CM720M

QAM Digital Cable Modulator

Installation and Operation Manual

COMSTREAM

A Spar Company

10180 BARNES CANYON ROAD • SAN DIEGO, CALIFORNIA 92121 • (619) 458-1800

CPN 01-0477-401
Rev. A 12/94

NOTICE

This publication and its contents are proprietary to ComStream, A Spar Company (ComStream) and are intended solely for the contractual use of its customers for no other purpose than to install and operate the equipment described herein. This publication and its contents shall not be used or distributed for any other purpose and/or otherwise communicated, disclosed, or reproduced, in any way whatsoever, without the prior written consent of ComStream.

For the proper installation and operation of this equipment and/or all parts thereof, the instructions in this manual must be strictly and explicitly followed by experienced personnel. All of the contents of this manual must be fully read and understood prior to installing or operating any of the equipment, or parts thereof. FAILURE TO COMPLETELY READ AND FULLY UNDERSTAND AND FOLLOW ALL OF THE CONTENTS OF THIS MANUAL PRIOR TO INSTALLING AND/OR OPERATING THIS EQUIPMENT, OR PARTS THEREOF, MAY RESULT IN DAMAGE TO THE EQUIPMENT, OR PARTS THEREOF, AND TO ANY PERSONS INSTALLING AND/OR OPERATING THE SAME.

ComStream does not assume any liability arising out of the application or use of any products, component parts, circuits, software, or firmware described herein. ComStream further does not convey any license under its patent, trademark, copyright, or common-law rights nor the similar rights of others. ComStream further reserves the right to make any changes in any products, or parts thereof, described herein without notice.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and radiates radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

WARNING

Shock Hazard!

Do Not Open The CM720M Equipment!
Service Only By ComStream!

The CM720M contains no user-serviceable parts. Do not attempt to service this product yourself.
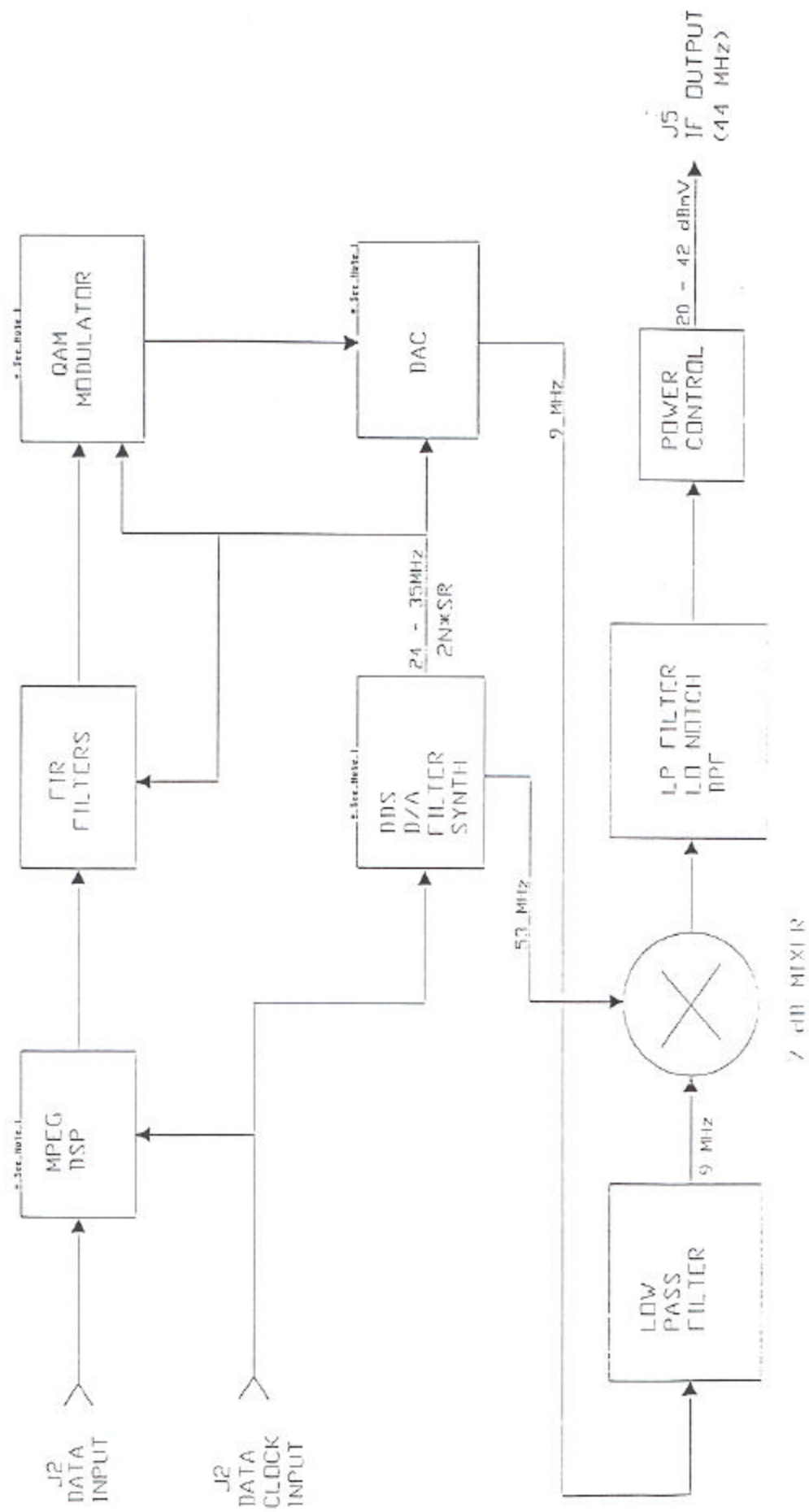Any attempt to do so will negate any and all warranties.

