DRAKE DIGITAL™

SCT860 Transcoder System

Instruction Manual

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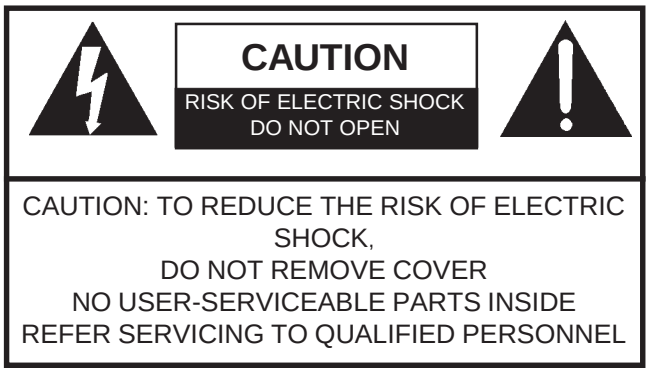
2 Caution Statements

WARNING: TO PREVENT FIRE OR ELECTRICAL SHOCK DO NOT EXPOSE TO RAIN OR MOISTURE



A product and cart combination should be moved with care. Quick stops, excessive force and uneven surfaces may cause the product and cart combination to overturn.

The lightning flash with arrow head symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.
DO NOT OPEN THE CABINET, REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

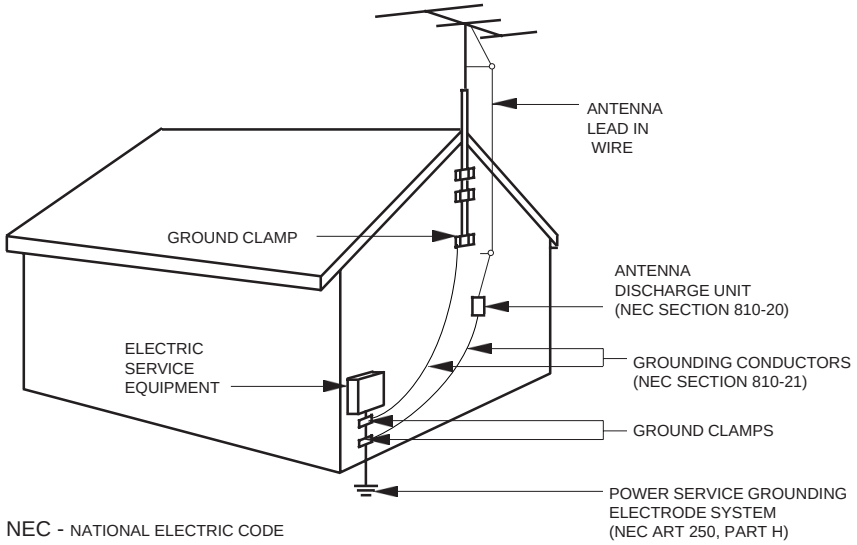
CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR PREVENIR LES CHOCS ELECTRIQUES, NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

1. Read Instructions—All the safety and operating instructions should be read before the product is operated.
2. Retain Instructions—The safety and operating instructions should be retained for future reference.
3. Heed Warnings—All warnings on the product and in the operating instructions should be adhered to.
4. Follow Instructions—All operating and use instructions should be followed.
5. Cleaning—Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleansers. Use a damp cloth for cleaning.
6. Attachments—Do not use attachments that are not recommended by the product manufacturer as they may cause hazards.
7. Water and Moisture—Do not use this product near water—for example, near a bathtub, wash bowl, kitchen sink or laundry tub; in a wet basement; or near a swimming pool; and the like.
8. Accessories—Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
9. A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.
10. Ventilation—Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or similar surface. This product should not be placed in a built-in installation such as bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
11. Power Sources—This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.
12. Grounding or Polarization—This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
Alternate Warnings—If this product is equipped with a three-wire grounding-type plug, a plug having a third (grounding) pin, the plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
12 a. Mise à la terre ou Polarisation—Cet appareil est équipé avec un cordon d'alimentation à trois fils. Il est a brancher sur une prise ayant un connecteur a la terre. Assurez-vous que la connection a la terre ne manque pas.
13. Power-Cord Protection—Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.
14. Outdoor Antenna Grounding—If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.
See Figure A.
15. Lightning—For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.
16. Power Lines—An outside antenna system should not be located in the vicinity of overhead power lines, other electric light or power circuits, where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them may be fatal.
17. Overloading—Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.
18. Object and Liquid Entry—Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
19. Servicing—Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
20. Damage Requiring Service—Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
a. When the power-supply cord or plug is damaged,
b. If liquid has been spilled, or objects have fallen into the product,
c. If the product has been exposed to rain or water,
d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation,
e. If the product has been dropped or damaged in any way, and
f. When the product exhibits a distinct change in performance—this indicates a need for service.
21. Replacement Parts—When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutes may result in fire, electric shock or other hazards.
22. Safety Check—Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
23. Wall or Ceiling Mounting—The product should be mounted to a wall or ceiling only as recommended by the manufacturer.
24. Heat—The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

NOTE TO CATV SYSTEM INSTALLERS:
THIS REMINDER IS PROVIDED TO CALL THE CATV SYSTEM INSTALLER'S ATTENTION TO ARTICLE 820 - 40 OF THE NEC THAT PROVIDES GUIDELINES FOR PROPER GROUNDING AND, IN PARTICULAR, SPECIFIES THAT THE CABLE GROUND SHALL BE CONNECTED TO THE GROUNDING SYSTEM OF THE BUILDING, AS CLOSE TO THE POINT OF CABLE ENTRY AS PRACTICAL.

