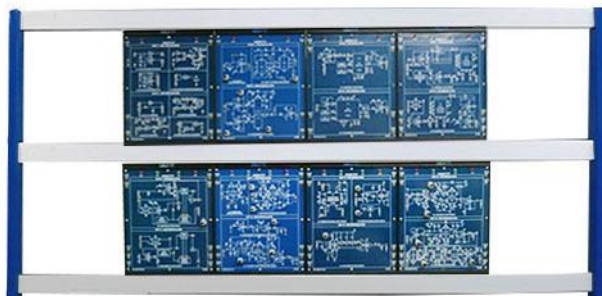


# DIGITAL COMMUNICATION TRAINER

Model Number : GOTT-DCT-9329



**DESCRIPTION**

- Design and implementation of ASK, FSK and PSK modulators and demodulators.
- Design and implementation of DM and ADM modulators and demodulators.
- Design and Implementation of PWM and PCM modulators.

**FEATURES**

- To understand the applications of digital modulator and demodulator.
- Design and implementation ability training of digital modulator and demodulator.
- To understand the application of digital modulator and demodulator.

**PRODUCT MODULES**

**LINE CODE ENCODER & LINE CODE DECODER**

**CODE**  
**145-551**



**Line Code Encoder**

- **Experiment 1:**  
Unipolar and Bipolar NRZ Signal Encoder  
Type of Signal: TTL, Data Rate: 1kbps ~ 4kbps.
- **Experiment 2:**  
Unipolar and Bipolar RZ Signal Encoder  
Type of Signal: TTL, Data Rate: 1kbps ~ 2.5kbps  
CLK: 2 kHz ~ 5 kHz.
- **Experiment 3:**  
AMI Signal Encoder  
Type of Signal: TTL, Data Rate: 50 bps ~ 250 bps,  
CLK: 100 Hz ~ 500 Hz.
- **Experiment 4:**  
Manchester Signal Encoder  
Type of Signal: TTL, Data Rate: 100bps ~ 400bps,  
CLK: 200 Hz ~ 800 Hz.

**Line Code Decoder**

- **Experiment 1:**  
Unipolar and Bipolar NRZ Signal Decoder  
Type of Signal: TTL, Data Rate: 1 kbps ~ 4 kbps,
- **Experiment 2:**  
Unipolar and Bipolar RZ Signal Decoder  
Type of Signal: TTL, Data Rate: 1 kbps ~ 2.5 kbps,  
CLK: 2 kHz ~ 5 kHz
- **Experiment 3:**  
AMI Signal Decoder  
Type of Signal: TTL, Data Rate: 50 bps ~ 250 bps,  
CLK: 100 Hz ~ 500 Hz
- **Experiment 4:**  
Manchester Signal Decoder  
Type of Signal: TTL, Data Rate: 100 bps ~ 400 bps,  
CLK: 200 Hz ~ 800 Hz.

**PWM MODULATOR & PWM DEMODULATOR**

**CODE**  
**145-552**



**PWM Modulator**

- **Experiment 1:**  
UA741 Pulse Width Modulator  
Carrier Signal: 1.5kHz~2 kHz, Audio Signal: 500Hz.
- **Experiment 2:**  
LM555 Pulse Width Modulator  
Carrier Signal: 5kHz~10 kHz, Audio Signal: 1kHz.

**PWM Demodulator**

- **Experiment 1:**  
PWM Demodulator  
Carrier Signal: 5kHz ~ 6 kHz,  
Audio Signal: 500Hz ~ 700 Hz.

**DELTA MODULATOR & DELTA DEMODULATOR**

**CODE**  
**145-554**



**Delta Modulator**

- **Experiment 1:**  
Delta Modulator  
Type of Sample Signal: TTL CLK,  
Sample Frequency: 32 kHz ~ 256 kHz,  
Audio Signal: 1 kHz ~ 3 kHz.

**Delta Demodulator**

- **Experiment 1:**  
Delta Demodulator  
Type of Sample Signal: TTL CLK,  
Sample Frequency: 32 kHz ~ 256 kHz,  
Audio Signal: 1 kHz ~ 3 kHz.

