



INSTALLATION MANUAL

CT-DUC-DDC Digital Off-Air Up Converter and Down Converter

IMPORTANT INFORMATION



The lightning flash with arrowhead 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 appliance.

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

PACKAGE CONTENTS

This package contains:

- One CT-DUC Digital Off-Air Up Converter
- One CT-DDC Digital Off-Air Down Converter
- One CT-DUC-DDC Installation Manual

PRODUCT DESCRIPTION

The CT-DDC & CT-DUC digital down-converters and up-converters have been carefully designed by Cabletronix to integrate digital off-air channels into any private cable system. The CT-DDC digital down-converter converts a digital off-air or CATV input to a 44 MHz IF signal. The CT-DUC digital up-converter accepts the 44 MHz IF signal and converts it to an 8VSB or QAM output signal on a CATV channel from 2-135 or an off-air channel from 2-69. All sub carrier channels (x.1, x.2, x.3 etc.) are included in the conversion. Each unit occupies a single space in a 12 unit rack chassis allowing up to 6 channels to be integrated in a single chassis occupying 2 rack spaces (3.5"). The input modulation format (ATSC or QAM) is maintained from the down-converter to the up-converter (ex. QAM to QAM or ATSC to ATSC). These units do not convert digital off-air signals (ATSC) to QAM modulated signals.

SPECIFICATIONS

CT-DDC Digital Down-Converter Specifications (typical)

| RF INPUT | |
|--------------------------|---|
| 1. Input Frequency Range | 54 – 864 MHz. CATV Channels 2 – 135, Off-Air Channels 2 – 69. |
| 2. Input Level Range | -30 dBmV to +30 dBmV |
| 3. Input Impedance | 75 Ω |
| 4. Noise Figure | 10 dB Typical |
| 5. Image Rejection | 55 dB |
| IF OUTPUT | |
| 1. IF Frequency | 44 MHz |
| 2. Level | +30 dBmV, \pm 1dB |
| 3. Impedance | 75 Ω |
| 4. IF Bandwidth | 6 MHz, SAW filtered |
| 5. Carrier to Noise | 50 dB & + 10 dB input |
| GENERAL | |
| 1. DC Power Input | +12V \pm 5% @275 mA; +5V \pm 5% @275 mA |
| 2. Operating Temperature | 32°F to 122°F ambient |
| 3. Dimensions | 1"W x 3.5"H x 9.25"D |
| 4. Weight | 0.77 lbs. |

CT-DUC Digital Up-Converter Specifications (typical)

| IF INPUT | |
|--------------------------------|--|
| 1. IF Frequency | 44 MHz |
| 2. Input Level | +30 dBmV, \pm 2dB |
| 3. Input Impedance | 75 Ω |
| RF OUTPUT | |
| 1. Frequency Range | 54 – 864 MHz, CATV Channels 2 – 135, Off-Air Channels 2 – 69 |
| 2. Output Level | +45 dBmV |
| 3. Impedance | 75 Ω |
| 4. Adjustment Range | 15 dB |
| 5. Broadband Noise | -73 dBc @ +45 dBmV out |
| 6. In Channel C/N | 63 dB @ +45 dBmV out |
| 7. Spurious Outputs (5-900MHz) | -60 dBc |
| GENERAL | |
| 1. DC Power Input | +12V \pm 5% @300 mA; +5V \pm 5% @350 mA |
| 2. Operating Temperature | 32°F to 122°F ambient |
| 3. Dimensions | 1"W x 3.5"H x 9.25"D |
| 4. Weight | 0.77 lbs. |

INSTALLATION AND OPERATION

NOTE TO SYSTEM INSTALLER

System installer must adhere to Article 820-40 of the NEC that provides guidelines for proper grounding and 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.

1. UNPACKING and HANDLING

Each unit is shipped assembled and factory tested.

