

Chapter 3

Site Considerations, Installation and Setup Procedures

There are special considerations that need to be taken into account before the Innovator LX Series analog driver/transmitter can be installed. For example, if the installation is completed during cool weather, a heat-related problem may not surface for many months, suddenly appearing during the heat of summer. This section provides planning information for the installation and set up of the driver/transmitter.

3.1 Site Considerations

The transmitter requires an AC input line of 117 VAC/220 VAC @ 5 amps for the 10W transmitter and driver or 117 VAC/220 VAC @ 10 amps for the 100W Transmitter. The transmitter is factory set for 110 VAC or 230 VAC operation.

The LX Series Analog Transmitters are designed and built to provide long life with a minimum of maintenance. The environment in which they are placed is important and certain precautions must be taken. The three greatest dangers to the transmitter are heat, dirt, and moisture. Heat is usually the greatest problem, followed by dirt, and then moisture. Over-temperature can cause heat-related problems such as thermal runaway and component failure. Each amplifier module in the transmitter contains a thermal interlock protection circuit that will shut down that module until the temperature drops to an acceptable level.

A suitable environment for the transmitter can enhance the overall performance and reliability of the transmitter and maximize revenues by minimizing downtime. A properly designed facility will have an adequate supply of cool, clean air, free of airborne particulates of any kind, and no excessive humidity. An ideal environment will require temperature in the range of

40° F to 70° F throughout the year, reasonably low humidity, and a dust-free room. It should be noted that this is rarely if ever attainable in the real world. However, the closer the environment is to this design, the greater the operating capacity of the transmitter.

The fans are designed and built into the transmitter will remove the heat from within the modules, but additional means are required for removing this heat from the building. To achieve this, a few issues need to be resolved. The first step is to determine the amount of heat to be removed from the transmitter room. There are generally three sources of heat that must be considered. The first and most obvious is the heat from the transmitter itself. This amount can be determined for a 100W transmitter by subtracting the average power to the antenna (69.5 watts) from the AC input power (675 watts) and taking this number in watts (605.5) and then multiplying it by 3.41. This gives a result of 2,065, the BTUs to be removed every hour. 12,000 BTUs per hour equals one ton. Therefore, a 1/4-ton air conditioner will cool a 100W transmitter.

The second source of heat is other equipment in the same room. This number is calculated in the same way as the equation for BTUs. The third source of heat is equally obvious but not as simple to calculate. This is the heat coming through the walls, roof, and windows on a hot summer day. Unless the underside is exposed, the floor is usually not a problem. Determining this number is usually best left up to a qualified HVAC technician. There are far too many variables to even estimate this number without reviewing the detailed drawings of the site that show all of the construction details. The sum of these three sources is the bulk of the heat that must be removed. There may be other

sources of heat, such as personnel, and all should be taken into account.

Now that the amount of heat that must be removed is known, the next step is to determine how to accomplish this. The options are air conditioning, ventilation, or a combination of the two. Air conditioning is always the preferred method and is the only way to create anything close to an ideal environment.

Ventilation will work quite well if the ambient air temperature is below 100° F, or about 38° C, and the humidity is kept at a reasonable level. In addition, the air stream must be adequately filtered to ensure that no airborne particulates of any kind will be carried into the transmitter. The combination of air conditioning for summer and ventilation during the cooler months is acceptable when the proper cooling cannot be obtained through the use of ventilation alone and using air conditioning throughout the year is not feasible.

Caution: The use of air conditioning and ventilation simultaneously is not recommended. This can cause condensation in the transmitters.

The following precautions should be observed regarding air conditioning systems:

1. Air conditioners have an ARI nominal cooling capacity rating. In selecting an air conditioner, do not assume that this number can be equated to the requirements of the site. Make certain that the contractor uses the actual conditions that are to be maintained at the site in determining the size of the air conditioning unit. With the desired conditioned room temperature under 80° F, the unit must be derated, possibly by a substantial amount.

2. Do not have the air conditioner blowing directly onto the transmitter. Under certain conditions, condensation may occur on, or worse in, the transmitter.
3. Do not separate the front of the transmitter from the back with the thought of air conditioning only the front of the unit. Cooling air is drawn in at the front of all transmitters and in the front and back of others. Any attempt to separate the front of the transmitter from the rear of the unit will adversely affect the flow of cooling air.
4. Interlocking the transmitter with the air conditioner is recommended to keep the transmitter from operating without the necessary cooling.
5. The periodic cleaning of all filters is a must.