**PCM MODULATOR & PCM DEMODULATOR**

**CODE**  
**145-553**



**PCM Modulator**

- **Experiment 1:**  
PCM Modulator  
Built-in Sample Frequency: 8 kHz,  
Built-in Operation Frequency: 2048 kHz,  
Audio Signal: 100 Hz ~ 2 kHz.

**PCM Demodulator**

- **Experiment 1:**  
PCM Demodulator  
Built-in Sample Frequency: 8 kHz,  
Built-in Operation Frequency: 2048 kHz,  
Audio Signal: 100 Hz ~ 2 kHz

**ADAPTIVE DELTA MODULATOR & ADAPTIVE DELTA DEMODULATOR**

**CODE**  
**145-555**



**Adaptive Delta Modulator**

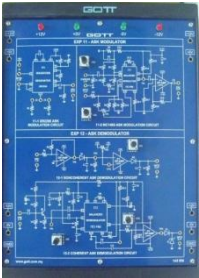
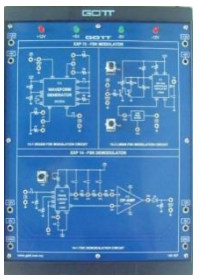
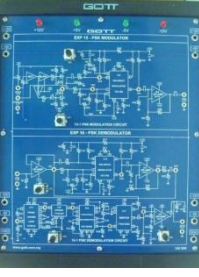

- **Experiment 1:**  
Adaptive Delta Modulator  
Type of Sample Signal: TTL CLK, Sample  
Frequency: 32 kHz ~ 128 kHz, Audio  
Signal: 500 Hz ~ 1 kHz.

**Adaptive Delta Demodulator**

- **Experiment 1:**  
Adaptive Delta Demodulator  
Type of Sample Signal: TTL CLK,  
Sample Frequency: 64 kHz ~ 256 kHz,  
Audio Signal: 500 Hz ~ 1 kHz.

