



This training system, together with National Instruments ELVIS II/II+, provides an introduction to basic logic gates that can be connected in different ways to perform assignments. The students are introduced to combinational logic, in which the output of a digital network is always a predetermined function of the inputs. These circuits are implemented with logic gates which perform the operations of Boolean algebra. The students can then move onto techniques for reducing logic gate count for a given circuit using Karnaugh maps and De Morgan's theorems.

Digital Logic Fundamentals - 1 Manual delivers the material which teaches the students the necessary theory and guides the students with on-screen instructions to set-up and perform the experiments. The graphical user interface developed using NI LabVIEW provides the PC based instrumentation to observe the parameters in real time and to record their values.

The trainer board contains the following inputs and outputs connected to NI ELVIS II/II+:

- ✓ Function generator output
- ✓ 8 Digital outputs with bi-color LEDs
- ✓ 8 Digital inputs with bi-color LEDs

The trainer board also contains the following inputs/outputs and circuits:

- ✓ 1 Single shot pulse generator
- ✓ 8 Slide switches with debounce circuits and bi-color LEDs for input
- ✓ 8 Bi-color LEDs for output
- ✓ 1 Seven-segment decoder
- ✓ 1 Seven-segment LED display
- ✓ 8 Two-input AND gates
- ✓ 4 Three-input AND gates
- ✓ 4 Two-input OR gates
- ✓ 3 Three-input OR gates
- ✓ 3 Four-input OR gates
- ✓ 8 Two-input NAND gates
- ✓ 4 Three-input NAND gates
- ✓ 3 Two-input NOR gates
- ✓ 8 Two-input XOR gates
- ✓ 1 Two-input XNOR gate
- ✓ 6 Inverter gates

Some, but not all, of the experiments that can be performed with the trainer are listed below :

- ✓ Basic logic gates
- ✓ Karnaugh maps
- ✓ De Morgan's theorems
- ✓ Half adder
- ✓ Full adder
- ✓ 4-Bit binary adder
- ✓ 2-Bit by 2-bit binary multiplier
- ✓ 2-to-4 Line decoder
- ✓ 4-Input priority encoder
- ✓ 2-to-1 Line multiplexer
- ✓ 4-to-1 Line multiplexer
- ✓ Set-reset latch with NAND gates
- ✓ D latch
- ✓ Negative edge triggered D flip flop
- ✓ JK flip flop
- ✓ T flip flop
- ✓ Parity generator
- ✓ BCD-to-excess3 code converter
- ✓ 4-Bit gray code to binary converter



For more information on this product, please contact us at

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