Figure A
Example of antenna grounding as per National Electrical Code, ANSI/NFPA 70



NEC - NATIONAL ELECTRIC CODE

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SPECIFICATIONS

SATELLITE INPUT

Frequency Range:	950 MHz to 2150 MHz.
Tuning Increment:	500 kHz.
Acquisition Range:	±7.0 MHz.
Input Level:	-25 dBm to -65 dBm.
Input Impedance:	75 Ohms, return loss of 8 dB minimum.
I/Q Phase Imbalance:	<1 Degree.
I/Q Amplitude Imbalance:	<1dB.
Mode:	QPSK.
FEC:	DVB or DCII.
VITERBI Rate:	Auto Scan. 1/2, 2/3, 3/4, 5/6, 6/7, 7/8 -DVB; 5/11, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 7/8 -DCII.
Input Data Rate:	2 Msps to 45 Msps.

QAM OUTPUT

Output Impedance:	75 Ohms, return loss of 10 dB minimum.
Output Level:	+50 dBmV minimum.
Display Error:	±2 dB maximum.
Level Adjustment Range:	20 dB.
Frequency Range:	54 MHz to 864 MHz.
Frequency Plan:	Standard CATV channels.
Spurious:	-60 dB, 5 MHz to 900 MHz.
Broadband Noise:	-75 dBc, 4 MHz bandwidth.
Phase Noise @ 10 kHz:	-85 dBc.
Frequency Stability:	± 10 kHz.
QAM I/Q Phase Error:	<1 degree.
Channel Amplitude Error:	<1 dB.
IF Bandwidth:	6 MHz.
Carrier Suppression:	45 dB.
MER:	>38 dB, with blind equalizer.
Mode:	16, 32, 64, 128, 256 QAM.
Symbol Rate:	1 Msps to 5.4 Msps.
FEC:	DVB or DCII.

LNB POWER

Voltage:	13 V or 18 V ±10%, or OFF.
Current:	250 mA maximum.
Tone Frequency:	22 kHz, or OFF.
Tone Amplitude:	.7 Vp-p ±.2 V.

EAS INPUT

Input Impedance:	75 Ohms.
Input Level:	+30 dBmV ±1dB.
Auto Switching Level:	+20 dBmV.

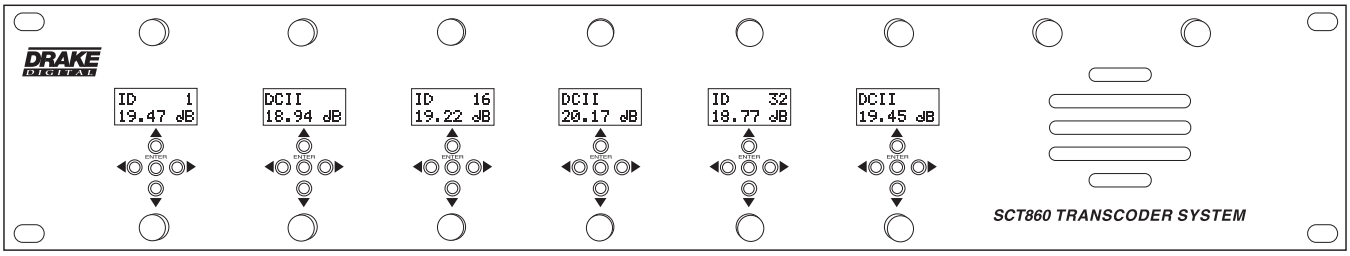
RS232 CONTROL

Data Link:	4800 baud interface to PS100 via power supply cable.
RS232 Input:	DB-9 connector on PS100 for connection to modem or PC.
RS232 Output:	DB-9 connector on PS100 for connection to additional transcoders.

GENERAL

Operating Temperature Range:	0^0 C to $+50^0$ C, ambient.
Size:	1.94" W x 3.5" H x 16.75" D. (4.93 cm W x 8.89 cm H x 42.55 cm D.)
Weight:	2.22 Lbs. (1.01 Kg).
Power Requirement:	All voltages are provided by the Drake model PS100 power supply. PS100 power requirement: 90 to 260 VAC / 105 W, nominal (6 SCT860s).

Specifications subject to change without notice or obligation.



