

<b>Product Name :</b> Complete training system for PLC Fundamentals and Programming Concepts, including SCADA and HMI, Industrial Networks	<b>Product Code :</b> CE766
---	--------------------------------



**Description :**

Complete training system for PLC Fundamentals and Programming Concepts, including SCADA and HMI, Industrial Networks

**Technical Specification :**

Complete training system for PLC Fundamentals and Programming Concepts, including SCADA and HMI, Industrial Networks

Complete system for capacitive proximity switches training. The experiments are carried out using a computed based trainer with hardware and software covering the following topics:

Topics (33 different processes)

Mask M1 Logic basic functions

Mask M2 Digital functional modules

Mask M3 Motor ON/OFF

Mask M4 Reversing contactor

Mask M5 Star-delta circuit

Mask M6 Star-delta reversing circuit

Mask M7 Reciprocating table control

Mask M8 Dahlander circuit

Mask M9 DS-motor with 2 coils

Mask M10 DS-motor self-starter - Mask M11 Conveyor belt system

Mask M12 Reactive current compensation

Mask M13 Heating control

Mask M14 Running light

Mask M15 Filling machine  
Mask M16 Tank system  
Mask M17 Coal mill  
Mask M18 Embossing machine  
Mask M19 Ventilator control  
Mask M20 Construction site light signalling system  
Mask M21 Light signalling system  
Mask M22 Collective transport conveyor  
Mask M23 Conveyor belt feeding system  
Mask M40 Silo control  
Mask M41 Reactor  
Mask M42 Load lift  
Mask M43 Pump control  
Mask M44 Wastewater pump system  
Mask M45 Monitoring of 3 pumps  
Mask M46 Pump system (pressure)  
Mask M47 Drinks machine  
Mask M48 Mixing system  
Mask M49 Process control

The experiment is complete, with all necessary hardware, software, experimental and device manuals and accessories to perform the experiments.

The experiment set has a manual accessible via QR Code through an online portal for the management of experiments and devices that allows overview of the total inventory of the educational resource collection, e.g. with number, article name, inventory number, storage location; overview of all experiments possible with the collection of educational materials or a special device; installation and management of the individual storage structure such as premises, cabinets, shelves and trays, also with deposited images; inventory of the complete teaching material collection with indication of the storage location; inventory of device sets, which in turn consist of several individual devices; inventory also using internal school inventory numbers or with individual barcodes, also for distinguishing identically constructed devices. Inventory also indicating the availability of a device, e.g. available, borrowed, defective; generation of individual barcodes for label printing; support of standard barcode scanners, tablets and smartphones for automated access to devices; administration also of own articles or articles of foreign manufacturers, including description, pictures, documents, media and comments; import of existing inventory lists; access to instruction sheets, experiment descriptions, safety data sheets and other media - expandable with your own documents; creation and documentation of own experiments with corresponding hints, pictures and comments; creation and export of inventory lists with indication of number, article name, storage location, status, inventory numbers and comments, e.g. in Excel or LibreOffice; creation and export of experiment lists, which are feasible with the collection of teaching aids taking into account the availability of the individual devices, e.g. in Excel or LibreOffice; creation of the device lists of an experiment with the indication of number, article description and storage location, e.g. as PDF for printout; creation of an up-to-date list of hazardous substances with designation, danger symbols and storage location of the hazardous substance.

Each system is composed minimally by the following components:

1x Simatic CPU 1512C-1 PN+DP Trainer package

Consisting of the PLC base unit and the trainer package consisting of profile rail, power supply, CPU module, digital input, Digital output, analog input, analog output, DP communication module, Ethernet connection cable and software package TIA - Portal.

Technical specifications: PLC basic unit:

24 digital inputs including 16 with tactile detent switch; 16 digital outputs are directly accessible via 4mm safety sockets.