When using ventilation alone, the following general statements apply:

1. The blower, with attendant filters, should be on the inlet, thereby pressurizing the room and preventing dirt from entering the transmitter.
2. The inlet and outlet vents should be on the same side of the building, preferably the leeward side. As a result, the pressure differential created by wind will be minimized. Only the outlet vent may be released through the roof.
3. The inlet and outlet vents should be screened with 1/8-inch hardware cloth (preferred) or galvanized hardware cloth (acceptable).
4. Cooling air should enter the room as low as practical but in no case

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| <p>higher than four feet above the floor. The inlet must be located where dirt, leaves, snow, etc., will not be carried in with the cooling air.</p> <p>5. The exhaust should be located as high as possible. Some ducting is usually required to insure the complete flushing of heated air with no stagnant areas.</p> <p>6. The filter area must be large enough to insure a maximum air velocity of 300 feet per minute through the filter. This is not a conservative number but a never-exceed number. In a dusty or remote location, this number should be reduced to 150 CFM.</p> <p>7. The inlet and outlet(s) must have automatic dampers that close any time the ventilation blower is off.</p> <p>8. In those cases in which transmitters are regularly off for a portion of each day, a temperature-differential sensor that controls a small heater must be installed. This sensor will monitor inside and outside temperatures simultaneously. If the inside temperature falls to within 5° F of the outside temperature, the heater will come on. This will prevent condensation when the ventilation blower comes on and should be used even in the summer.</p> <p>9. A controlled-air bypass system must be installed to prevent the temperature in the room from falling below 40° F during transmitter operation.</p> <p>10. The blower should have two speeds, which are thermostatically controlled, and be interlocked with the transmitter.</p> | <p>11. The blower on high speed must be capable of moving the required volume of air into a half inch of water pressure at the required elevation. The free air delivery method must not be used.</p> <p>12. Regular maintenance of the filters, if used, can not be overemphasized.</p> <p>13. Above 4000 feet, for external venting, the air vent on the cabinet top must be increased to an 8-inch diameter for a 1-kW transmitter and to a 10-inch diameter for 5-kW and 6-kW transmitters. An equivalent rectangular duct may be used but, in all cases, the outlet must be increased by 50% through the outlet screen.</p> <p>14. It is recommended that a site plan be submitted to Axcera for comments before installation begins.</p> <p>In calculating the blower requirements, filter size, and exhaust size, if the total load is known in watts, 2000 CFM into ½ inch of water will be required for each 5000 watts. If the load is known in BTUs, 2000 CFM into ½ inch of water will be required for each 17,000 BTUs. The inlet filter must be a minimum of seven square feet, larger for dusty and remote locations, for each 5000 watts or 17,000 BTUs. The exhaust must be at least four square feet at the exhaust screen for each 5000 watts or 17,000 BTUs.</p> <p>The information presented in this section is intended to serve only as a general guide and may need to be modified for unusually severe conditions. A combination of air conditioning and ventilation should not be difficult to design (see Figure 3-1).</p> <p>System interlocking and thermostat settings should be reviewed with Axcera. As with any equipment installation, it is</p> |
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always good practice to consult the manufacturer when questions arise.

Axcera can be contacted at (724) 873-8100.