Ensure that all accessories are removed from the container before discarding packing material

2. MECHANICAL INSPECTION

Inspect the front and rear of the equipment for shipping damage. Make sure the equipment is clean, and no connectors are broken, damaged, or loose. If equipment appears to be damaged or defective please contact your distributor or Cabletronix at 1-610-429-1511 for assistance.

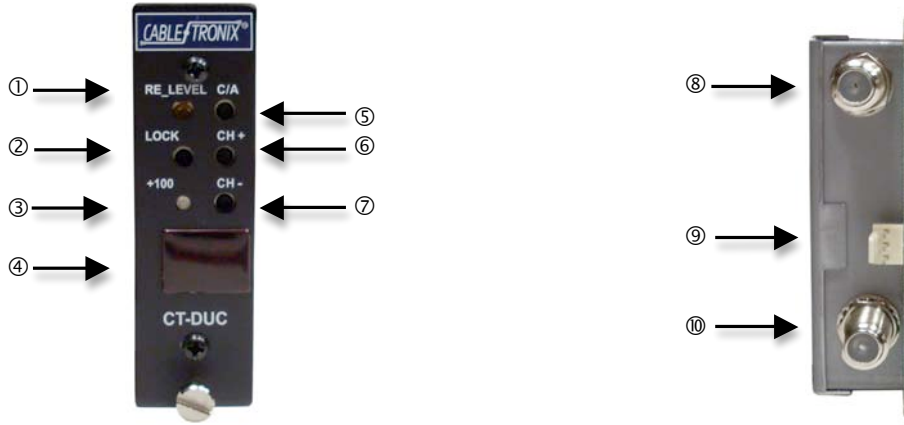
3. THE USE OF RACK MOUNTABLE CHASSES AND POWER SUPPLIES

The CT-DUC and DDC are designed to be mounted in a rack chassis designed for micro modulators, and powered by power supplies intended for micro modulators and designed to fit in the micro modulator rack chassis. The Cabletronix CTRC-12 12-unit rack chassis and Cabletronix CTPS-12 12-unit power supply should be used with the CT-DUC-DDC. Up to 6 pairs of CT-DUC-DDCs can be configured into a single CTRC-12/CTPS-12.

Some chassis and power supplies from other vendors and distributors may also be used, but actual configurations will vary by vendor. It is critical to note that (a) the power supply harness being used MUST come from the vendor providing the power supply, (b) the power supply must be designed for powering micro modulators and installation in a micro modulator rack chassis, and (c) power supply harnesses and power supplies are NOT always interchangeable among vendors. Using the wrong power supply harness and/or power supply can damage the CT-DUC-DDC. Contact your distributor for more information.

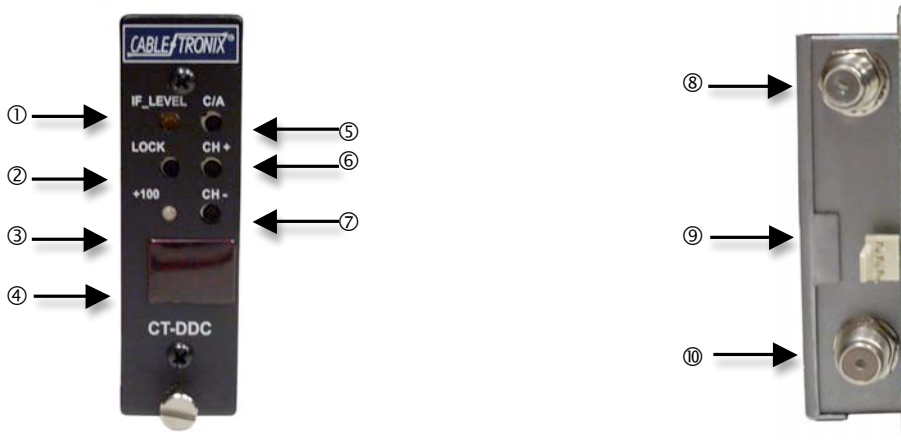
4. PRODUCT DIAGRAMS

CT-DUC FRONT and REAR



| | | |
|----|-----------------|---|
| 1 | RF Level Adjust | Adjusts RF level as required |
| 2 | Lock | Locks channel after setting |
| 3 | +100 | When illuminated refers channel as over 100 |
| 4 | Channel Window | Displays set channel |
| 5 | C/A | Selects CATV or Off-Air mode |
| 6 | CH+ | Select channel up |
| 7 | CH- | Select channel down |
| 8 | IF In | IF input |
| 9 | Power | Power connector to power supply |
| 10 | RF Out | RF out to distribution system |

