

Care and Feeding of Telex Radio Dispatch Systems

IP-2002, C-6200, IP-223

C-6200 Setup

Entering the Setup Mode

Setup of the C-6200 is almost entirely done using a web browser. The first step required during setup is to assign the Ethernet and Mask addresses to the C-6200. This is done through the front panel. To enter the front panel setup mode, press and hold MUTE-F16-GRP.

Setting the System Clock

Pressing PROG1 from the top-level setup menu will open the screen to set the internal Real Time Clock. PROG1 selects the Edit option that allows setting of the actual minutes and hours. PROG2 sets AM or PM., PROG3 selects 12 or 24-hour mode, PROG4 returns to the previous setup screen. The clock can also be directly setup by pressing MUTE-F16-C1. This key sequence bypasses the PIN number and the main setup screen.

Setting the PIN number

The Pin number is used to prevent unauthorized modification of operation parameters. When a PIN number is set, the C-6200 will prompt for it before allowing entry into the setup mode. The web-based setup for the C-6200 also has provision for a user password; it is the same four-digit value as the PIN number entered from this menu option. Selecting PROG3 from the main menu will cause the C-6200 to prompt for the new PIN number twice. If both are entered identically, the new PIN number will take affect.

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Setting the basic IP information

As was mentioned before, all other parameters are setup by using a browser such as Netscape or Internet Explorer. Before connecting to the console with the browser, an IP address and Mask that is compatible with the users existing network must be set. Figure 7 shows the screen selected when PROG2 is pressed from the main setup screen. See your network administrator to determine the proper values. The following keys are used to enter the IP dotted quad once PROG1 or PROG2 is pressed.

	<p>DTMF 0-9: The DTMF digits allow entry of the specific numbers .</p> <p>DTMF A: DTMF digit A is the decimal point used in dotted quad</p> <p>PROG4: The “back” key is pressed when the dotted quad has been entered.</p> <p>PROG1: The “Clr” function clears the current entered value and starts over.</p> <p>PROG2: The “Del” function deletes the last entered number.</p> <p>Once these values have been set, the unit must be reset for them to take affect. It is now possible to connect to the C-6200 with a computer and web browser.</p>
	
	

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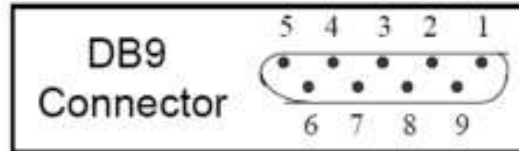
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C-6200 Backplane connections

3.6.3 Auxiliary DB9 Connector:



Pin #	Signal
1.	External SPKR Unselect
2.	External SPKR Unselect
3.	Ground
4.	External SPKR Select
5.	External SPKR Select

Pin #	Signal
6.	Ground
7.	External SPKR Crosspatch
8.	External SPKR Crosspatch
9.	Footswitch

Battery backup:

The Auxiliary power input (3-Pin terminal block) is a diode-protected +12V input used for battery backup. Pin (E) is also connected to the chassis allowing for positive grounding of the unit.

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Auxiliary Speaker:

The DB9 SPKR/FS connector has Selected, Unselected and Crosspatch audio outputs for driving external 8-ohm speakers.

Footswitch:

The DB9 SPKR/FS connector provides footswitch and ground connections. This input acts as a console PTT when it is shorted to ground.

Auxiliary Audio Input:

The DB25 AUX connector provides AUX Audio Input and PTT. Pulling PTT to ground activates the Audio Input line for transmitting. This input is a high impedance capacitance coupled input.

Record Output

The DB25 AUX connector has Selected, Unselected and Crosspatch audio via 600ohm transformer output for connection to a voice-logging recorder.