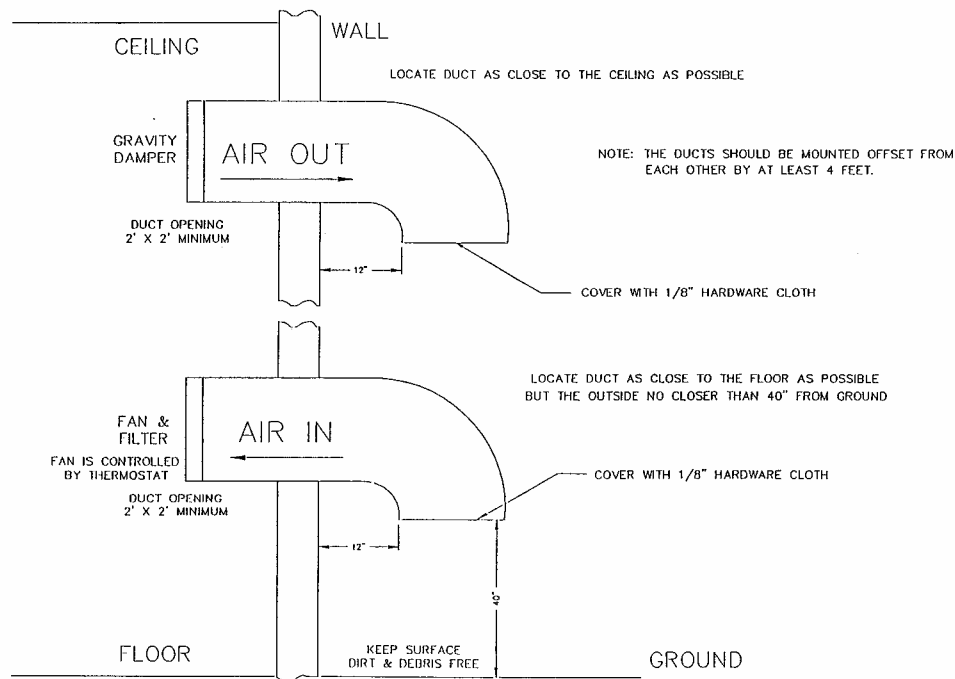


Figure 3-1. 1 kW Minimum Ventilation Configuration

3.2 Unpacking the Chassis w/modules, bandpass and trap filters

Thoroughly inspect the chassis with modules and all other materials upon their arrival. Axcera certifies that upon leaving our facility the equipment was undamaged and in proper working order. The shipping containers should be inspected for obvious damage that indicates rough handling.

Remove the chassis and modules, along with bandpass filter and trap Filter, from the crates and boxes.

Check for dents and scratches or broken connectors, switches, display, or connectors. Any claims against in-transit damage should be directed to the carrier. Inform Axcera as to the extent of any damage as soon as possible.

The modules are mounted to the chassis assembly with slides that are on the top and the bottom of the modules. There are two thumb screws on the front panel that hold each of the modules in place.

3.3 Installing the Chassis w/modules and filters

The chassis assembly is made to mount in a standard 19" rack. The chassis assembly mounts using the four #10 clearance mounting holes on the ends. The chassis should be positioned; to provide adequate air intake into the front and the air exhaust of the fan in the rear; the ability to slide the modules out for replacement purposes; the installation of the bandpass filter and trap filter; the coupler assembly; and output transmission line. The chassis or cabinet in which it is mounted should be grounded using copper strapping material.

NOTE: To pull out the power amplifier module for replacement purposes, the input and output coaxial cables must first be removed from the rear of the chassis assembly.

Connect the bandpass filter and trap filter to the output of the chassis assembly.

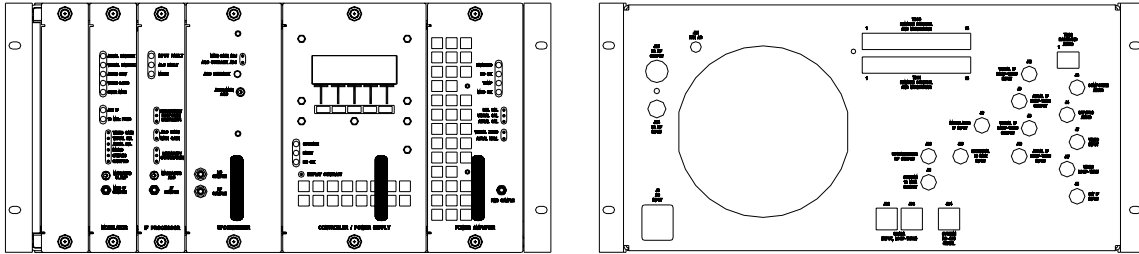


Figure 3-2. Front and Rear View Reconnection Drawing

Connect the transmission line for the antenna system to the output of the trap filter. A BNC sample jack of the output on the trap filter can be used for test purpose.

This completes the unpacking and installation of the LX Series UHF television transmitter. Refer to the setup and operation procedures that follow before applying power to the transmitter.

3.4 AC Input

The Exciter/Amplifier chassis assembly needs an AC outlet in which to plug, of 115 or 230 VAC, as set at the factory, at 5 amps for the 10W and driver or 10 amps for the 100W transmitter.

When the AC power cord for the exciter/amplifier chassis is plugged in, the AC is always connected to the transmitter.

Once the chassis and output connections are in place, the AC cord from the chassis can plug into an AC outlet, 110 or 220 VAC as configured at the factory, of 5 Amps for the 10W transmitter and driver or 10 Amps for the 100W transmitter.

3.5 Setup and Operation

Initially, the transmitter should be turned on with the RF output at the Trap Filter terminated into a dummy load of 10W or 100W depending on the power rating of the transmitter. If a load is not available, check that the output of the trap filter is connected to the antenna for your system.

3.5.1 Input Connections

The input connections to the transmitter are to the rear of the Chassis Assembly for the transmitter or to the receiver tray in a translator.

Refer to the tables and description that follows for detailed information on the input connections.

