L	L
41	L	L	H	L	H	L	L	H
42	L	L	H	L	H	L	H	L
43	L	L	H	L	H	L	H	H
44	L	L	H	L	H	H	L	L
45	L	L	H	L	H	H	L	H
46	L	L	H	L	H	H	H	L
47	L	L	H	L	H	H	H	H
48	L	L	H	H	L	L	L	L
49	L	L	H	H	L	L	L	H
50	L	L	H	H	L	L	H	L
51	L	L	H	H	L	L	H	H
52	L	L	H	H	L	H	L	L
53	L	L	H	H	L	H	L	H
54	L	L	H	H	L	H	H	L

IP-224 Digital Output Codes

TABLE 11. Digital Output Table

Value	DIG7	DIG6	DIG5	DIG4	DIG3	DIG2	DIG1	DIG0
55	L	L	H	H	L	H	H	H
56	L	L	H	H	H	L	L	L
57	L	L	H	H	H	L	L	H
58	L	L	H	H	H	L	H	L
59	L	L	H	H	H	L	H	H
60	L	L	H	H	H	H	L	L
61	L	L	H	H	H	H	L	H
62	L	L	H	H	H	H	H	L
63	L	L	H	H	H	H	H	H
64	L	H	L	L	L	L	L	L
65	L	H	L	L	L	L	L	H
66	L	H	L	L	L	L	H	L
67	L	H	L	L	L	L	H	H
68	L	H	L	L	L	H	L	L
69	L	H	L	L	L	H	L	H
70	L	H	L	L	L	H	H	L
71	L	H	L	L	L	H	H	H
72	L	H	L	L	H	L	L	L
73	L	H	L	L	H	L	L	H
74	L	H	L	L	H	L	H	L
75	L	H	L	L	H	L	H	H
76	L	H	L	L	H	H	L	L
77	L	H	L	L	H	H	L	H
78	L	H	L	L	H	H	H	L
79	L	H	L	L	H	H	H	H
80	L	H	L	H	L	L	L	L
81	L	H	L	H	L	L	L	H
82	L	H	L	H	L	L	H	L
83	L	H	L	H	L	L	H	H
84	L	H	L	H	L	H	L	L
85	L	H	L	H	L	H	L	H
86	L	H	L	H	L	H	H	L
87	L	H	L	H	L	H	H	H
88	L	H	L	H	H	L	L	L
89	L	H	L	H	H	L	L	H
90	L	H	L	H	H	L	H	L
91	L	H	L	H	H	L	H	H
92	L	H	L	H	H	H	L	L
93	L	H	L	H	H	H	L	H
94	L	H	L	H	H	H	H	L
95	L	H	L	H	H	H	H	H
96	L	H	H	L	L	L	L	L
97	L	H	H	L	L	L	L	H
98	L	H	H	L	L	L	H	L

TABLE 11. Digital Output Table

Value	DIG7	DIG6	DIG5	DIG4	DIG3	DIG2	DIG1	DIG0
99	L	H	H	L	L	L	H	H
100	L	H	H	L	L	H	L	L
101	L	H	H	L	L	H	L	H
102	L	H	H	L	L	H	H	L
103	L	H	H	L	L	H	H	H
104	L	H	H	L	H	L	L	L
105	L	H	H	L	H	L	L	H
106	L	H	H	L	H	L	H	L
107	L	H	H	L	H	L	H	H
108	L	H	H	L	H	H	L	L
109	L	H	H	L	H	H	L	H
110	L	H	H	L	H	H	H	L
111	L	H	H	L	H	H	H	H
112	L	H	H	H	L	L	L	L
113	L	H	H	H	L	L	L	H
114	L	H	H	H	L	L	H	L
115	L	H	H	H	L	L	H	H
116	L	H	H	H	L	H	L	L
117	L	H	H	H	L	H	L	H
118	L	H	H	H	L	H	H	L
119	L	H	H	H	L	H	H	H
120	L	H	H	H	H	L	L	L
121	L	H	H	H	H	L	L	H
122	L	H	H	H	H	L	H	L
123	L	H	H	H	H	L	H	H
124	L	H	H	H	H	H	L	L
125	L	H	H	H	H	H	L	H
126	L	H	H	H	H	H	H	L
127	L	H	H	H	H	H	H	H
128	H	L	L	L	L	L	L	L
129	H	L	L	L	L	L	L	H
130	H	L	L	L	L	L	H	L
131	H	L	L	L	L	L	H	H
132	H	L	L	L	L	H	L	L
133	H	L	L	L	L	H	L	H
134	H	L	L	L	L	H	H	L
135	H	L	L	L	L	H	H	L
136	H	L	L	L	H	L	L	L
137	H	L	L	L	H	L	L	H
138	H	L	L	L	H	L	H	L
139	H	L	L	L	H	L	H	H
140	H	L	L	L	H	H	L	L
141	H	L	L	L	H	H	L	H
142	H	L	L	L	H	H	H	L

