

IP-223 to Kenwood NEXEDGE Mobile Radio



Table of Contents

1.0 General	3
2.0 Setup	3
2.1 NX-700/800 Model Cable Assembly	3
2.2 IP-223 Jumper Settings	4
2.3 IP-223 Configuration	4
2.4 Per Line Function Tone Configuration	7
2.5 Per Line CTCSS Configuration	8
2.6 NX-700/800 Radio Configuration	9

IP-223 to Kenwood NEXEDGE Mobile Radio

1.0 General

This application note is intended to assist technical staff with Kenwood*¹ NX-700/800 and IP-223 Remote Adapter cable assembly, software configuration and hardware setup.

NOTE: These Kenwood features are available in IP-223 firmware version 4.2 or later.

REFERENCE: For more information, see the IP-223 Technical Manual (P/N 803641). This document is available for download at www.telexradiodispatch.com/.

2.0 Setup

2.1 NX-700/800 Model Cable Assembly

NOTE:

- The IP-223/Kenwood TK-X150/X180 Radio Cable Assembly can be either built locally or purchased separately (P/N 301956000) from Telex.
- If two (2) serial controlled devices are to be attached to one (1) IP-223, the DB-9 Cable Splitter Assembly, (P/N 301953000), available from Telex, should be used.

^{1.}See "Copyright Notice" on page 11.

The tables below show the cable assembly pin outs for NX-700/800 model radios.

Signal	IP-223 DB-25	NX-700/800 Radio DB-25
Ground	7	7
PTT Common	2	7
РТТ	14	12 (Programmable Aux Input)
COR	20	20 (Programmable Aux Output)
RX+	24	17
TX+	25	6

TABLE 1. IP-223 to NX-700/800-DB-25 Cable Assembly

TABLE 2. IP-223 to NX-700/800-DB-25 Cable Assembly

IP-223 Serial Signal	IP-223	NX-700/800 Radio	
	Line 1	Line 2	DB-25
TXD	2	8	2
RXD	3	7	3

2.2 IP-223 Jumper Settings

TABLE 3. IP-223 Jumper Settings

Line 1	Jumper Setting	Line 2
J33, J34	B = 4-wire	J5, J6
J16, J21	A = Single Ended	J19, J20
J14	A = 600	J24
J3, J9, J11	A = Single Ended	J25, J28, J29
J13	B = High	J27
J17, J22	B = 600 Ohms	J10, J15
J8	A = +5Vdc	J30
J35	A = RS232 Serial Data	J26

2.3 IP-223 Configuration

Setup the desired IP-223 line for Kenwood radio control.

To configure the IP-223 software, do the following:

- 1. Open Telex System Manager.
- 2. In the Processed Devices pane, select the IP-223 to configure.
- 3. Click the **Per Line Setup** tab. *The Per Line Setup page appears.*
- 4. Select the Local radio button for the channel to configure.
- 5. Click **Configure**. *The Per Line Setup notebook appears*.

- 6. Select the Serial Port tab
- 7. From the Mode drop down menu, select **Kenwood NEXEDGE**. *The line is configured for Kenwood NEXEDGE*.



FIGURE 1. IP-223—Serial Port Page, Per Line Setup

To configure COR on the IP-223, do the following:

- 1. From the Per Line Setup notebook, select the **COR** tab.
- 2. Select the **COR Enabled** check box. *The line is configured for COR.*

Serial Po	rt Sign	aling S	ignaling Options						
COR	CTCSS	Delay	Function Tone	Function Tone - CTCSS	LAM	Monitor Relay	Options	PTT	
			ſ	- COR Setup					
				📃 LAM Enabled					
				🗹 COR Enabled					
				COB Active High					
			(

FIGURE 2. IP-223-COR Page, Per Line Setup

2.4 Per Line Function Tone Configuration

The Function Tone page is used to enable the function tones.

- 1. From TSM, click the **Function Tone** tab. *The Function Tone page appears.*
- 2. Select the **Enable** check box for all channels to be accessed by the IP-223.
- **NOTE:** By selecting all 10 function tone Enable check boxes, 100 function tones are available for configuration.

Per Line Se Function T	etup one CTC	SS A' De	coder ANI	Decoder Op	ptions Op	tions				×
Page N	umber 🗌	1/∄ _	M		4				M	
1	Enable	Rel None	ay T	Relay	Group	Relay	Time	Digital	Output	
2	•	None	•	1	÷	0	÷	3	÷	
3	◄	None	•	1	*	0	*	7	÷	
4		None	•	1	+	0	*	15	÷	
5	◄	None	•	1	*	0	*	31	÷	
6		R01	-	1	+	0	*	63	÷	
7	◄	R02	-	1	÷	0	*	127	÷	
8		Both	-	1	÷	0	÷	0	÷	
9		None	-	1	÷	0	÷	1	÷	
10		R01	-	1	÷	0	*	3	÷	
				Da	ata 🕶					

FIGURE 3. Per Line Setup—Function Tone Page

2.5 Per Line CTCSS Configuration

The **CTCSS** (Continuous Tone-Coded Squelch System) page is used to configure the function tone's radio system and to activate channels. The default system and channel values are automatically filled in the System and Channel fields.