Figure 3-3: Rear View of LX Series Analog Transmitter

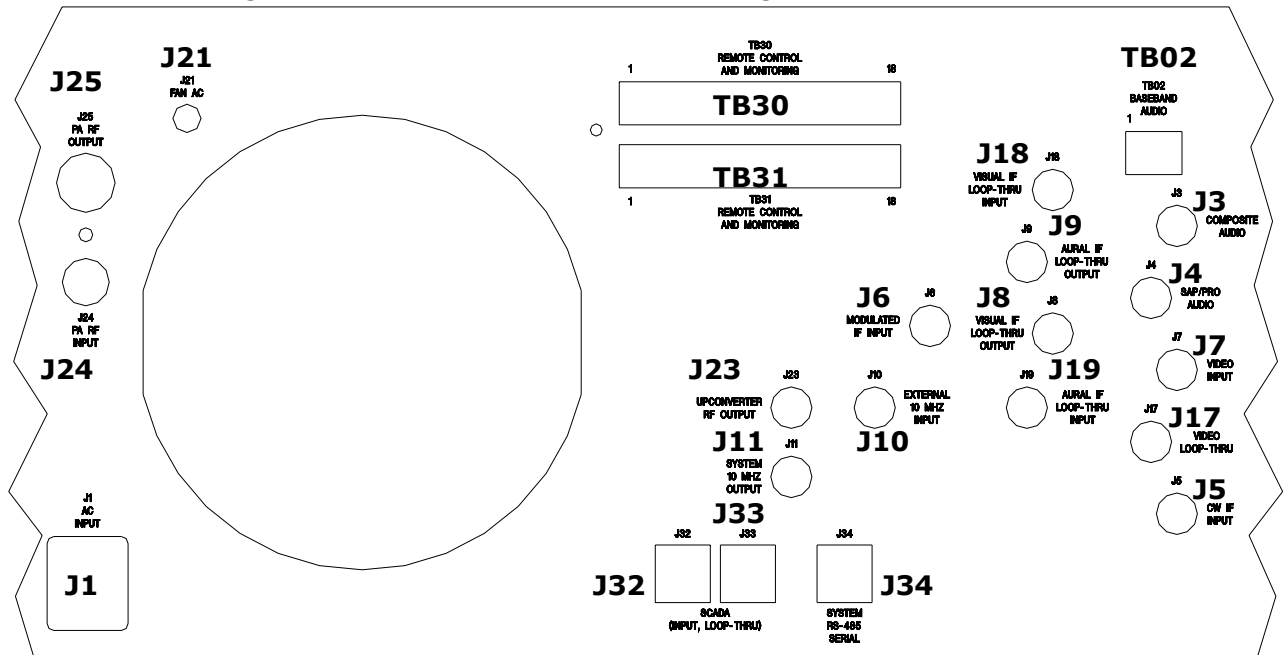


Table 3-1: Rear Chassis Connections for the LX Series Analog Transmitter.

Port	Type	Function	Ohm
J1	IEC	AC Input	
TB02	Term	Base Band Audio Input	600
J3	BNC	Composite Audio Input	75
J4	BNC	SAP / PRO Audio Input	50
J5	BNC	CW IF Input	50
J6	BNC	Modulated IF Input	50
J7	BNC	Video Input (Isolated)	75
J8	BNC	Visual IF Loop-Thru Output	50
J9	BNC	Aural IF Loop-Thru Output	50
J10	BNC	10 MHz Reference Input	50
J11	BNC	10 MHz Reference Output	50
J17	BNC	Video Loop-Thru (Isolated)	75
J18	BNC	Visual IF Loop-Thru Input	50
J19	BNC	Aural IF Loop-Thru Input	50
J23	BNC	Upconverter RF Output	50
J24	BNC	Power Amplifier RF Input	50
J25	N	Power Amplifier RF Output	50
TB30	Term	Remote Control & Monitoring	
TB31	Term	Remote Control & Monitoring	
J32	RJ-45	SCADA (Input / Loop-Thru)	CAT5
J33	RJ-45	SCADA (Input / Loop-Thru)	CAT5
J34	RJ-45	System RS-485 Serial	CAT5

3.5.2 Front Panel Screens for the Exciter/Amplifier Chassis Assembly

A 4 x 20 display located on the front of the Control & Monitoring/Power Supply Module is used in the LX Series transmitter for control of the operation and display of the operating parameters of the transmitter. Below are the display screens for the system. The ↑ and ↓

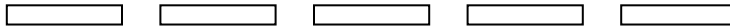
characters are special characters used to navigate up or down through the menu screens. Display text flashes on discrete fault conditions for all screens that display a fault condition.

When the transmitter is in operate mode, the STB menu appears. When the transmitter is in standby mode, the OPR menu appears.

