

INTRODUCTION

The 100-2365 board is used to add a **fixed**, programmable, clock option to the SCT860 transcoder. Why is this needed? When the standard SCT860 demodulates the satellite signal and recovers the MPEG2 transport stream, the data rate of this stream has been determined at the satellite uplink. This data rate, the FEC mode, required guard bands, etc. have all been carefully selected to optimize the use of a 27 MHz wide satellite transponder and a 6 MHz wide 64 QAM CATV channel. The resulting design provides a transport stream bit rate of around 27 Mb/s. This bit rate results in a 64 QAM symbol or baud rate of 5.057 MS/s. This rate completely fills the 6 MHz channel. The standard SCT860 does not modify the transport stream and thus performs the desired translation from the satellite channel to the terrestrial QAM channel producing the output rate as described above. Drake labels this mode the 'Auto Clock' mode as the output rate is automatically determined by the received input signal data rate.

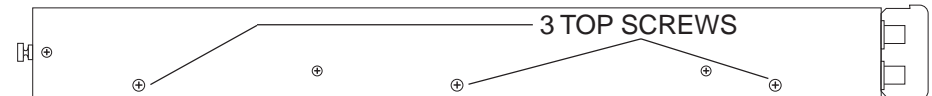
Sometimes there are reasons for the satellite uplink to use a different data rate than that which produces the 5.057 MS/sec, 64 QAM data rate. For example, if 36 MHz wide transponders are used, not all of the satellite bandwidth is being utilized with only a 27 Mbps bit rate - a higher satellite rate is possible to make maximum use of the satellite bandwidth. If the satellite rate is increased to make optimum use of the wider satellite transponder, after transcoding, the resulting output signal would exceed the maximum 6 MHz CATV channel bandwidth. If priority is given to utilizing all of the satellite bandwidth then a higher order of CATV modulation, such as 256 QAM, must be used to accommodate the additional data rate on the QAM output side OR some of the excess data must either be deleted or split so as to deliver it in two CATV channels.

When it is not desirable to go to 256 QAM modulation, one possibility, if some of the information is not needed at any one receiver, is to encode the uplinked signal such that all bits from any one program source are coded to only bits of the Q channel or the I channel. Then it is possible to demodulate the satellite signal at the transcoder and use only the I or Q side (SCT860 Split-I or Split-Q mode). The resulting data rate is then below the available maximum capacity with 64 QAM modulation. The standard SCT860, in auto clock mode, would output the resulting reduced symbol rate signal at a symbol rate below the 5.057 MS/s maximum rate but, unfortunately, many set top boxes will only sync to the 5.057 maximum rate. This is where the 100-2365 board is used. This option allows the user to select a 'Fixed Clock' mode. The desired output symbol rate (such as 5.057 MS/s) can be programmed. The 100-2365 option will then add MPEG2 null packets to the transport stream (sometimes called 'null packet stuffing') as needed to increase the symbol rate to the one programmed. The set top box will just ignore the extra null packets.

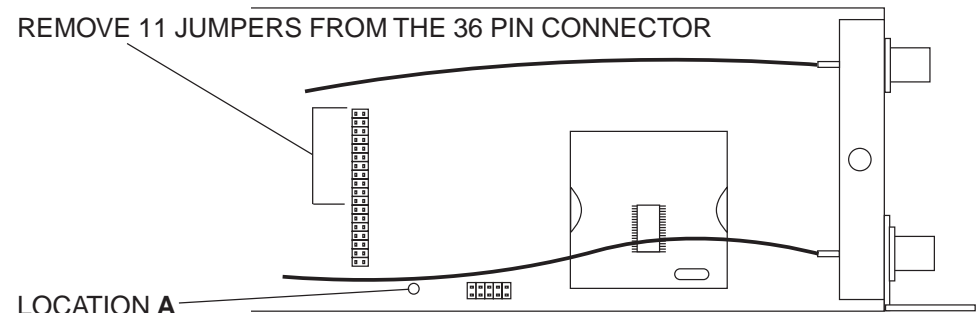
By using two SCT860 transcoders with the 100-2365 option to receive the same satellite transcoder (using split mode) and setting one for the 'Split-I' mode and one for the 'Split-Q' mode, the entire satellite payload can be split between two different CATV 64 QAM channels thus transcoding all of the satellite program services. It is necessary for the signal to be uplinked in the split mode in order for this process to work.

INSTALLATION IN THE SCT860

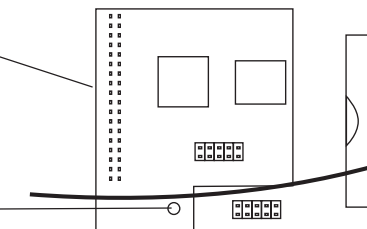
Looking at the SCT860 from the front panel, observe the right side of the unit. Remove the three top screws as shown, three side screws, and three bottom screws holding the right side of the case.



Remove the right side and then lay the transcoder on a flat surface laying on its left side. Locate the 36 pin interface connector and remove the 11 jumpers that are in place. Keep these jumpers for future use in case the 100-2365 board is ever removed.

REMOVE 11 JUMPERS FROM THE 36 PIN CONNECTOR**LOCATION A**

Remove the original screw at location A. Screw the standoff spacer, that is included with the option board, into the hole at location A. Carefully remove the 100-2369 board from its static protection package. Position the board as indicated and plug it into the 36 pin connector.

PLUG INTERFACE HEADER INTO 36 PIN CONNECTOR**TIGHTEN SCREW INTO SPACER**

Reinstall the screw to fasten the Option Board to the spacer. Replace the right side cover and screws.

FIRMWARE UPDATE REQUIRED

Install the "Fixed" version of the SCT860 operating firmware. This is provided on the included floppy disk. Download via the RS-232 interface on the PS100. This firmware is also available on the CD-ROM included with the PS100.

OPERATION

Follow the instructions in the SCT860 instruction manual. Now that the 100-2365 board is installed, the FIXED clock option may be selected and the output BD RATE (baud rate which is the symbol rate) may be set. The original AUTO clock mode is still selectable, if desired.

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.

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 troubleshoot 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.

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.

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 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 necessary 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.



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