**DIGITAL COMMUNICATION TRAINER**

Model Number : GOTT-DCT-9329

| ASK MODULATOR & ASK DEMODULATOR   | CODE<br>145-556  | FSK MODULATOR & FSK DEMODULATOR  | CODE<br>145-557  |                  |                    |            |          |          |           |           |            |            |          |
|---|--|--|--|------------------|--------------------|------------|----------|----------|-----------|-----------|------------|------------|----------|
|    | <p><b>ASK Modulator</b></p> <ul style="list-style-type: none"> <li><b>Experiment 1:</b><br/>XR 2206 ASK Modulator<br/>Carrier Signal: 20 kHz, Data Rate: 1 kbps.</li> <li><b>Experiment 2:</b><br/>MC 1496 ASK Modulator<br/>Carrier Signal: 20 kHz ~ 100 kHz,<br/>Data Rate: 2 kbps.</li> </ul> <p><b>ASK Demodulator</b></p> <ul style="list-style-type: none"> <li><b>Experiment 1:</b><br/>Asynchronous ASK Demodulator ( I )<br/>(Using XR2206 as the modulated ASK signal)<br/>Carrier Signal: 20 kHz,<br/>Data Rate: 200 bps ~ 1 kbps.</li> <li><b>Experiment 2:</b><br/>Asynchronous ASK Demodulator ( II )<br/>(Using MC1496 as the modulated ASK signal)<br/>Carrier Signal: 20 kHz,<br/>Data Rate: 200 bps ~ 1 kbps.</li> <li><b>Experiment 3:</b><br/>Synchronous ASK Demodulator<br/>Carrier Signal: 100 kHz,<br/>Data Rate: 200 bps ~ 2 kbps.</li> </ul> |    | <p><b>FSK Modulator</b></p> <ul style="list-style-type: none"> <li><b>Experiment 1:</b><br/>XR2206 FSK Modulator<br/>Data Rate: 200 bps ~ 400 bps.</li> <li><b>Experiment 2:</b><br/>LM566 FSK Modulator<br/>Data Rate: 200 bps ~ 400 bps.</li> </ul> <p><b>FSK Demodulator</b></p> <ul style="list-style-type: none"> <li><b>Experiment 1:</b><br/>FSK Demodulator ( I )<br/>(Using XR2066 as the modulated FSK signal)<br/>Data Rate: 200 bps ~ 400 bps.</li> <li><b>Experiment 2:</b><br/>FSK Demodulator ( II )<br/>(Using LM566 as the modulated FSK signal)<br/>Data Rate: 200 bps ~ 400 bps.</li> </ul>   |                  |                    |            |          |          |           |           |            |            |          |
| PSK MODULATOR & PSK DEMODULATOR   | CODE<br>145-558  | DC POWER SUPPLY & FUNCTION GENERATOR<br>(OPTIONAL ITEM)                              | CODE<br>500-107  |                  |                    |            |          |          |           |           |            |            |          |
|  | <p><b>PSK Modulator</b></p> <ul style="list-style-type: none"> <li><b>Experiment 1:</b><br/>PSK Modulator<br/>Carrier Signal: 100 kHz, Data Rate: 200 bps.</li> </ul> <p><b>PSK Demodulator</b></p> <ul style="list-style-type: none"> <li><b>Experiment 1:</b><br/>PSK Demodulator<br/>Carrier Signal: 100 kHz, Data Rate: 200 bps.</li> </ul>  |  | <p><b>DC Power Supply</b></p> <ul style="list-style-type: none"> <li>Tripple Bipolar Voltage Outputs             <ul style="list-style-type: none"> <li>DC 0 – +/-15V</li> <li>DC +/-5V</li> <li>DC +/-12V</li> </ul> </li> <li>Constant &amp; variable Voltage Operation</li> <li>Low Ripple and Noise</li> </ul> <p><b>Function Generator</b></p> <ul style="list-style-type: none"> <li>Two Signals Output Ports</li> <li>Frequency Range             <table border="0" style="width: 100%;"> <tr> <td>FG (I): 0 – 10Hz</td> <td>FG (II): 0 – 100Hz</td> </tr> <tr> <td>0 – 100kHz</td> <td>0 – 1kHz</td> </tr> <tr> <td>0 – 1kHz</td> <td>0 – 10kHz</td> </tr> <tr> <td>0 – 10kHz</td> <td>0 – 100kHz</td> </tr> <tr> <td>0 – 100kHz</td> <td>0 – 1MHz</td> </tr> </table> </li> <li>Waveform: Sine, Triangle, Square, TTL Pulse</li> <li>Amplitude: 10Vpp</li> <li>Built-in-6-Digit Frequency Counter</li> <li>Two Large 0.5" LED Display</li> <li>Overload Protection</li> </ul> | FG (I): 0 – 10Hz | FG (II): 0 – 100Hz | 0 – 100kHz | 0 – 1kHz | 0 – 1kHz | 0 – 10kHz | 0 – 10kHz | 0 – 100kHz | 0 – 100kHz | 0 – 1MHz |
| FG (I): 0 – 10Hz  | FG (II): 0 – 100Hz   |  |  |                  |                    |            |          |          |           |           |            |            |          |
| 0 – 100kHz  | 0 – 1kHz   |  |  |                  |                    |            |          |          |           |           |            |            |          |
| 0 – 1kHz  | 0 – 10kHz  |  |  |                  |                    |            |          |          |           |           |            |            |          |
| 0 – 10kHz   | 0 – 100kHz   |  |  |                  |                    |            |          |          |           |           |            |            |          |
| 0 – 100kHz  | 0 – 1MHz   |  |  |                  |                    |            |          |          |           |           |            |            |          |

**Manuals:**

- (1) All manuals are written in English
- (2) Model Answer
- (3) Teaching Manuals

**General Terms:**

- (1) Accessories will be provided where applicable.
- (2) Manuals & Training will be provided where applicable.
- (3) Designs & Specifications are subject to change without notice.
- (4) We reserve the right to discontinue the manufacturing of any product.

**Warranty :**

2 Years

**ORDERING INFORMATION :**

| ITEM                                   | MODEL NUMBER                              | CODE    |
|--|---|---------|
| DIGITAL COMMUNICATION TRAINER          | GOTT-DCT-9329                             | 145-000 |
| DC POWER SUPPLY AND FUNCTION GENERATOR | GOTT-DC POWER SUPPLY & FUNCTION GENERATOR | 500-107 |

\* Proposed design only, subject to changes without any notice.