Display Menu Screens for the LX Series Transmitter

Table 3-2: Menu 01 - Splash Screen #1

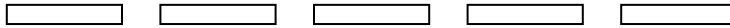
A	X	C	E	R	A														
1	0	3		F	R	E	E	D	O	M		D	R	I	V	E			
L	A	W	R	E	N	C	E	,		P	A	.		1	5	0	5	5	
(	7	2	4	)		8	7	3	-	8	1	0	0						



This is the first of the two transmitter splash screens that is shown for the first few seconds after reset.

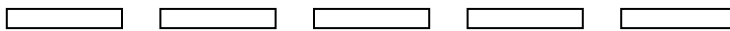
Table 3-3: Menu 02- Splash Screen #2

P	I	O	N	E	E	R				L	D	U	1	0	0	A	T	D
C	O	D	E		V	E	R	S	I	O	N					1	.	0
F	I	R	M	W	A	R	E						1	3	0	2	1	6
S	C	A	D	A		A	D	D	R	E	S	S						5



This is the second of the two transmitter splash screens

Table 3-4: Menu 10 - Main Screen

[illegible]

This is the default main screen of the transmitter. When the transmitter is in operate, the 'STB' characters appear allowing an operator to place the transmitter in STAND-BY. When the transmitter is in standby the 'STB' characters are replaced with 'OPR' and an operator can place the transmitter into OPERATE by pressing the right most switch on the front panel display. If the ↓ key is activated the system changes to Menu 11, go to Menu 11. If the ↑ key is activated the system displays to Menu 13, go to Menu 13.

Table 3-5: Menu 11 - Error List Access Screen

S Y S T E M E R R O R S												6	
E R R O R L I S T D I S P L A Y													
↑				↓			E N T					S T B	

This screen of the transmitter shows the current number of errors and provides operator access to view the error list. This is the entry point to Menu 20. If ENT is pushed, go to Menu 20. If the ↓ key is activated the system changes to Menu 12, go to Menu 12. If the ↑ key is activated the system returns to Menu 10, go to Menu 10.

Table 3-6: Menu 12 - Transmitter Device Data Access Screen

TRANSMITTER DETAILS																	
T	R	A	N	S	M	I	T	T	E	R	D	E	T	A	I	L	S
	↑				↓			E	N	T						S	T

This screen of the transmitter allows access to various parameters of the transmitter system. This is the entry point to Menu 30. If ENT is pushed, go to Menu 30. If the ↓ key is activated the system changes to Menu 13, go to Menu 13. If the ↑ key is activated the system returns to Menu 11, go to Menu 11.

Table 3-7: Menu 13 - Transmitter Configuration Access Screen

TRANSMITTER SET-UP																
↑		↓		E N T						S T B						

This screen of the transmitter allows access to various software setting of the transmitter system. This is the entry point to Menu 40. If ENT is pushed, go to Menu 40. If the ↓ key is activated the system returns to Menu 10, go to Menu 10. If the ↑ key is activated the system returns to Menu 12, go to Menu 12.

Table 3-8: Menu 20 - Error List Display Screen

S	Y	S	T	E	M	E	R	R	O	R	S	1	/	6		
U	P	C	O	N	V	E	R	T	E	R	M	O	D	U	L	E
I	N	T	E	R	L	O	C	K	F	A	U	L	T			
↑				↓			C	L	R		E	S	C			

This screen of the transmitter allows access to system faults. Fault logging is stored in non-volatile memory. The transmitter's operating state can not be changed in this screen. The 'CLR' switch is used to clear previously detected faults that are no longer active. The ↑ key and ↓ key allow an operator to scroll through the list of system errors that have occurred. The ESC switch is used to leave this screen.

Table 3-9: Menu 30 - Transmitter Device Details Screen

S Y S T E M D E T A I L S			
X M T R I N O P E R A T E M O D E			
P O W E R S U P P L Y : O K			
↑	↓	E S C	

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This screen of the transmitter allows access to the transmitter parameters of installed devices. The system is configured to know which devices are present. Current values for all installed devices are shown. If a module is not installed, only a "MODULE NOT PRESENT" message will be displayed. The ↑ and ↓ arrows scroll through the different parameters of each device as shown in table 3-11. Each System Component is a different screen. One IF Processor or the other will be programmed for your system. One Power Amplifier or the other will be programmed for your system. External Amplifier will only be used in high power transmitters.