32 digital inputs and 32 digital outputs via 4 25-pin connector with occupancy for MCS accessible. 2 analog input channels and 2 analog outputs accessible via 4mm safety sockets. Power supply:

Input: 1-phase AC Supply voltage

1 at AC 120 V nominal value

2 at AC 230 V nominal value  
Rated line frequency 50 ... 60 Hz  
Input current  
At nominal level of the input voltage 120 V 3.7 A  
At nominal level of the input voltage 230 V 1.7 A  
CPU: CPU 1512C-1 PN  
Display Screen size 3.45 cm  
Controls Number of keys 6  
Mode switch 11. Interface  
Ports 2: RJ 45 (Ethernet) Integrated switch  
2. Interface  
Ports 1: RS 485  
Programming  
STEP 7 TIA Portal can be configured / mixes  
Programming language  
LAD, FBD, STL, SCL, GRAPH  
Digital- analog inputs and outputs:  
Digital input DI 32 X DC24V  
Digital output DQ 32 X DC24V  
Analog input AI 4 X U / I; 1 X R/RTD  
Analog output AQ 2 X U / I  
1x HMI  
KTP700 BASIC, Basic Panel, touch screen and tactile keys, 7" touch + key TFT Display 65536 colours, MPI,  
Profi-bus DP, PROFINET interface software WINCC BASIC V13/STEP 7 BASIC V13.  
Built in a panel, all connections on the back side.

Technical specifications:

Resolution: 800 x 480 Pixel  
8x Number of function keys  
USB Interfaces: 1  
Industrial Ethernet : 1 Accessories:  
1 Industrial Ethernet-switch 5x 10/100 Mbit/s  
2 cable CAT 6, crossed 2 x RJ45 connector  
1x Plant Simulator  
Unit for system simulator. The inputs and outputs are accessible via 4-mm safety sockets or a 700 mm long  
50-pole flat-ribbon cable to a PLC or logic controller over a 50-pole socket.  
Inputs / outputs  
12 digital inputs, 12 digital outputs  
2 analog inputs, 2 analog outputs  
4 relay contacts  
NCCControl and indication elements:  
6 buttons  
6 toggle switches  
33 LEDs  
2 potentiometers for 0 ... 10 V DC  
1 red bargraph indication with 24 segments  
Digital in and output voltage of 24 V DC  
Analog in and output voltage of 0 ... 10 V DC - Required power supply: 24 V DC, 0.7 A max.  
Ethernet RJ 45  
USB  
1x Set of Process simulation Masks  
Mask M1 Logic basic functions  
Mask M2 Digital function modules  
Mask M3 Motor ON/OFF  
Mask M4 Reversing contactor  
Mask M5 Star-delta connection  
Mask M6 Reversing star-delta connection  
Mask M7 Pendulum table control  
Mask M8 Dahlander circuit  
Mask M9 Motor with 2 windings  
Mask M10 Motor self-starter

Mask M11 Conveyor belt system  
Mask M12 Reactive-current compensation  
Mask M13 Heating control  
Mask M14 Running light  
Mask M15 Tablets machine  
Mask M16 Tank system  
Mask M17 Coal grinder  
Mask M19 Fan control  
Mask M20 Traffic light for road works  
Mask M21 Traffic lights  
Mask M22 Collecting belt conveyor  
Mask M23 Conveyor charging system  
Mask M18 Embossing machine  
Mask M40 Silo control  
Mask M41 Reactor  
Mask M43 Pump control  
Mask M44 Dirty-water pump system  
Mask M45 Monitoring of 3 pumps  
Mask M46 Pump system (pressure)  
Mask M47 Drinks machine  
Mask M48 Mixer  
Mask M49 Sequence control  
Transparent folder, 410 mm x 320 mm x 10 mm

## Naugralabequipments

**Website:** www.naugralabequipments.com, **Email:** sales@naugralabequipments.com

**Address:** 6148/6, Guru Nanak Marg, Ambala Cantt, Haryana, India. **Phone:** +91-9896600003