GENERAL DESCRIPTION

The R.L. Drake model SCT860 is a professional quality, modular, digital headend component providing QPSK to QAM transmodulation and RF upconversion functions in a single module. Up to six SCT860 modules and a power supply module can be accommodated in the SCTR rack mounting tray, occupying only a 2 unit (3.5") high rack space. The SCT860 can transcode DigiCipher II, DVB, or DSS digital MPEG 2 signals.

The SCT860 accepts L band RF inputs between 950 and 2150 MHz from the LNB at the satellite dish. The transcoder then tunes to the selected satellite transponder and demodulates the QPSK signal. The forward error correction (FEC) imbedded in the data stream is used to help retrieve an error free MPEG2 digital transport stream containing the desired digital programming multiplex.

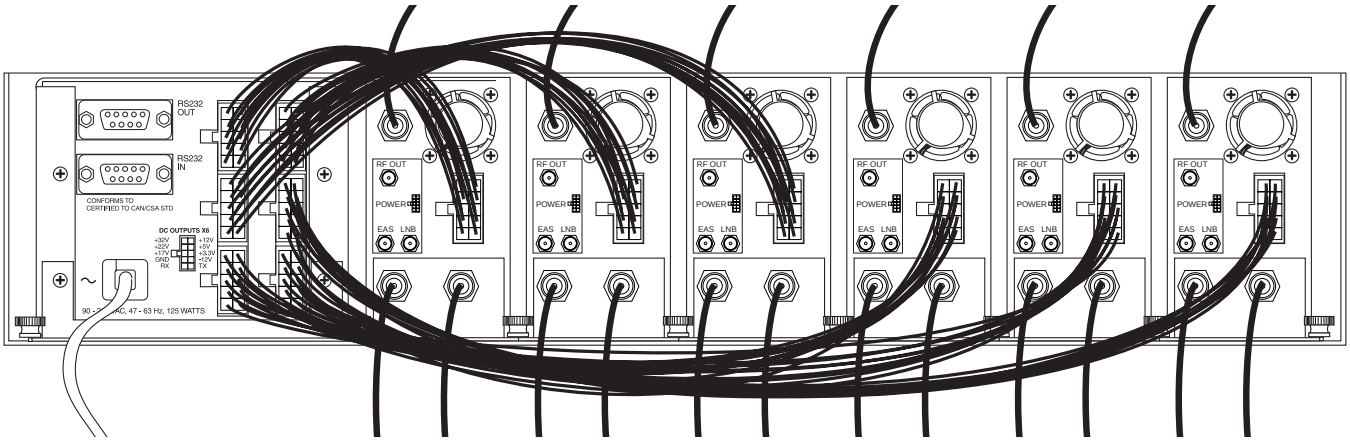
The transcoder then applies cable environment FEC to this stream and remodulates using QAM modulation that occupies a standard 6 MHz wide cable channel slot. The IF signal is SAW filtered to minimize any potential interference to adjacent analog channels.

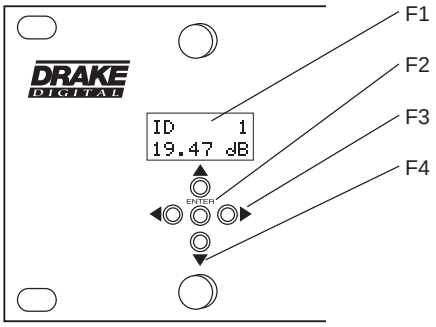
The RF upconverter then upconverts the IF QAM signal to the desired output channel. Any standard EIA CATV output channel may be selected in the range of 54 to 860 MHz. Bandpass flatness and phase noise are closely controlled in the SCT860 to insure a high MER output signal. This insures that the transcoder will not introduce a source of errors into the distribution process. Because the MPEG2 transport stream information is not modified by the transcoder, all encryption, authorization, and program guide information is passed on to the CATV set top box, unchanged.

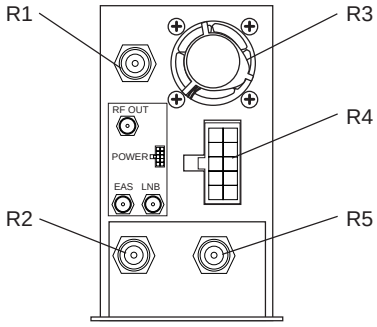
INSTALLATION AND MOUNTING

Install the SCT860 transcoders in the SCTR rack mounting frame. Slide the module into the tray so that the buttons and LCD are properly located behind the front panel holes. Secure the module with the two thumb screws from the front panel and two thumb nuts on the bracket at the rear of the module. Similarly, mount the PS100 power supply in the SCTR tray. Connect each SCT860 to the PS100 with the cable included with the SCT860. Each SCT860 can connect to any one of the six sockets on the power supply. Connect the LNB signal from the LNB splitter to each SCT860 module. Connect each SCT860 RF output to the output combiner. Plug the line cord from the PS100 into the AC power source.