Table 3-10: Menu 30-1 - System Details Screen

S Y S T E M D E T A I L S			
0 %		0 %	
V I S U A L		A U R U A L	
↑	↓	R E F L	
E S C			

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Table 3-11: Transmitter Device Parameters Detail Screens

System Component	Parameter	Normal	Faulted (Blinking)
Modulator Details	PLL CIRCUIT	LOCKED	UNLOCKED
	OUTPUT LEVEL	0 - 200 IRE	N/A
	AURAL DEVIATION	0 - 125 kHz	N/A
	CW INPUT	PRESENT	NOT USED
	STATION ID	SEND soft key	N/A
IF Processor Details (Analog Systems)	INPUT SIGNAL STATE	OK	FAULT
	MODULATION	OK	FAULT
	INPUT IF	MODULATOR or J6	N/A
	DLC LEVEL	0 - 5.00 V	N/A
	ALC LEVEL	0 - 5.00 V	N/A
	ALC MODE	AUTO or MANUAL	N/A
(OR) IF Processor Details (Digital Systems)	ALC LEVEL	0 - 5.00 V	N/A
	ALC MODE	AUTO or MANUAL	N/A
	DLC LEVEL	0 - 5.00 V	N/A
Upconverter Details	PLL CIRCUIT	LOCKED	FAULT
	AFC LEVEL	0 - 5.00 V	N/A
	AGC 1 LEVEL	0 - 5.00 V	N/A
	AGC 2 LEVEL	0 - 5.00 V	N/A
	EX. 10 MHz	PRESENT or NOT USED	N/A
	LO FREQ	xxx.xxx MHz	N/A
Driver and PA Details	POWER SUPPLY STATE	ON or OFF	N/A
	±12V SUPPLY	OK or OFF	FAULT

System Component	Parameter	Normal	Faulted (Blinking)
	FORWARD POWER	xxx%	xxx%
	REFLECTED POWER	xxx%	xxx%
	AMP 1 CURRENT	xx.xA	xx.xA
	AMP 2 CURRENT	xx.xA	xx.xA
	TEMPERATURE	xxC	xxC
	CODE VERSION	x.x	N/A
Ext. Power Amplifier Modules Details (Only in high power systems)	POWER SUPPLY STATE	ON or OFF	N/A
	±12V SUPPLY	OK or OFF	FAULT
	FORWARD POWER	xxx%	xxx%
	REFLECTED POWER	xxx%	xxx%
	AMP CURRENT 1	xx.xA	xx.xA
	AMP CURRENT 2	xx.xA	xx.xA
	AMP CURRENT 3	xx.xA	xx.xA
	AMP TEMPERATURE	xxC	xxC
	CODE VERSION	x.x	N/A

Table 3-12: Menu 40 - Transmitter Set-up: Power Raise/Lower Screen

TRANSMITTER SET - UP																
0 1		POWER R A I S E / L O W E R														
		S E T T I N G									1 0 0 %					
↑				↓		(+)			E S C				(-)			

This screen of the transmitter is the first of several that allows access to transmitter set-up parameters. When + is selected, the Power will increase. When - is selected, the Power will decrease.

Table 3-13: Menu 40-1 - Transmitter Set-up: Model Select Screen

T	R	A	N	S	M	I	T	T	E	R	S	E	T	-	U	P			
0	2		T	R	A	N	S	M	I	T	T	E	R		M	O	D	E	L
			N	U	M	B	E	R			L	U	0	1	0	0	A	T	
	↑				↓			(	+	)		E	S	C			(	-	)

This screen is used to specify which components are expected to be part of the system. By specifying the model number, the transmitter control firmware knows which components should be installed and it will be able to display faults for components that are not properly responding to system commands.

Table 3-14: Menu 40-2 - Transmitter Set-up: Frequency Select Screen

T	R	A	N	S	M	I	T	T	E	R	S	E	T	-	U	P		
0	3		F	R	E	Q	U	E	N	C	Y	S	E	L	E	C	T	
			T	A	B	L	E		O	R		C	U	S	T	O	M	
	↑			↓				(	+	)		E	S	C		(	-	)

□ □ □ □ □

This screen of the transmitter is allows access to transmitter frequency set-up parameters. The choices of this screen are 'TABLE' or 'CUSTOM'. When table is selected, the next menu will be used to select the desired operating frequency. When custom is selected, the next menu is used to select a specific operating frequency.

Table 3-15: Menu 40-3 - Transmitter Set-up: Frequency Table Select Screen

T	R	A	N	S	M	I	T	T	E	R	S	E	T	-	U	P			
0	3		F	R	E	Q	U	E	N	C	Y	S	E	L	E	C	T		
			C	H		2	0		5	0	6	-	5	1	2		M	H	z
	↑				↓			(	+	)		E	S	C		(	-	)	

□ □ □ □ □

The choices of this screen are from the standard UHF / VHF tables. + and - change the desired value of the transmitter. Any change to frequency is immediately set to the LO / Upconverter Frequency Synthesizer PLL circuit.