J2
DATA
INPUT

J2
DATA
CLOCK
INPUT

J5
IF OUTPUT
(44 MHz)

* See Note 1

QAM
MODULATOR

* See Note 1

DAC

POWER
CONTROL

20 - 42 dBmV

FIR
FILTERS

DDS
D/A
FILTER
SYNTH

* See Note 1

LP FILTER
LO NOTCH
BPF

MPEG
DSP

* See Note 1

LOW
PASS
FILTER

7 dB MIXER

$24 - 35MHz$
$2N*SR$

9 MHz

53 MHz

9 MHz

Table of Contents

Chapter 4:   Remote Monitor and Control Operation

Chapter 5:   Maintenance, Operation Faults, and Troubleshooting

Chapter 6:   Technical Specifications and Port Information

Appendix A: Interface Pinouts

List of Figures

List of Tables

■ Introduction

Using this Guide

Welcome to the ComStream world of communication systems and networks. This guide is your sourcebook for using ComStream's CM720M QAM Digital Cable Modulator. It describes the installation, operation, and performance specifications of this product.

The chapters in this guide provide step-by-step instructions for a variety of tasks and activities including operation of the CM720M. The chapters also provide technical specifications and troubleshooting procedures.

Conventions Used in this Guide

This guide is designed to help you find and use information quickly and easily. To take full advantage of this design, please take a moment to review the specific formats.

Locating Information

There are several tools located in this guide to help you quickly locate information. The table of contents, located at the beginning, provides you with an outline of the chapters and major topics contained within them.

Special Paragraphs

Throughout this guide you will find two special paragraphs designed to help you identify important information. These paragraphs are:

NOTE: This identifies information for the proper operation of your equipment, including helpful hints, shortcuts, or important reminders.

CAUTION: This identifies information that requires careful attention in order to prevent equipment damage and/or injury to the operator.

Warranty Statement

ComStream warrants that its products are free from defects in material and workmanship at the time of shipment and that they conform to applicable specifications. In no event will ComStream be liable for consequential misuse or damages.

The ComStream CM720M QAM Digital Cable Modulator is warranted against any above-mentioned defects that appear within one year of shipping date.

Should it be necessary to make a claim against this warranty, the buyer shall first notify ComStream's Customer Service Department to define the nature of the problem. When returning products, please be aware of the following:

1. Products returned to ComStream, whether for upgrade, warranted or out-of-warranty repair work, or maintenance, must comply with the ComStream Return Procedure (located on the next page).

2. Products shall be forwarded to ComStream, transportation prepaid.

3. Products returned to ComStream freight collect or without a return material authorization (RMA) number will NOT be accepted.

4. ComStream shall not accept any responsibility for returned products that are improperly packaged and/or damaged in shipment. If possible, please use original shipping and packaging materials.

5. Original product identification markings and labels must not be removed, defaced, or altered. Further, to preserve the warranty, the product should not be subjected to abuse, improper installation or application, alteration, accident, or negligence in use, storage, transportation, or handling.

6. Any returned product shall be completely evaluated in an attempt to duplicate the problem so that appropriate corrective action and repair may be completed. Following repair, the product shall be thoroughly tested for compliance with appropriate specifications. This process will be handled in an expedient and prompt manner but may be subject to available labor and material resources.

The ComStream warranty, as stated herein, is in lieu of all other warranties, expressed, implied, or statutory.

For further information, please contact

ComStream Customer Service at

619-657-5454.

Return Procedure

If it is necessary to return a product for out-of-warranty repair, upgrade, or any modification, the following procedures must be followed:

1. Contact ComStream Customer Service, located in the United States, via phone or fax:

   - Phone   619-657-5454

   - Fax   619-657-5455

2. Speak to a ComStream customer service representative about any questions, issues, or problems. Quite often equipment problems can be corrected over the phone, which keeps your equipment in service and avoids unnecessary and costly downtime.

3. Should it be necessary to return a product to ComStream for any reason, the ComStream customer service representative will issue you a return material authorization (RMA) number. To issue an RMA number, the ComStream representative will need the product's serial number, model number, and a description of the problem.

4. You may be returning a product for either repair, upgrade, or modification. If you are returning the product for:

   - Repair, please include a complete description of the problem, the operating conditions which caused the problem, and any circumstances which may have led to the problem. This information is essential for ComStream repair technicians to reproduce, diagnose, and correct the problem.

   - Upgrade or modification, please include a complete description of the current configuration and the desired change(s). This information will allow a ComStream customer service representative to provide a formal quote for the upgrade.

5. Include a purchase order for any upgrade or out-of-warranty repair work being performed. ComStream will begin repair work after a PO is received.

6. Reference the RMA number on all paperwork that accompanies the equipment, and write the RMA number clearly on the outside of the shipping container.

7. Ship your module in the original shipping carton and packaging (or its equivalent), prepaid, to the following address.

<div align="center">

ComStream, A Spar Company
10180 Barnes Canyon Road
San Diego, CA 92121 USA

RMA Unit number

</div>

Do not include product accessories such as Installation and Operation guides or rack-mount brackets.

CAUTION: When handling or shipping static-sensitive equipment, observe antistatic procedures and always use antistatic bags for shipment. Upon request, ComStream will provide you with ESD bags for your use.

All equipment upgrade and repair requests will be completely evaluated and the required work performed in an expedient and prompt manner. The equipment will then be thoroughly tested for compliance with appropriate specifications.