

EXPAND YOUR ADS Max™ & NI ELVIS™ CAPABILITIES

with **EMONA EXPERIMENT BOARDS**
for **DIGILENT ADS Max**, **NI ELVIS™ III**, **II/+**
and **myDAQ / myRIO**

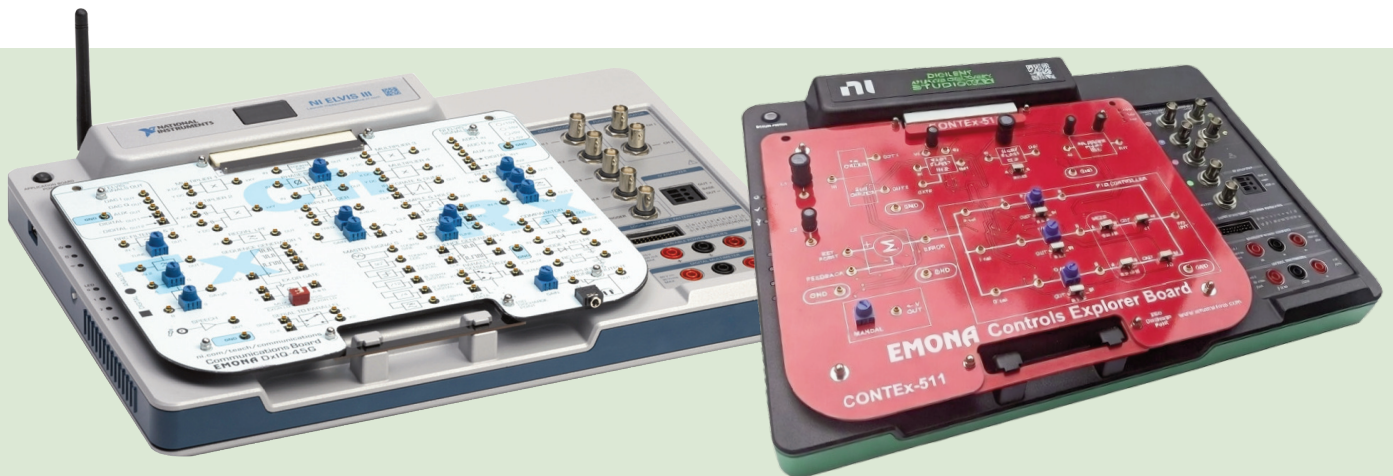
Communications

Signals & Systems

Fiber Optics

Controls Theory

and more



Engaging Students with Hands-on Learning

The EMONA EXPERIMENT BOARDS offer a unique ability to transform abstract concepts in theory, math, digital signal processing, circuit analysis, and signals and systems into tangible, hands-on laboratory experiments.

Students become engaged, in an environment there they can test and confirm their understanding by trying out “what-if” scenarios, as the EMONA EXPERIMENT BOARDS utilize the unique modular block-diagram design, where each experiment is built by the student.

NEW CONTROLS THEORY EXPERIMENTS for ADS Max, NI ELVIS III and II/+

The Emona Controls Explorer, model CONTE_x, add-on board for the ADS Max, enables students to patch together controls theory experiments for introductory EE and ECE courses.

ETT-511 Controls Theory Experiments

- Lab 1: Introduction to the CONTE_x board
- Lab 2: First and second order systems
- Lab 3: State space approach of First and Second order systems
- Lab 4: Stability & Routh-Horwitz criterion
- Lab 5: Frequency response and Bode plots
- Lab 6: Designing for PID control of plant
- Lab 7: Gamifying PID design for optimum performance



<https://www.emona-tims.com/context>

SIGNALS & SYSTEMS EXPERIMENTS for ADS Max, NI ELVIS III and II/+

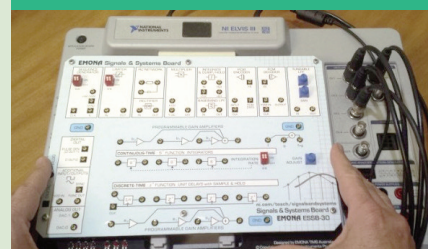
The Emona Signals & Systems Explorer, model ESSB-30, add-on board for the ADS Max, NI ELVIS III & II/+ enables students to patch together continuous time and discrete-time systems in real hardware, for circuit theory, digital signal processing and signals & systems courses.