Table 3-16: Menu 40-4 - Transmitter Set-up: IF Frequency Screen

T	R	A	N	S	M	I	T	T	E	R	S	E	T	-	U	P	
0	3		I	F		F	R	E	Q	U	E	N	C	Y			
			I	N	P	U	T		4	4	.	0	0		M	H	z
	↑				↓			(	+	)	E	S	C				>

□ □ □ □ □

This screen is used to specify the IF Input frequency. This value plus the desired channel value is used to calculated the desired LO frequency. + is used to increase the selected value from 0 to 9. The > key is used to select from each of the different fields that make up the desired frequency. Any change to frequency is immediately set to the LO / Upconverter Frequency Synthesizer PLL circuit.

Table 3-17: Menu 40-5 - Transmitter Set-up: Custom Frequency Select Screen

T	R	A	N	S	M	I	T	T	E	R	S	E	T	-	U	P			
0	3		F	R	E	Q	U	E	N	C	Y	S	E	L	E	C	T		
								0	5	0	9	.	0	0	0		M	H	z
	↑			↓				(	+	)	E	S	C		(	-	)		

□ □ □ □ □

This screen is used to specify the operating frequency to an exact value. + is used to increase the selected value from 0 to 9. The > key is used to select from each of the different fields that make up the desired frequency. Any change to frequency is immediately set to the LO / Upconverter Frequency Synthesizer PLL circuit.

Table 3-18: Menu 40-6 - Transmitter Set-up: Serial Address Screen

T	R	A	N	S	M	I	T	T	E	R	S	E	T	-	U	P
0	4	S	E	R	I	A	L	A	D	D	R	E	S	S		5
↑				↓			(	+	)	E	S	C		(	-	)

This screen allows the user to set the serial address of the transmitter. The default address is 5. This value and all other set-up parameters, are stored in non-volatile memory.

Table 3-19: Menu 40-7 - Transmitter Set-up: Station ID Screen

T	R	A	N	S	M	I	T	T	E	R	S	E	T	-	U	P
0	5	M	O	D	U	L	A	T	E	D	S	I	G	N	A	L
		S	T	A	T	I	O	N	I	D	0	0	0	0	0	0
↑				↓			(	+	)	E	S	C		(	-	)

This screen allows the user to set the serial address of the transmitter. The default address is 5. This value and all other set-up parameters, are stored in non-volatile memory.

Table 3-20: Menu 40-8 - Transmitter Set-up: System Visual Power Calibration

T	R	A	N	S	M	I	T	T	E	R	S	E	T	-	U	P
0	6	S	Y	S	T	E	M	C	A	L	I	B	R	A	T	E
		V	I	S	U	A	L	P	O	W	E	R	1	0	0	%
↑				↓			(	+	)	E	S	C		(	-	)

This screen is used to adjust the calibration of the system's visual power. A symbol placed under the '6' character is used to show minor changes in the calibration value. When the calibration value is at full value, the character will be full black. As the value decreases, the character pixels are gradually turned off.

Table 3-21: Menu 40-9 - Transmitter Set-up: System Aural Power Calibration

T	R	A	N	S	M	I	T	T	E	R	S	E	T	-	U	P
0	6	S	Y	S	T	E	M	C	A	L	I	B	R	A	T	E
		A	U	R	A	L	P	W	R			1	0	0	%	
↑				↓			(	+	)	E	S	C		(	-	)

This screen is used to adjust the calibration of the system's aural forward power. A symbol as on the previous screen is under the '6' character on this screen.

Table 3-22: Menu 40-10 - Transmitter Set-up: System Reflected Power Calibration

T	R	A	N	S	M	I	T	T	E	R	S	E	T	-	U	P
0	6	S	Y	S	T	E	M	C	A	L	I	B	R	A	T	E
		R	E	F	L	E	C	T	P	W	R	X	.	X	%	
	↑			↓		(	+	)	E	S	C		(	-	)	

This screen is used to adjust the calibration of the system's reflected power.

Table 3-23: Menu 40-11 - Transmitter Set-up: Forward Power Fault Threshold Screen

T	R	A	N	S	M	I	T	T	E	R	S	E	T	-	U	P
0	7	M	I	N	I	M	U	M	F	O	R	W	A	R	D	
		P	O	W	E	R	F	A	U	L	T		5	0	%	
	↑			↓		(	+	)	E	S	C		(	-	)	

This screen is used to set the minimum forward power fault threshold. When the transmitter is operating, it must operate above this value otherwise the system will shut down with fault for 5 minutes. If after five minutes the fault is not fixed, the transmitter will enable, measure power less than this value and again shut down for five minutes.