IP-224 Digital Output Codes

TABLE 11. Digital Output Table

Value	DIG7	DIG6	DIG5	DIG4	DIG3	DIG2	DIG1	DIG0
143	H	L	L	L	H	H	H	H
144	H	L	L	H	L	L	L	L
145	H	L	L	H	L	L	L	H
146	H	L	L	H	L	L	H	L
147	H	L	L	H	L	L	H	H
148	H	L	L	H	L	H	L	L
149	H	L	L	H	L	H	L	H
150	H	L	L	H	L	H	H	L
151	H	L	L	H	L	H	H	H
152	H	L	L	H	H	L	L	L
153	H	L	L	H	H	L	L	H
154	H	L	L	H	H	L	H	L
155	H	L	L	H	H	L	H	H
156	H	L	L	H	H	H	L	L
157	H	L	L	H	H	H	L	H
158	H	L	L	H	H	H	H	L
159	H	L	L	H	H	H	H	H
160	H	L	H	L	L	L	L	L
161	H	L	H	L	L	L	L	H
162	H	L	H	L	L	L	H	L
163	H	L	H	L	L	L	H	H
164	H	L	H	L	L	H	L	L
165	H	L	H	L	L	H	L	H
166	H	L	H	L	L	H	H	L
167	H	L	H	L	L	H	H	H
168	H	L	H	L	H	L	L	L
169	H	L	H	L	H	L	L	H
170	H	L	H	L	H	L	H	L
171	H	L	H	L	H	L	H	H
172	H	L	H	L	H	H	L	L
173	H	L	H	L	H	H	L	H
174	H	L	H	L	H	H	H	L
175	H	L	H	L	H	H	H	H
176	H	L	H	H	L	L	L	L
177	H	L	H	H	L	L	L	H
178	H	L	H	H	L	L	H	L
179	H	L	H	H	L	L	H	H
180	H	L	H	H	L	H	L	L
181	H	L	H	H	L	H	L	H
182	H	L	H	H	L	H	H	L
183	H	L	H	H	L	H	H	H
184	H	L	H	H	H	L	L	L
185	H	L	H	H	H	L	L	H
186	H	L	H	H	H	L	H	L

TABLE 11. Digital Output Table

Value	DIG7	DIG6	DIG5	DIG4	DIG3	DIG2	DIG1	DIG0
187	H	L	H	H	H	L	H	H
188	H	L	H	H	H	H	L	L
189	H	L	H	H	H	H	L	H
190	H	L	H	H	H	H	H	L
191	H	L	H	H	H	H	H	H
192	H	H	L	L	L	L	L	L
193	H	H	L	L	L	L	L	H
194	H	H	L	L	L	L	H	L
195	H	H	L	L	L	L	H	H
196	H	H	L	L	L	H	L	L
197	H	H	L	L	L	H	L	H
198	H	H	L	L	L	H	H	L
199	H	H	L	L	L	H	H	H
200	H	H	L	L	H	L	L	L
201	H	H	L	L	H	L	L	H
202	H	H	L	L	H	L	H	L
203	H	H	L	L	H	L	H	H
204	H	H	L	L	H	H	L	L
205	H	H	L	L	H	H	L	H
206	H	H	L	L	H	H	H	L
207	H	H	L	L	H	H	H	H
208	H	H	L	H	L	L	L	L
209	H	H	L	H	L	L	L	H
210	H	H	L	H	L	L	H	L
211	H	H	L	H	L	L	H	H
212	H	H	L	H	L	H	L	L
213	H	H	L	H	L	H	L	H
214	H	H	L	H	L	H	H	L
215	H	H	L	H	L	H	H	H
216	H	H	L	H	H	L	L	L
217	H	H	L	H	H	L	L	H
218	H	H	L	H	H	L	H	L
219	H	H	L	H	H	L	H	H
220	H	H	L	H	H	H	L	L
221	H	H	L	H	H	H	L	H
222	H	H	L	H	H	H	H	L
223	H	H	L	H	H	H	H	H
224	H	H	H	L	L	L	L	L
225	H	H	H	L	L	L	L	H
226	H	H	H	L	L	L	H	L
227	H	H	H	L	L	L	H	H
228	H	H	H	L	L	H	L	L
229	H	H	H	L	L	H	L	H
230	H	H	H	L	L	H	H	L

IP-224 Digital Output Codes

TABLE 11. Digital Output Table

Value	DIG7	DIG6	DIG5	DIG4	DIG3	DIG2	DIG1	DIG0
231	H	H	H	L	L	H	H	H
232	H	H	H	L	H	L	L	L
233	H	H	H	L	H	L	L	H
234	H	H	H	L	H	L	H	L
235	H	H	H	L	H	L	H	H
236	H	H	H	L	H	H	L	L
237	H	H	H	L	H	H	L	H
238	H	H	H	L	H	H	H	L
239	H	H	H	L	H	H	H	H
240	H	H	H	H	L	L	L	L
241	H	H	H	H	L	L	L	H
242	H	H	H	H	L	L	H	L
243	H	H	H	H	L	L	H	H
244	H	H	H	H	L	H	L	L
245	H	H	H	H	L	H	L	H
246	H	H	H	H	L	H	H	L
247	H	H	H	H	L	H	H	H
248	H	H	H	H	H	L	L	L
249	H	H	H	H	H	L	L	H
250	H	H	H	H	H	L	H	L
251	H	H	H	H	H	L	H	H
252	H	H	H	H	H	H	L	L
253	H	H	H	H	H	H	L	H
254	H	H	H	H	H	H	H	L
255	H	H	H	H	H	H	H	H
256	Previous Digital Output Values are used.							

Notes