CT-DDC FRONT and REAR



| | | |
|----|-----------------|---|
| 1 | IF Level Adjust | Adjusts IF level as required |
| 2 | Lock | Locks channel after setting |
| 3 | +100 | When illuminated refers channel as over 100 |
| 4 | Channel Window | Displays set channel |
| 5 | C/A | Selects CATV or Off-Air mode |
| 6 | CH+ | Select channel up |
| 7 | CH- | Select channel down |
| 8 | IF Out | IF Output |
| 9 | Power | Power connector to power supply |
| 10 | RF In | RF input from video source (CATV, Off-Air) |

5. HARDWARE CONNECTIONS

- a. The CT-DUC-DDC is designed for installation in a chassis designed for micro modulators. Micro modulator chasses such as the Cabletronix CTRC-12 can be mounted in standard 19" EIA racks.
- b. The Cabletronix CTRC-12 12-unit rack chassis and Cabletronix CTPS-12 12-unit power supply should be used with the CT-DUC-DDC. Up to 6 pairs of CT-DUC-DDCs can be configured into a single CTRC-12/CTPS-12. Some chasses and power supplies from other vendors and distributors may also be used, but actual configurations will vary by vendor. Contact your distributor for more information.
- c. When configuring the CT-DUC-DDC in the chassis and power supply it is critical that the power harness being used is from the same vendor as the power supply, and is designed for that specific supply. Power supply harnesses among vendors are not interchangeable and can severely damage the CT-DUC-DDC.
- d. The use of a surge protector is highly recommended. Product warranty does not cover surge damages.
- e. Connect a 75ohm coaxial cable with F-connectors between the **CT-DUC's IF IN port** to the **CT-DDC's IF OUT port**.
- f. Connect a 75ohm coaxial cable with F-connectors from the **video source** (CATV, Off-Air) to the **CT-DDC's RF IN port**.
- g. Connect a 75ohm coaxial cable with F-connectors from the **CT-DUC's RF OUT port** to the distribution network.
- h. Connect both the CT-DUC and CT-DDC to the power supply using the supplied power harness.

6. SET UP and CHANNEL SELECTION

- a. Select the video source mode on the CT-DDC to either CATV or Off-Air using the **C/A button**. If CATV is selected a **dot** will appear in the **channel display window**.
- b. Select the destination mode on the CT-DUC to either CATV or Off-Air using the **C/A button**. If CATV is selected a **dot** will appear in the **channel display window**.
- c. Desired channels are selected on the CT-DUC and CT-DDC using the **CH+ and CH- buttons**. The desired channel will be displayed in the **channel window**.

- d. If the desired channel on either the CT-DUC or CT-DDC is 100 or above the **100+ LED** will be illuminated.
- e. Once the desired channels are selected you may lock those channels by pushing the **Lock button** on the CT-DUC and CT-DDC.

7. TROUBLESHOOTING

- a. Ensure you are using quality multiple shielded cables with quality radial or compression F-connectors. It is recommended Belden 9167 cable be used to prevent signal ingress and egress.
- b. Ensure the F-connector's center conductor is making solid contact with the CT-DUC's and CT-DDC's **IF IN, IF OUT, RF IN and RF OUT ports**.
- c. Further troubleshooting assistance can be found on-line at www.cabletronix.com in addition to support from Cabletronix sales engineers at 1-610-429-1511.