When installing the SCTR tray of transcoders, it is recommended that air space of 1 unit (1.75") high be left between the SCTR and any other rack mounted equipment. When more than one SCTR rack tray is installed in a rack, the SCTRs may be mounted without an air space between SCTRs but a space should be left above the highest unit and below the lowest unit. The air flow through the transcoders and power supply has been designed to allow immediately adjacent mounting of multiple SCTR trays with SCT860 transcoders and PS100 power supplies installed. Of course, air spaces may be left in between SCTRs if desired.







FRONT PANEL CONTROLS AND INDICATORS

F1 - LCD Display - This displays the selected transcoder parameter and its setting.

F2 - ENTER - Use the ENTER button to enter the adjust mode or to save and load a new setting or settings. Hold for 2 seconds until the display flashes to enter the adjust mode. After adjustment using the arrow buttons, press again to save and load the new settings. You may save one parameter at a time after it is adjusted or wait until all adjustments are made and press to save and load all at once.

F3 - ◀ (Left) and ▶ (Right) Buttons - Use the left or right buttons to navigate from screen to screen to view a parameter setting. If not in the adjust mode, this will not alter any settings. If in the adjust mode, stop at the parameter you wish to adjust and use the ▲ (up) and ▼ (down) Arrows to adjust.

F4 - ▲ (Up) and ▼ (Down) Buttons - Use the up and down arrows to adjust a parameter value when in the adjust mode. When not in the adjust mode, pressing the ▲ (up) button will display the software version readout, and pressing the ▼ (down) button will display the QAM baud rate readout.

REAR PANEL CONNECTIONS

R1 - RF Output - This is the QAM output channel RF output. The frequency range is between 54 and 860 MHz depending upon the channel selected. The output level is +50 dBmV, adjustable downward.

R2 - EAS - This is used to input an alternate program for emergency alert purposes. This is a 44 MHz IF input and the operating level is +30 dBmV. An auto RF sensing switch is built in the SCT860. When level at this jack exceeds +20 dBmV, the switch will select this IF input. The input signal may be either analog or digital.

R3 - Fan - To ensure proper cooling, do not block this opening.

R4 - Power Supply - This connector is for connecting the power cable to the PS100 power supply. The other end of the cable can be plugged into any one of the six connectors on the PS100. Do not attempt to use any power supply other than this Drake supplied model.

R5 - LNB - This is the L band input from the LNB. The level must be between -65 and -25 dBm. If selected, a 13 or 18 volt LNB supply voltage or a 22 kHz switch tone will be present at this connector. The L band frequency range will be in the 950 to 2150 MHz range.

SCT860 QUICK START for HITS or WSNET Networks - Front Panel Control

See page 7-9 for additional information.

1) Connect cables from LNB, to output combiner, and to PS100 power supply.
2) Plug PS100 AC line cord into power source.
3) Push **ENTER** button on SCT860 for **2 seconds** until display flashes to enter adjust mode.
4) **◀ (Left) arrow** - **CHANNEL** menu - Use the **▲ (Up)** or **▼ (Down)** arrow buttons to select the desired EIA **CATV output channel** for this program multiplex.
5) **▶ (Right) arrow** - **UNIT ID** screen - This should be set to **0** unless you are going to use the RS232 remote control software.
6) **▶ (Right) arrow** - **RS232** - Use **Up** or **Down arrows** to set to 4800 unless another rate is indicated when setting up a modem interface.
7) **▶ (Right) arrow** - **MODE** menu - **Up** or **Down arrows** to select **HITS** or **WSNET.**
8) **▶ (Right) arrow** - **HITS** or **WSNET** multiplex menu. **Up** or **Down arrows** to select the desired multiplex corresponding to the EIA output channel that you set in step 4. This correlation is determined by the channel map used for your installation.
9) **▶ (Right) arrow** - **LNB** menu - **Up** or **Down arrows** - **STACKED** or **DUAL POL** – Set to the type you are using.
10) **▶ (Right) arrow** - **LNB V** menu. Select **OFF** or one of the voltage/tone settings if this transcoder is to supply the voltage/tone to the LNB or LNB switch.
11) **ENTER** – push once to store and load all of the above settings.

By selecting the HITS or WSNET mode in step 6, instead of the generic DCII setting, many of the other adjustable parameters have been preset to the values required for these networks, determined by the preset programming in the SCT860. If you reenter the adjust mode later and make changes to the preset parameters or if you altered any of the parameters that were preset during the steps above such that the values do not match the preset values, the display in the mode menu will revert to DCII.

If the dish has been aimed, you should now see a SN readout on the display. If it is less than 7 dB, the transcoder will not stay locked to the satellite signal. If the SN reading is showing only around 2 dB, you likely are not pointed at the correct satellite or the dish is not peaked. For reliable operation, the SN level should be above 10 dB and preferably even higher. The better the margin above the approximately 7 dB threshold, the less likely you will encounter drop outs due to thunderstorms or snow storms.