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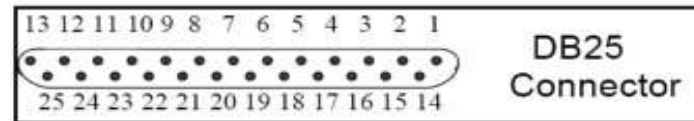
C-6200 Setup

Auxiliary Relay Output:

The DB25 AUX connector provides connection to the AUX relays, depending on the setting of the AUX button in the tech mode, this output is a relay closure that can be used for whatever purpose is required.

Auxiliary DB25 Connector:

3.6.6 Auxiliary DB25 Connector:



Pin #	Signal	Pin #	Signal
1.	AUX Relay 1 Common	14.	AUX Relay 1 N.C.
2.	AUX Relay 1 N.O.	15.	AUX Relay 2 Common
3.	AUX Relay 2 N.C.	16.	AUX Relay 2 N.O.
4.	AUX Relay 3 Common	17.	AUX Relay 3 N.C.
5.	AUX Relay 3 N.O.	18.	AUX Relay 4 Common
6.	AUX Relay 4 N.C.	19.	AUX Relay 4 N.O.
7.	N/C	20.	N/C
8.	N/C	21.	N/C
9.	N/C	22.	Cross Patch Tape Out
10.	Cross Patch Tape Out	23.	Unselect Tape Out
11.	Unselect Tape Out	24.	Select Tape Out
12.	Select Tape Out	25.	AUX PTT
13.	AUX Audio IN		Shield/Shell = Ground

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6200TCRD - Line Ports 1-9:

The C-6200 can accommodate up to 18-lines, in multiples of two. The nine-line connectors are on the rear of the unit and are standard DB25 connectors for TCRD and RJ-12 for PCRD. The pin-outs of the connectors appear below.

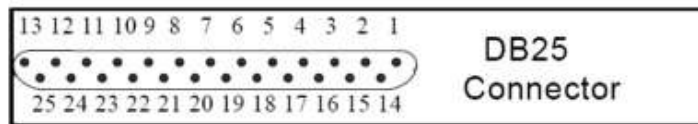


Figure 1 DB25 Pin-out

The pin-out of the connector appears in Figure 1.

Pin #	Signal	Pin #	Signal
1.	N/C	14.	Line 2 Logic IN
2.	N/C	15.	Local / GND Line 2
3.	Local Relay Line 2	16.	Line 2 - 4-wire RX
4.	Line 2 - 2-wire/4-wire TX	17.	Line 2 - 2-wire/4-wire TX
5.	Line 2 - 4-wire RX	18.	Line 2 Supervisory/E-
6.	Line 2 X-Mute/E+	19.	Line 2 Recorder Out
7.	Line 2 Recorder Out	20.	N/C
8.	Line 1 Logic IN	21.	Local / GND Line 1
9.	Local Relay Line 1	22.	Line 1 - 4-wire RX
10.	Line 1 - 2-wire/4-wire TX	23.	Line 1 - 2-wire/4-wire TX
11.	Line 1 - 4-wire RX	24.	Line 1 Supervisory/E-
12.	Line 1 X-Mute/E+	25.	Line 1 Recorder Out
13.	Line 1 Recorder Out		Shield Ground

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Cross-mute

When a parallel console operator keys a microphone in the same room, the cross-mute function mutes the receive audio path of the other parallel consoles. This prevents any unwanted audio loops that would occur causing a loud squeal on the paralleled speakers. Feedback may be avoided by muting the receive audio of the line card which is in parallel with a transmitting line card. This may be accomplished by connecting pins 12 (line 1) or 6 (line 2) of each of the consoles to be cross-muted. Pin 21 must be connected to provide a common ground and place J15 (line 1) or J14 (line 2) into the “A” position. **Note:** The intercom function will not work between cross-muted consoles.

