AUTOMATION

MOBILE DIDACTIC SYSTEM FOR THE STUDY OF PROGRAMMABLE LOGIC CONTROLLERS, NETWORKS AND SUPERVISORS

DL CLPTR-SS

The didactic kit DL CLPTR-SS is intended for the study of theoretical and practical concepts involved in the use, application, and development of programmable logic controllers with the use of actuators via I/O and RS485 communication, TCP/IP and CANopen, which can provide Modbus RTU, TCP/IP, OPC-UA communication protocols. The development software is free and additionally can be developed for free, SCADA supervisor, without TAG limitations and for a duration of one hour (reusable).

PHYSICAL STRUCTURE OF THE KIT

The case is made of TS structural material with bearing and steering devices for transport, it also has a non-slip support device on the lower base for exposure. The equipment dimensions are: 750 mm wide, 700 mm high and 700 mm deep.

The internal imaging structure of the peripherals is based on two divisions, one positioned at a 0-degree angle, while the second is positioned at a 90-degree angle. Both divisions are supported by a locking device, which limits their angulation. The functions are positioned by means of a structural TS-based electrical insulation assembly, where a laser screen print is available in low relief.

TEACHING ACTIVITIES

The DL CLPTR-SS kit presents a series of multidisciplinary didactic activities involving the use of programming and control algorithms.
The equipment's main activities are:

1. Programming application in the Ladder standard for PLC.
2. Programming application in the SCL standard for PLCs.
3. Experimenting with the stoplight and thumbwheel keys.
4. Development of supervision with SCADA.
5. Application of Industrial Networks using Modbus.
6. Modbus RTU Protocol Application and Analysis, TCP/IP.
7. Development of Web screens
8. OPC-UA protocol application and analysis.
9. Protocol Application and Analysis, CANopen.
10. Application with Actuators and Encoder Reading.

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POWER PLUG FOR THE MAINS POWER SUPPLY

One connection point for single-phase mains power supply with socket for plug insertion, a bipolar protection circuit breaker of 3A as isolating switch and LED indicator of the status.

PROGRAMMABLE LOGIC CONTROLLER WITH WEB SERVER

A programmable logic controller that has
16 digital inputs, which can act as Sink type, 16 transistor digital outputs, which can act as Source type, five analog inputs for voltage reading from 0 to 10 Vdc and/or current from 0 to 20mA (configurable), two RTD-type analog inputs, four analog outputs of 0 to 10Vdc voltage and/or 0 to 20mA current (configurable), one RS485 communication port, one CANopen port, one USB port, and one Ethernet communication port. Terminal blocks are provided for connecting 2 mm banana leads. It has light indication of I/O, energized, communication and error. Five to ten pages of Graphic Screens viewed from any point of the Internet without any software, simply using the most popular browsers on the market.

HUMAN-MACHINE INTERFACE

A 7" multi-color matrix touchscreen HMI with RS485 and Ethernet type data bus. It also has a USB port for USB pendrive connection for data transfer. It has 2mm terminals. Free development software.

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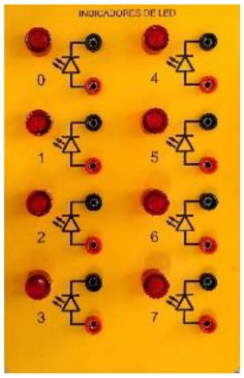
TRAFFIC LIGHT SIMULATOR

One set with two traffic light simulators. It has a 24Vdc power input and provides 2mm terminal blocks.

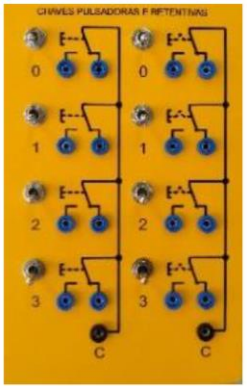
INDICATOR LIGHTS

A section with eight LED signal indicators, which can be powered by up to 24Vdc. Each has 2mm terminals.



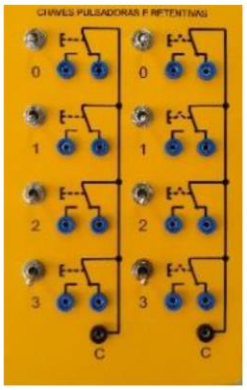
RETENTIVE SWITCHES

Eight switches for simulating digital input signals (retentive) with 8 fixed contacts of 2mm terminals with retention, 1 NC/1 NO each, for logic level simulation with a common point of 2mm terminal for each group of four switches.



PULSE SWITCHES

Eight switches for simulating digital input signals (pulse) with 8 pulse contacts of 2mm terminals, 1 NC/1 NO each, for logic level simulation with a common point of 2mm terminal for each group of four switches.



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POWER SUPPLY

A 24Vdc/1A voltage output power supply with 2mm terminals.

ANALOG SIGNAL GENERATORS

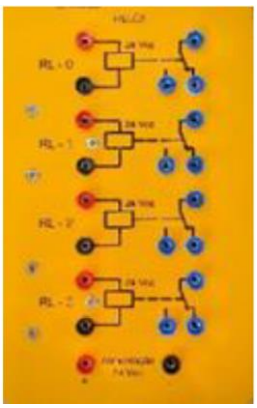
Two analog signal sources from 0 to 10Vdc with current capacity up to 20mA. The voltage can be varied with the knob and the signal output can be accessed through the 2mm terminals.

THUMBWHEEL SWITCHES

Two BCD (Binary Code to Decimal) thumbwheel switches for sending information. Each has four contacts and one common 2mm terminals, to indicate the position in which the switch is located.

TRIP RELAYS

Four electromechanical relays with activation via 24Vdc, each with 1 NO and 1 NC contacts with one common having all 2mm terminals.



VOLTAGE METER

Digital voltmeter with range 0-24Vdc and 2mm input terminals.