NOTE: If you are using the RS232 remote control program, all of the above adjustments may be made via the PC, except the UNIT ID assignment.

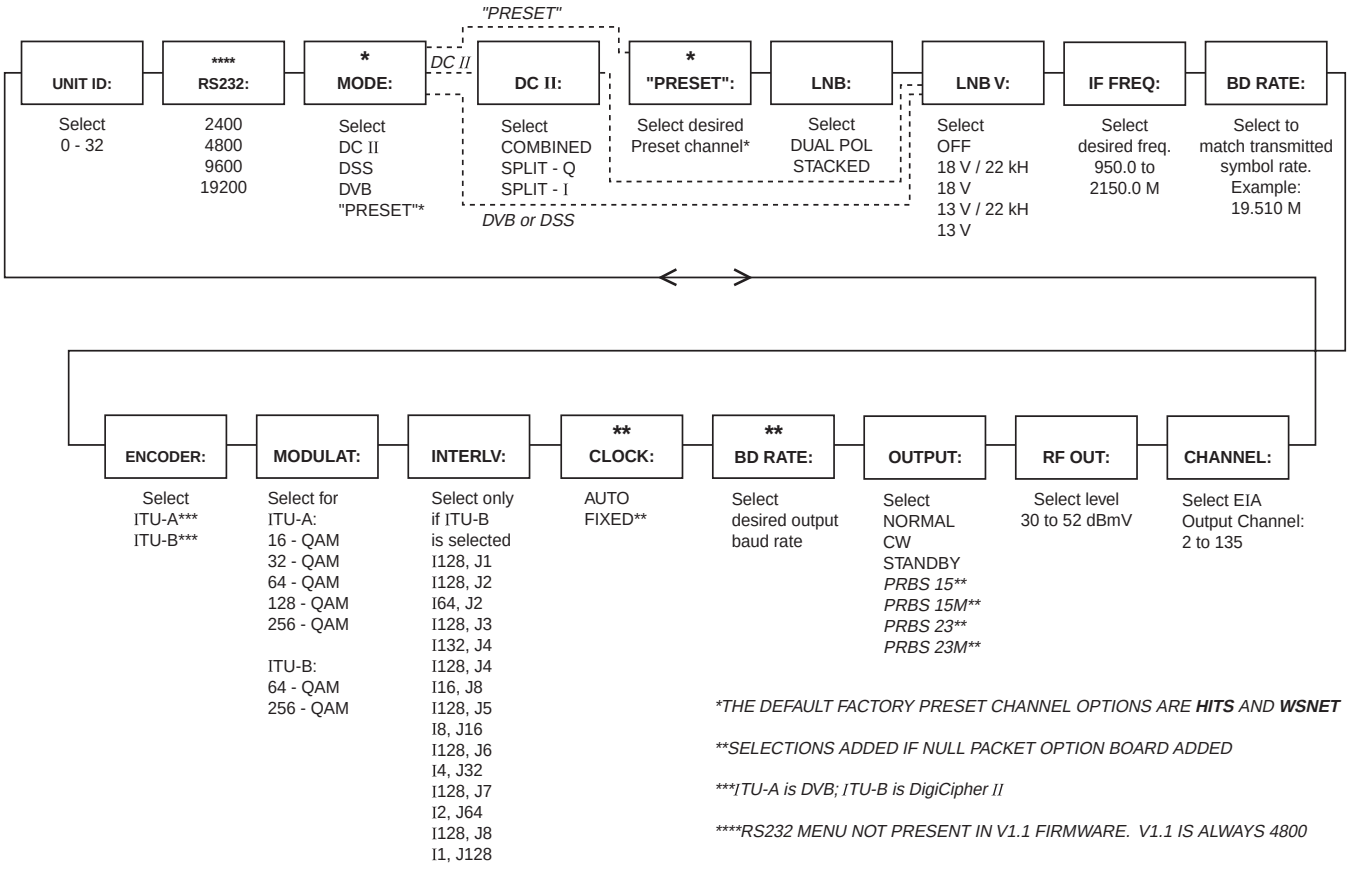
LNB INPUT AND LNB POWERING

The SCT860 receives its input signal from the IF output of the LNB located on the satellite dish. Because this LNB output usually is split among multiple transcoders, the LNB power might be obtained from a separate power inserter and supply that is connected ahead of an L band splitter. If separate power is not used, the SCT860 has the provision to power the LNB through its 950 – 2150 MHz input. Either 13 V or 18 V can be selected, or OFF if the LNB power is supplied via a separate power inserter/ power supply. Use the LNB V menu to make this selection. When the SCT860s are used to supply LNB power, no more than two SCT860s, connected to the same power supply, should be set to power the LNBs. A 22 kHz tone switch control signal is also provided if needed to control an input polarity switch. This selection is also made via the LNB V menu. With all of these capabilities, the SCT860 is fully compatible with either dual polarity or stacked LNB headend designs with or without voltage level sensing or 22 kHz tone controlled multiswitches.