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Two-Wire/Four-Wire Mode

Each Line Card comes standard with a jumper selectable two or four-wire option. Note: The Line Cards are shipped in the four-wire mode. Two-wire mode is accomplished by the following jumper positions:

	Lines 1, 3, 5 17:		Lines 2, 4, 6 18:	
	<u>Jumper</u>	<u>Position</u>	<u>Jumper</u>	<u>Position</u>
Two-Wire:	J6	A	J4	A
	J7	A	J5	A
Four-Wire:	<u>Jumper</u>	<u>Position</u>	<u>Jumper</u>	<u>Position</u>
	J6	B	J4	B
	J7	B	J5	B

The RX pairs are now on pins 11 and 22 (line 1), 5 and 16 (line 2) on the connector. The TX pairs are on pins 10 and 23 (line 1), 4 and 17 (line 2) of the connector. Once transmit and receive paths are separated, the impedance of each side must be set.

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RX Side Settings

The RX side is jumper selectable for 600 or 10k ohm impedance. In 4 Wire mode, If only one console is on the line (no parallel consoles) then place J10 (Line 1) or J8 (Line 2) in the A position for a 600 Ohm line impedance. If more than one console is on one line, then place J10 (Line 1) or J8 (Line 2) on **ONE** console in the A position and all other consoles in the B position. Each console added to the system will result in line loss. The following chart gives an indication as to how much loss can be expected. The first console in the system is set for an impedance of 600 ohms out (approximately). Each console added to the system thereafter is set for an impedance of 10k ohms. As the chart indicates on the following page, the more consoles bridged on the line, the lower the line impedance and the greater the loss in audio level.

In 2 Wire mode, all consoles should have J10 (Line 1) or J8 (Line 2) in the "B" position.

<u>Console #</u>	<u>Jumper Position</u>	<u>Impedance</u>	<u>Impedance</u>	<u>Loss (dB)</u>
1	A	604	604	0.0
2	B	10k	569	-0.5
3	B	10k	539	-1.0
4	B	10k	511	-1.5
5	B	10k	486	-1.9
6	B	10k	464	-2.3

Level adjustment can be made to the receive audio by entering the tech mode on a per line basis.

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TX Side Settings

The C-6200 TX output circuitry has a DPDT relay that is used to connect and disconnect the TX output transformer from the TX line based on PTT status. This allows a very large number of consoles to be attached to the line in parallel, because only the transmitting unit will be directly connected to the line. When not transmitting, the DPDT relay is connected to 600 ohms or open circuit depending on the number of console connected in parallel to the line. If only one console is attached, this unit should have J9 (Line 1) or J3 (Line 2) in the “A” position. This makes it the effective master and terminates the line with 600 ohms. If there are more than one console connected in parallel, one console should be designated as the master by placing J9 (Line 1) or J3 (Line 2) in the “A” position and the remaining consoles should be designated as a slave and should have J9 (Line 1) or J3 (Line 2) placed in the “B” position. In this manner, the impedance looking back into the parallel configuration of consoles is still 600 ohms.

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Figure 2 shows a basic configuration, the C-6200 could also be the master in this configuration.

NOTE: If any of the consoles connected in parallel are not C-6200's, then all the C6200's should be configured as slaves. Additionally, J18 (Line 1) or J17 (Line 2) should be used as a TX line impedance correction if there are consoles other than the C-6200 connected in parallel. J18 (Line 1) or J17 (Line 2) position "B" adds another 600ohms to the output TX line. J18 (Line 1) or J17 (Line 2) Position "A" is straight through.