Table 3-24: Menu 40-12 - Transmitter Set-up: Reflected Power Fault Threshold

T	R	A	N	S	M	I	T	T	E	R	S	E	T	-	U	P			
0	8		M	A	X	I	M	U	M		R	E	F	L	E	C	T	E	D
			P	O	W	E	R		F	A	U	L	T				1	0	%
	↑				↓		(	+	)		E	S	C				(	-	)

This screen is used to set the maximum reflected power fault threshold. When the transmitter is operating, it must not operate above this value otherwise the system will shut down with fault for 5 minutes. If after five minutes the fault is not fixed, the transmitter will enable, measure power above this value and again shut down for five minutes.

Table 3-25: Menu 40-13 - Transmitter Set-up: Remote Commands Control

T	R	A	N	S	M	I	T	T	E	R	S	E	T	-	U	P		
0	9		R	E	M	O	T	E	C	O	N	T	R	O	L			
			C	O	M	M	A	N	D	S	A	C	C	E	P	T	E	D
	↑				↓		(	+	)	E	S	C		(	-	)		

This screen is used to allow or deny the use of remote control commands. When disabled, remote commands are not used. Remote commands are commands received either through the rear terminal blocks or through serial messages.

This completes the description of the screens for the LX Series exciter/amplifier chassis assembly.

If the transmitter is already connected to the antenna, check that the output is 100%. If necessary, adjust the

amplifier power detection circuitry or LO / Upconverter AGC settings. The power raise / lower settings are only to be used for temporary reductions in power. The power set-back values do not directly correspond to the power of the transmitter. Setting for 50%

output sets a linear circuit voltage that is controlling a non-linear power circuit.

If a problem occurred during the setup and operation procedures, refer to Chapter 5, Detailed Alignment Procedures, of this manual for more information.

3.5.3 Initial Turn On

Once the unit has been installed and all connections have been made, the process of turning on the equipment can begin. First verify that AC power is present and connected to the transmitter. Verify all cables are properly connected and are the correct type. Once all of these things are done, the unit is ready to be turned on following the procedures below.

Turn on the main AC power source that supplies the AC to the transmitter. Check that the AC power plug is connected to J1 on the rear of the chassis assembly.

Monitor the LCD display located on the front of the control/monitoring module as you proceed through this section. When the transmitter is in the operate mode, the STB menu appears. When in the standby mode, the OPR menu appears. Press the NXT key after each menu to continue through the sequence.

MODULATOR MODULE LEDs ON FRONT PANEL

Fault Indicators:

AUR UNLOCK: This illuminates Red when the Aural IF PLL is unlocked.

VIS UNLOCK: This illuminates RED when the Visual IF PLL is unlocked.

AUD OV DEV: This indicator will illuminate Red when the audio over-deviates the aural carrier.

VIDEO LOSS: This indicates the loss of Video to the modulator, when Red.

OVER MOD: This illuminates Red when the video is overmodulated.

Status Indicators:

ALT IF CW: This indicates that there is an external IF CW signal applied to the Modulator

10MHz PRES: This indicates the presence of a 10 MHz reference input.

IF PROCESSOR MODULE LEDs ON FRONT PANEL

Fault Indicators:

INPUT FAULT: This illuminates Red if the input to the module is missing or low.

ALC FAULT: This illuminates RED when the needed ALC value to maintain the output level is beyond the range of the circuitry.

MUTE: This indicator will illuminate Red when the transmitter is muted.

UPCONVERTER MODULE LED ON FRONT PANEL

Fault Indicator:

AGC CUTBACK-This illuminates Red if the required gain to produce the desired output level is beyond the value set by the AGC Cutback circuit.

CONTROLLER MODULE LEDs ON FRONT PANEL

Status Indicators:

OPERATE - This illuminates Green when transmitter is in operate.

FAULT - This illuminates Red when a fault has occurred in the transmitter.

DC OK - This illuminates Green when the DC outputs that connect to the modules in the transmitter are present.

**POWER AMPLIFIER OR DRIVER
MODULE LEDs ON FRONT PANEL**

NOTE: Both the PA Module and Driver Module have the same front panel LEDs.

Status Indicators:

ENABLED - This illuminates Green when the PA is in operate.

DC OK - This illuminates Green when the DC inputs to the PA module are present.

TEMP - This illuminates Green when the temperature of the heatsink in the PA is below 78°C.

MOD OK - This illuminates Green when the PA module is operating and has no faults.

This completes the Installation, Set Up and Turn On of the Driver/Transmitter.