SETUP AND PROGRAMMING

Programming is done via the five front panel buttons and the LCD readout. If the RS232 remote control is connected, all programming other than the setting of the UNIT ID number and password programming can be done remotely. The chart below shows each of the menus that is available for parameter set up and /or viewing. Pressing the left or right arrow buttons will navigate through these menus. You may do this without danger of disturbing any of the current settings. As you navigate through the menus, the parameter is listed on the top line of the display and the current setting is shown on the bottom line. For set up purposes, it is best to progress from left to right in the chart below (use the right arrow button), starting from the "UNIT ID:" menu.

The chart below shows all of the settings that are available through these menus.



THE DEFAULT FACTORY PRESET CHANNEL OPTIONS ARE **HITS AND **WSNET***

***SELECTIONS ADDED IF NULL PACKET OPTION BOARD ADDED*

****ITU-A is DVB; ITU-B is DigiCipher II*

*****RS232 MENU NOT PRESENT IN V1.1 FIRMWARE. V1.1 IS ALWAYS 4800*

To adjust /set a parameter(s), enter the adjust mode by pressing the center "ENTER" button for several seconds until the display begins to flash. You are now in the adjust mode and the up and down buttons will take you through the various parameters. Find the desired setting and then use the right arrow to progress to the next menu. After setting all parameters in all menus, press the enter button once. This will load the settings and save the new settings in memory.

Note that many of the parameters will not be changed until the enter button is pressed. These include: MODE related settings, LNB type, IF FREQ, BD RATE, ENCODER, MODULATE, and INTERLV. If you need to see the result of a change right away for these parameters, press the enter button to load and store the new parameter setting and then you can reenter the adjust mode by pressing the ENTER button again for several seconds. The UNIT ID, RS232, LNB V, OUTPUT, RF OUT level, and CHANNEL (output) settings will all change immediately as soon as they are adjusted.

PRESETS FOR HITS or WSNET

See page 6 for the abbreviated Quick Start procedure.

The SCT860 provides factory loaded presets for HITS and WSNET. When a preset is selected and entered, all of the operating parameters for the satellite tuner, demodulator and for the QAM modulator are set to the preset settings. You will then need to set only the output channel and level and LNB related parameters. Note that selecting and entering the HITS or WSNET options in the mode menu, changes any other parameters that might have been adjusted previously to the preset values. If you do not wish to use presets, be sure that you have chosen the DCII selection before pressing the enter button to load and save the values.

Using the presets will significantly shorten the set up time for a new headend. These preset settings can be altered in the field at any time if the required parameters change in the future. To make use of this timesaving process, select HITS or WSNET instead of DCII from the MODE menu. Then select the desired multiplex in the menu that follows. Press the ENTER button to save and load the preset information.

This will set all parameters to the correct values for these services leaving only the LNB information, and output channel/level to set. Press and hold the ENTER button to reenter the adjust mode, visit the LNB, LNB V:, CHANNEL, and RF OUT menus to set. Press ENTER again to save and load the data.

OUTPUT LEVEL

The SCT860 provides a +50 dBmV QAM output level that is desirable when transcoders are combined with analog modulators that have +60 dBmV output level. This allows the 64 QAM output level to be conveniently provided at a level that is 10 dB lower than the analog video carriers – a typical situation. The SCT860 output level can be turned down as much as 20 dB if a lower level is desired. Each SCT860's RF output level is read out on that SCT860's front panel LCD or via the RS232 remote connection.

Because some operators may not have test equipment designed to measure QAM power levels, and analog meters may be grossly inaccurate if a QAM signal is read, the SCT860 has a CW output mode that can be useful for measuring/adjusting the output level of the transcoder with any meter that measures CW carrier power. A special QAM instrument is not required. No input signal is required for this measurement. The CW carrier power is equal to the QAM power level that will result when the unit is returned to a normal QAM modulation mode.

IMPORTANT NOTE: When the SCT860 is placed in the continuous wave (CW) mode, the output carrier frequency will be at the center of the output channel. It will not be located at the NTSC video carrier frequency. Adjust test equipment accordingly to obtain an accurate result.

The PC control software allows all transcoders to be easily switched to the CW mode at one time for set up purposes. After any level tweaks are made, they can all be switched back to normal mode at one time. It is also possible to individually select a single transcoder to be switched to the CW mode, if desired. In a typical leveling process, the output of the headend is monitored after the final combiner and all analog channel levels are set to the desired level. Then, with the SCT860s all set for CW output, the SCT860 CW carrier levels can be all tweaked to a level of 10 dB below the analog video carrier levels. When switched back to normal mode, the SCT860s will all be outputting QAM output power that is 10 dB below the analog channels.

STANDBY MODE
The SCT860 has a standby output mode which turns off the RF output. This can be used when it is desirable to keep a backup unit on line. The standby mode can be selected via the OUTPUT menu.