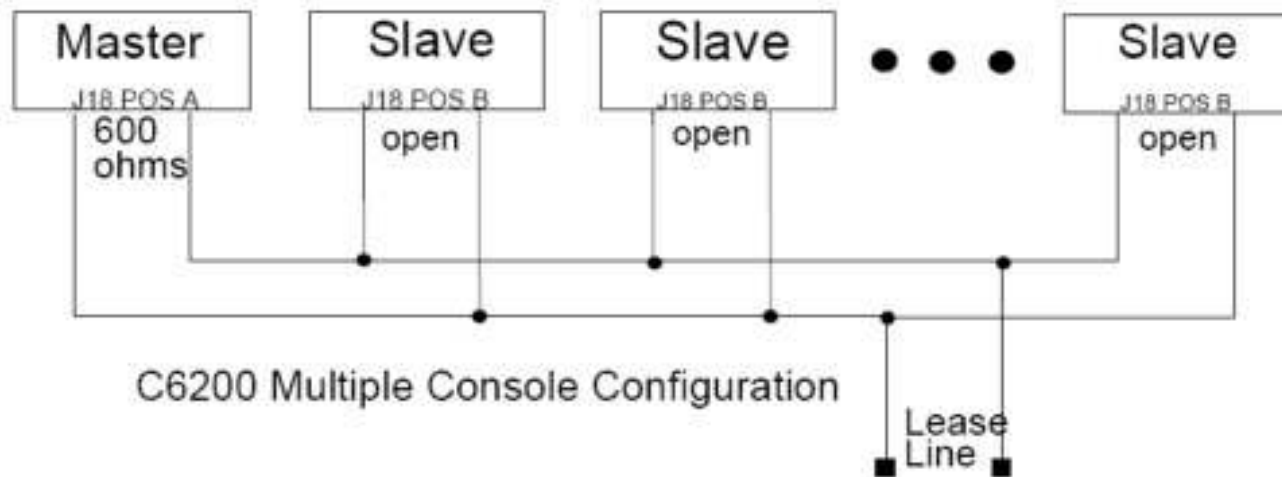


Figure 2 Master/Slave Console Configurations.

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Aux Connector:

A RJ-45 connector is provided for auxiliary functions per line, recorder out and relay closure. See Figure 4

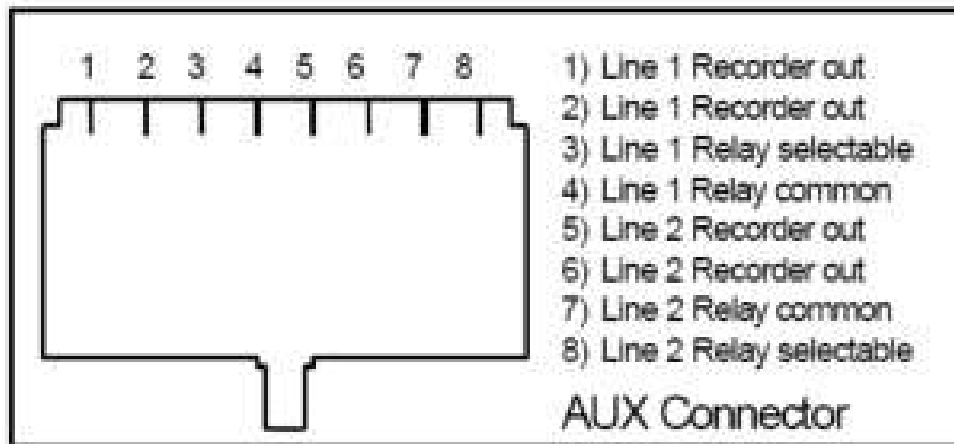


Figure 4 PCRD AUX connector

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C-6200 Setup

Transmit Path:

The transmit path begins at the microphone of your choice and ends with the transmit line card jack.

Microphone adjustments

There are three microphone inputs to the C-6200. A gooseneck connector is provided for on the front of the console and is default with the front panel PTT. Two inputs are accessible from the rear of the unit. One is a four-wire connector and the other is a six-wire connector. The four-wire connector will accept either a handset or headset. The six-wire connector will accept desk microphone. All connectors may be used at the same time. Transmit audio from the six-wire connector is blocked only when the PTT of the four-wire connector is active. The gooseneck, handset/headset and the desk microphone inputs go through dedicated preamplifier stages and CODEC's are then connected to the DSP by the PTT source. In setting the microphone levels the goal is to adjust the preamps so that nominal voice levels through both microphones (if two are being used simultaneously) are of equal level at the input of the CODEC's . The following procedures will guide you through the tuning process:

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Adjusting the handset/headset microphone levels

Make a vocal tone into the handset and adjust RV4 for approximately 2V Peak to peak at TP11. The sidetone level can be adjusted from within the tech mode. Speak into the handset and listen to the earpiece. You should hear a portion of your voice being routed back to the earpiece.

