



This trainer kit is designed to provide hands-on study of delta-based modulation techniques, including Delta Modulation, Adaptive Delta Modulation, and Sigma-Delta Modulation (first and second order). It demonstrates modulation and demodulation processes, slope overload, amplitude overload, and the effect of integrator gain on signal quality. Ideal for academic and research laboratories, the trainer offers on-board signal generation, selectable sampling rates, and simulation of transmission effects.

Application / Test Facility

- Study of **Delta, Adaptive Delta, and Sigma-Delta (1st & 2nd order) modulation**
- Analysis of **demodulation techniques**
- Investigation of **slope overload and amplitude overload effects**
- Impact of **integrator step size** on signal reconstruction
- Observation of system performance under transmission effects

Product Features

Salient Features

- **Modulator and Demodulator** integrated on a single compact board
- **On-board DDS signal generator** for standard and arbitrary signals
- **Selectable sampling frequencies** for flexible experimentation
- On-board **transmission effect simulation**

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.



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- **Selectable step size** for integrator (Normal & 3x)
- Provision for **interactive PC software** (optional)

Technical Specifications

- **Techniques Supported:** Delta, Adaptive Delta, Sigma-Delta (1st & 2nd order)
- **Crystal Frequency:** 8 MHz
- **Sampling Frequencies:** 16 kHz, 32 kHz, 64 kHz, 128 kHz, 256 kHz (selectable by switch)

Signal Generators

- **Internal Generator (DDS):**
 - Waveforms: Sine, Square, Triangle, Arbitrary
 - Frequencies: 500 Hz, 1 kHz, 2 kHz, 3 kHz
- **External Input:**
 - Waveforms: Sine, Square, Triangle, Arbitrary
 - Max Input Voltage: 3 Vpp (max) + 1.5 V DC offset
 - Frequency Range: 500 Hz to 3.5 kHz

Other Parameters

- **Integrator Step Size:** Normal & 3× selectable
- **Low-Pass Filter:** Cut-off at 4 kHz or higher
- **Test Points:** 45 or more accessible test points
- **Interconnections:** 2 mm sockets or better

Accessories / Spares

- Coaxial Cables
- Patch Cords

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