EAS
The SCT860 has a built in, auto RF sensing, IF switch for EAS substitution. When an IF signal at 44 MHz (45.75 MHz analog video carrier) appears at the EAS input jack, exceeding approximately +20 dBmV, the SCT860 will internally switch its output source from the QAM modulator to the EAS input signal (+30 dBmV). If the EAS input is activated, the front panel LCD will display EAS ACTIVE and the message will appear on the PC screen when using the remote control software package.

OVER-TEMPERATURE MONITOR
Over-temperature monitoring is built into the SCT860. If the ventilation slots in the module chassis or the fan output should become blocked or if some other condition results in overheating, the LCD will display an over-temperature warning. This warning will also be displayed on the PC screen if the remote monitoring and control feature is being used. The unit will remain operational but the problem should be eliminated as soon as possible to prevent premature failures due to the overheating condition.

POWER SUPPLY
The SCT860 requires multiple power supply voltages that are all obtained from the Drake model PS100 power supply module. The PS100 mounts in the SCTR rack tray along with one to six SCT860 transcoders. The PS100 buffers and distributes the RS232 remote control data from its DB9, RS232 INPUT connector to up to six SCT860s and to the DB9, RS232 OUTPUT connector. Multiple PS100s can be 'daisy chained' via the DB9 INPUT and OUTPUT connectors to allow control of up to 32 transcoder modules with a single connection to a PC.

The PS100 operates over a wide range of AC input voltages from 90 VAC to 264 VAC. The USA version has an attached 3 wire line cord. Power consumption from the AC line will be around 105 W with six standard SCT860s connected.

RS232 REMOTE CONTROL AND MONITORING
The SCT860 provides for remote control and/or monitoring of all transcoder parameter settings. It is possible to view all of the current parameter settings including the output level setting for each transcoder. It is also possible to remotely monitor the SNR level and the baud rate. The EAS ACTIVE and Over-temperature messages also will be indicated on the remote display. The transcoder parameter settings may be uploaded to a PC file for saving on the PC or a new parameter configuration from the PC file can be downloaded to the SCT860. A single parameter may be adjusted if desired. It is possible to put all transcoders in or out of CW mode with a single command. A unit may be placed in or taken out of the standby mode. A password can be assigned to prevent unauthorized changes to parameter settings but the present settings can be read out remotely without entering the password. Further details on the RS232 control program are provided with the instructions included with the CDROM containing the control program (shipped with your PS100 power supply).

The previously described remote interface is accomplished by connecting an RS232 interface cable between the PS100 power supply DB9 INPUT connector and a PC serial port. The required program is supplied by Drake with the PS100 power supply. This setup will allow RS232 interfacing to up to six SCT860 transcoders connected to the PS100. When more than one tray of transcoders is used, the OUTPUT DB9 connector on the PS100 can be used to link to a second PS100 – use a DB9 to DB9 RS232 jumper cable from the OUTPUT of the first supply to the INPUT of the second supply. You can extend this to additional supplies as long as the total number of SCT860s to control does not exceed 32.

In order for the PC software to identify the proper SCT860 that you wish to connect to, each SCT860 must be assigned a unit number between 1 and 32. This is easily accomplished by using the "UNIT ID:" menu and setting the ID number with the front panel set up buttons. If no RS232 control is desired, this unit ID number should be set to 0. The SCT860 will not respond to RS232 activity when its unit ID is 0. Any number of transcoders can have a unit ID of 0. When using RS232, assign a unique ID, between 1 and 32, for each SCT860 to be controlled. Do not duplicate a number among any of the up to 32 transcoders that are to be connected through the same RS232 path to the PC.

This RS232 connection can be used by directly connecting to a PC serial port or remotely by interfacing through modems. If an auto answer modem is used at the headend, one can interface via telephone connection.

The RS232 connection can be used to download new operating firmware to the SCT860, if needed for use with future options.

OPTIONS
An optional, field installable, PCB, model 1002365, is available to add null packet stuffing capability to the SCT860 transcoder. This option enables fixed output clock mode (auto clock mode is still selectable) which is required if the output data rate must be higher than the incoming data rate. Null (ignored by the set top box) MPEG 2 packets are added to the received transport stream by the 1002365 board to increase the output data rate. The 1002365 also adds the PRBS (pseudo random binary sequence) output test modes that are useful for testing QAM MER when no input satellite signal is available.

10 Service / If You Need To Call For Help

SERVICE INFORMATION
You may contact the R.L. DRAKE Service Department for additional information or assistance by calling +1 (937) 746-6990, Monday through Friday, between 8:00 A.M. and 4:00 P.M. Eastern Time, except on holidays.

You may also contact the R.L. DRAKE Service Department by E-mail at the following address:
TechSupport@rldrake.com
or by Telefax:
+1 (937) 743-4576.

Should you want to return your unit for service, package the unit carefully using the original carton or other suitable container.

Write your return address clearly on the shipping carton and on an enclosed cover letter describing the service required, symptoms or problems. Also include your daytime telephone number and a copy of your proof of purchase.