Adjusting the desk microphone level

Make a vocal tone into the desk microphone at the distance you expect the operator to be positioned and adjust R188 on the Backplane PCB for 2Vp-p at TP1. The output of the compressor circuit U31 can be adjusted by RV3 for approximately 2V Peak to peak at TP5.

Adjusting the gooseneck microphone level

Make a vocal tone into the gooseneck microphone at the distance you expect the operator to be positioned and adjust R191 on the Backplane PCB for 2 Vp-p at TP3. The output of the compressor circuit U30 can be adjusted by RV1 for approximately 2V Peak to peak at TP4.

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Line Card Transmit Path Adjustment

Once the microphone audio has been digitized, the DSP will first route it through a 2175Hz notch filter to remove 2175Hz components from the voice. This is done to make sure that no component of the microphone audio will interfere with the 2175Hz hold tone. At the output of the notch filter the microphone audio is summed together with the last of the signaling components. From this point the total transmit audio mix is sent to the DAC and then to the individual output drivers of the Line Cards.

Transmit Level Adjustment

The transmit level is setup using software potentiometers to adjust the levels of the transmit audio. Calibration of the TX lines will vary depending on system variables as well as the number of consoles found in parallel on the line. The tech can use an alert tone set to continuous as a test tone of given amplitude for this alignment.

Transmit Monitor

The four-wire transmit monitor provides a portion of the transmit audio to the receive path. This allows the console operator to listen to the transmissions of parallel consoles. To set this level have a parallel console operator intercom on the line to be set. Adjust R95 (line 1) and R87 (line 2) until the level is comfortable in the handset/headset earpiece or the speaker.

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Receive Path

The Receive path begins at the input to the line card and ends with a speaker or earpiece. There are very few adjustments that need to be made to the receive path. The DSP will detect and compensate for most variations in audio levels.

7.3.1 Line Activity Monitor (LAM) / Squelch Control

The green LED under each Release Button will blink when activity is on the line. The default level for the C-6200 console to trigger the LAM is -10dBm. The trigger point can be changed within the tech mode. Note that the LAM can be used as a squelch circuit. The Select and Unselect audio paths may be independently controlled by the LAM. Both options can be configured in tech mode.

Master Recorder Outputs

Three 600 ohm balanced notched audio outputs are provided for the use with an external recorder. Select, Unselect and Crosspatch outputs are provided; the Selects actual audio sent is the sum of Microphone and selected receive audio.

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Auxiliary Speaker Outputs

The auxiliary speaker outputs can be used to drive additional external speakers, Select, Unselect and Crosspatch outputs are provided.

Earth Ground

While Telex-Vega recommends that the unit be tied to earth ground through the AUX power connector on the back of the unit. It is imperative that chassis ground be tied to some fixed reference for proper operation of the unit. The line filtering is dependent on a solid ground to function correctly.

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Line Card Installation

Installing and removing line cards can be completed in the field by qualified personnel. The steps for this process are listed below.

- 1) Remove power from the console.
- 2) Remove the flathead screws holding the top of the case to the bottom chassis. A Phillips screwdriver will be required. Also remove the screws holding the rear cover.
- 3) The case top should be removed in a vertical direction, once the case top is clear of the bottom, set the top on its sides to the right of the case. Sufficient cable length is available for this without disconnection of cables.
- 4) Remove the hole cover for the line card position you wish to install
- 5) Insert the card into the slot making sure that the DB25 jack is flush with the back of the C-6200.
- 6) Place the top back on, first making sure that all connections of the cable assy. are connected.
- 7) Replace all screws removed in the first step.

An exploded view of the case can be found with the schematics and parts placement drawings.

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