ESSB-30 Signals & Systems Experiments

- Lab 1: Introduction to the NI ELVIS
 - Lab 2: Introduction to the ESSB-30 board
 - Lab 3: Special signals – characteristics and applications
 - Lab 4: Systems: Linear and non-linear
 - Lab 5: Unraveling convolution
 - Lab 6: Integration, convolution, correlation & matched filters
 - Lab 7: Exploring complex numbers and exponentials
 - Lab 8: Build a Fourier series analyzer
 - Lab 9: Spectrum analysis of various signals
 - Lab 10: Time domain analysis of RC networks
 - Lab 11: Poles and zeros in Laplace domain
 - Lab 12: Sampling and Aliasing
 - Lab 13: Getting started with analog-to-digital conversion
 - Lab 14: Discrete-time filters – FIR
 - Lab 15: Poles and zeros in the z-plane: IIR forms
 - Lab 16: Discrete-time filters – practical applications
- App A: Table comparing ESSB-30 experiments to popular textbooks**



ESSB-30-MX for ADS Max



ESSB-30 for NI ELVIS III and II/+

**COMPLETE KIT includes
Courseware, Software and all
accessories**

<https://www.emona-tims.com/essb>

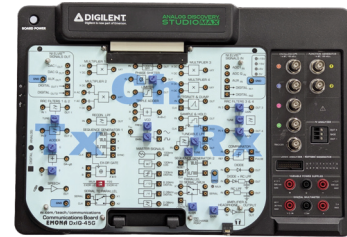
ADVANCED COMMUNICATIONS EXPERIMENTS for ADS Max and NI ELVIS III

The **Emona Wireless Communications Explorer**, model DxIQ-45G, provides educators with all the components, systems, and lab resources needed to conduct project-based experiments in digital and analog telecommunications as well as introductory signals and systems.

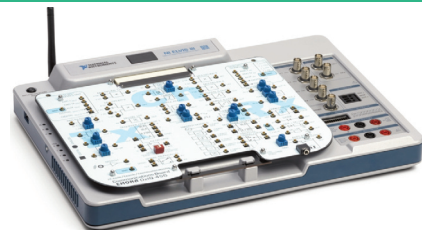
DxIQ-45G Telecoms Experiments

- Lab 1: Introduction to the EMONA Communications Board
- Lab 2: Modeling equations
- Lab 3: FFT and Spectra
- Lab 4 & 5: Amplitude Modulation & Amplitude Demodulation
- Lab 6: DSBSC Modulation and Demodulation
- Lab 7: SSB Modulation and Demodulation
- Lab 8 & 9: FM Modulation & FM Demodulation
- Lab 10, 11, 12: FSK, BPSK & QPSK
- Lab 13: Introduction to DSSS
- Lab 14: Eye patterns, SNR and BER measurements
- Lab 15: Principles of OFDM
- Lab 16: Sampling, PAM and Nyquist
- Lab 17: Carrier regeneration with Costas Loop
- Lab 18: ASK Modulation and Demodulation
- Lab 19: Principles of Superheterodyne
- EXPERIMENTS INCLUDED WITH ADS Max LAB MANUAL**
- Lab 20: Introducing SDR principles with AM, PM and FM
- Lab 21: Introducing M-Level QAM, PSK & MSK modulation in SDR
- Lab 22: Introducing OFDM in SDR

COMPLETE KIT includes Courseware, Software and all accessories



DxIQ-45G-MX for ADS Max



DxIQ-45G for NI ELVIS III

<https://www.emona-tims.com/dxiq>

FIBER OPTICS EXPERIMENTS for ADS Max, NI ELVIS III and II/+

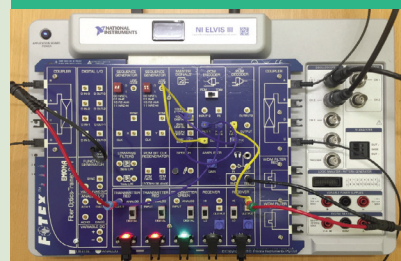
The **Emona Fiber Optics Explorer**, model ETT-211 FOTEx add-on board for the ADS Max, NI ELVIS III & II/+ offers students hands-on experience in electrical communications, introduction to optics and fiber optics and fiber optic communications.