The unit will be serviced under the terms of the R.L. DRAKE COMPANY Limited Warranty and returned to you.

IF YOU NEED TO CALL FOR HELP
Call our Customer Service/Technical Support line at +1 (937) 746-6990 between 8:00 A.M. and 4:00 P.M. Eastern Time, weekdays. Please have the unit's serial number available. We will also need to know the specifics of any other equipment connected to the unit.
When calling, please have the unit up and running, near the phone if possible. Our technician(s) will likely ask certain questions to aid in diagnosis of the problem. Also, have a voltmeter handy, if possible.

R.L. DRAKE also provides technical assistance by e-mail: TechSupport@rldrake.com
or by Telefax: +1 (937) 743-4576.

Many of the products that are sent to us for repair are in perfect working order when we receive them. For these units, there is a standard checkout fee that you will be charged. Please perform whatever steps are applicable from the installation sections of the Owner's Manual before calling or writing—this could save unnecessary phone charges. Please do not return the unit without contacting R.L. DRAKE first: it is preferred to help trouble-shoot the problem over the phone (or by mail) first, saving you both time and money.

Inside the carton, enclose a note with your name, address, daytime phone number, and a description of the unit's problem.
The unit must be sent to the following address:

Service Department
R.L. DRAKE COMPANY
230 Industrial Drive
Franklin, Ohio 45005 U.S.A.

Be sure to include your street address which will be needed for UPS return. UPS Surface (Brown Label) takes 7-10 days to reach us depending on your location, Blue takes 2-3 days.

Red is an overnight service. Send the unit in a way that it can be traced if we can't verify receipt of shipment. We suggest UPS or insured postal shipment.

If the unit is still under the original owner's warranty, R.L. DRAKE will pay the cost of the return shipment to you. Our return shipping policy is that we will return it UPS Brown if received Brown or by US Mail, it will be returned Blue if received Blue or Red—or it will be returned however you prefer if you furnish the return cost for the method you select.
If the unit is out of warranty, use one of the following methods for return shipment:

1) You designate billing to American ExPress, VISA, MasterCard or Discover card;
2) You prepay the service charges with a personal check, or
3) You specify some other method of return and payment.

When calling, the technician can estimate the repair charges for you over the phone. This is another good reason to call before sending a unit in for repair. Typically, equipment is repaired in five to ten working days after it arrives at R.L. DRAKE if we have all the facts. If we must call you, it may take longer. R.L. DRAKE is not responsible for damage caused by lightning, nonprofessional alterations, "acts of God", shipping damage, poor storage/handling, etc. R.L. DRAKE will make note of any shipping damage upon receipt.

You will need to send proof of purchase to receive warranty service. Typically, a copy of the invoice from an R.L. DRAKE dealer will suffice. The warranty is for the original owner only and is not transferable.

Three Year Limited Warranty

R.L. DRAKE COMPANY warrants to the original purchaser this product shall be free from defects in material or workmanship for three (3) years from the date of original purchase.

During the warranty period the R.L. DRAKE COMPANY or an authorized Drake service facility will provide, free of charge, both parts and labor necessary to correct defects in material and workmanship. At its option, R.L. DRAKE COMPANY may replace a defective unit.

To obtain such a warranty service, the original purchaser must:

(1) Retain invoice or original proof of purchase to establish the start of the warranty period.

(2) Notify the R.L. DRAKE COMPANY or the nearest authorized service facility, as soon as possible after discovery of a possible defect, of:
(a) the model and serial number,
(b) the identity of the seller and the approximate date of purchase; and
(c) A detailed description of the problem, including details on the electrical connection to associated equipment and the list of such equipment.

(3) Deliver the product to the R.L. DRAKE COMPANY or the nearest authorized service facility, or ship the same in its original container or equivalent, fully insured and shipping charges prepaid.

Correct maintenance, repair, and use are important to obtain proper performance from this product. Therefore carefully read the Instruction Manual. This warranty does not apply to any defect that R.L. DRAKE COMPANY determines is due to:

(1) Improper maintenance or repair, including the installation of parts or accessories that do not conform to the quality and specifications of the original parts.

(2) Misuse, abuse, neglect or improper installation.

(3) Accidental or intentional damage.

All implied warranties, if any, including warranties of merchantability and fitness for a particular purpose, terminate three (3) years from the date of the original purchase.

The foregoing constitutes R.L. DRAKE COMPANY'S entire obligation with respect to this product, and the original purchaser shall have no other remedy and no claim for incidental or consequential damages, losses or expenses. Some states do not allow limitations on how long an implied warranty lasts or do not allow the exclusions or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. This warranty shall be construed under the laws of Ohio.

For Service, contact:

R.L. DRAKE COMPANY
230 Industrial Drive
Franklin, Ohio 45005 U.S.A.
Customer Service and Parts Telephone: +1 (937) 746-6990
Telefax: +1 (937) 743-4576
World Wide Web Site: http://www.rldrake.com

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