The example shown in Figure 4 indicates function tones 1–8 are allowed access to system 1 and each function tone 1–8 is allowed access to its corresponding channel.

NOTE: By selecting all 10 function tone Enable check boxes, 100 F-tones are available for configuration.

Function Tone CTC	CSS ANI Decoder AM	VI Decoder Options 0)ptions	
Page Number	1 🕂 🔣	4	•	K
	CTCSS Frequency	CTCSS Default	System	Channel
1	1 🐳		1 📫	1 ≑
2	33 🛨		1 🚊	2 📫
3	5 🛨		1 🚊	3 📩
4	37 🔹		1 🚊	4 💼
5	9 🛨		1 🔅	5 🕂
6	41 🔹		1 📫	6 🛨
7	13 🕂		1 📫	7 📫
8	45 🔹		1 🐳	8 🐳
9	17 🔅		1 🛨	9 🕂
10	49 🛨		1 🛨	10 ≑
		Data 🗸		

FIGURE 4. Per Line Setup—CTCSS Page

2.6 NX-700/800 Radio Configuration

REFERENCE: For more information, see manufacturer's configuration instructions for details specific to your radio model.

To configure the radio's PTT, do the following:

- 1. Open the **NEXEDGE** application.
- 2. Navigate to the **Extended Function** notebook.
- 3. Select the **AUX** tab. *The AUX page appears.*
- 4. Set pin12's I/O field to Input.
- 5. Set pin 12's Function field to External PTT.
- 6. Set pin 20's I/O field to **Output**.
- 7. Set pin 20's Function field to COR.

0 Zo					2	
0	Extended Function					
	Optional Board AUX	Remote Zone-CH/	GID Modulation Line Mobile Function			
	Pin number	I/O	Function	Active	Debounce	
	DB-25 4pin	Output	None	Low	No	
	DB-25 8pin	Output	None	Low	No	
	DB-25 12pin	Input	External PTT (Voice)	Low	No	
	DB-25 13pin	Input	None	Low	No	
	DB-25 15pin	Output	None	Low	No	
	DB-25 16pin	Output	None	Low	No	
	DB-25 20pin	Output	COR	Low	No	
7	DB-25 21pin	Input	None	Low	No	
7	DB-25 22pin	Output	None	Low	No	
3	DB-25 23pin	Input	None	Low	No	
3	DB-25 24pin	Input	None	Low	No	
	Data Debou	Dwell Time (s) 0 Mic Sense No Ince Time (ms) 10	ormal	LOK Logic Signal	Continuous put Status Message)	

FIGURE 5. Radio Configuration—AUX Page, Extended Function

To configure the Optional Features, do the following:

- 1. Navigate to the **Optional Feature** notebook.
- 2. Click the **Common Page 3** tab. *Common Page 3 appears.*
- 3. Set the function field for COM port 1 to **Data**.
- 4. Set the PC Interface Protocol field to Version 2.

Optional Features 1					
Common Page 1 Common	n Page 2 Common Page 3 Comm	on Page 4			es
Battery Battery Battery Battery Warning	ry Saver Off Indicator LCD & LED Warning Always Tone		COM port Priorit	iy Serial Data ol Version 2	
		Deler No.	Stop Bit	Baud Rate	r I H
COM port Number	Function	Polanty			
COM port Number COM port	Function 0 None	Normal	2	9600	
COM port Number COM port COM port	Function 0 None 1 Data	Normal Normal	2	9600 9600	
COM port Number COM port COM port COM port	Function O None Dota None None	Normal Normal Normal	2 2 2	9600 9600 9600	

FIGURE 6. Radio Configuration—Common Page, Optional Features

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For warranty and service information, refer to www.telex.com/ warranty.

FACTORY SERVICE CENTER

Factory Service Center Bosch Security Systems, Inc. Radio Dispatch Products 8601 East Cornhusker Highway Lincoln, Nebraska, 68507

CONTACT INFORMATION

Sales:

]	Phone(800) 752-7560
]	Fax(402) 467-3279
]	E-mail TelexDispatch@us.bosch.com
Custome	r Service:
]	Repair(800) 553-5992
Technica	ll Support:
]	Phone
]	E-mailTelexDispatchtechsupport@us.bosch.com
,	Webwww.telex.com
,	Webwww.telexradiodispatch.com

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