ETT-211 FOTEx Fiber Optics Experiments

- Lab 1: Introduction to the ADS Max Lab equipment
- Lab 2: Introduction to the FOTEx experimental add-in module
- Lab 3: PCM - encoding
- Lab 4: PCM - decoding
- Lab 5: Sampling and Nyquist in PCM
- Lab 6: Time division multiple access (TDMA)
- Lab 7: Line coding and bit-clock regeneration
- Lab 8: Fiber optic transmission
- Lab 9: PCM-TDM 'T1' implementation
- Lab 10: Optical signal filtering, splitting & combining
- Lab 11: Fiber optic bi-directional communication
- Lab 12: Wave division multiplexing (WDM)
- Lab 13: Optical losses



ETT-211-MX for ADS Max



ETT-211 for NI ELVIS III and II/+

COMPLETE KIT includes Courseware, Software and all accessories

<https://www.emona-tims.com/fotex>

COMPREHENSIVE COMMUNICATIONS EXPERIMENTS for NI ELVIS II/+

Multi-Experiment Single Board Telecommunications Trainer for the popular NI ELVIS™ II/+ Platform. Plugs into the NI ELVIS™ platform, operating in local mode and remotely under full LabVIEW™ control.

ETT-202 DATEx Comms Experiments

VOLUME 1 – Introductory Experiments

22 experiments, 406 pages, covering basic analog and digital modulation:

AM, DSB, SSB, FM, Sampling, PCM, ASK, FSK, BPSK, QPSK, Direct Sequence Spread Spectrum, SDR undersampling.

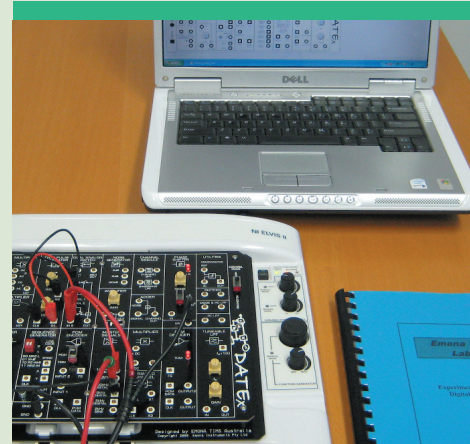
VOLUME 2 – Advanced Experiments

18 experiments, 338 pages, covering advanced telecommunications theory topics:

Noise in AM, TDM, Armstrong, PWM, Carrier acquisition, SNR and Eye diagrams, PCM and SNDR, GFSK, Line Coding and Clock Regen, Delta Mod, Delta-Sigma Mod, PN Spectra, FM Harmonic Multiplier.

VOLUME 3 – Controlling DATEx via LabVIEW Code & LabVIEW SFP

Remote control of DATEx via SFP. LabVIEW programming examples and projects.



ETT-202 for NI ELVIS II/+ only

COMPLETE KIT includes Courseware, Software and all accessories

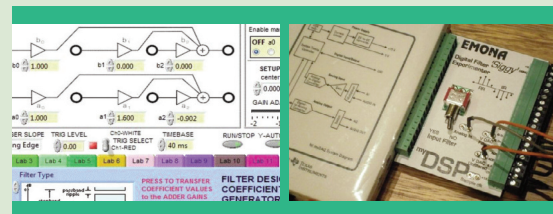
<https://www.emona-tims.com/datex>

ADD-ON BOARDS for NI myDAQ and NI myRIO

Signals & Systems for NI myDAQ

Bring Signal Processing Theory and Signals & Systems classes to life with myDSP: a hands-on, real-time myDAQ application board.

Implement the FIR and IIR filters described in textbooks using the power of the myDAQ suite of signal sources and measuring instruments & analyzers.

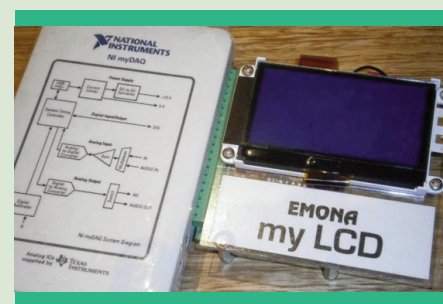


<https://www.emona-tims.com/mydsp>

Graphical LCD for NI myDAQ & myRIO

Plug-in a fast response, high contrast 128x64 pixel graphic LCD directly to myDAQ™.

- Enhance your myDAQ™ applications with a local graphic display panel.
- Image data is fully defined by your LabVIEW™ code.



<https://www.emona-tims.com/myglcd>

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Specifications and experiment topics subject to change without notice.

Also available from: