

SAP E&C PC-PLC BASED MULTI-PROCESS CONTROL SYSTEM TRAINER (PLCMT)



The PLC based multi-process control system outlines the basics of control of Flow, Level, Temperature, Pressure etc. and other aspects related to PLC Control.

Key Words: -

- ❖ Feedback Control,
- ❖ Feedback Level control,
- ❖ Feedback Pressure control,
- ❖ Feedback Flow control,
- ❖ Feedback Temperature control,
- ❖ Cascade control (Level +Flow, Pressure + Flow),
- ❖ Ratio control (Flow+Flow),
- ❖ Split Range control.

Technical Specifications:

- ❖ Sump tank: - Material: Stainless Steel, 2 mm thick/P.P.5mm thick
Capacity: 30 liter,
Dimension: 1.5ft (L) ×1ft (W) ×1 ft (H).
- ❖ Level Tank: - Material: acrylic 5 mm thick
Dimension: 150mm (Ø) ×500 mm (H).
- ❖ Temperature Cabinet: - 1'' thick insulation wall, with circulating fan &
Thermostat, Heater: 1 KW.
Dimension: 1.25ft (L) ×1.25ft (W) ×2ft (H).
- ❖ Pressure vessel: - Shape: Cylindrical, Material: SS 304,
Diameter: 150 mm, Length: 300 mm,
Capacity: 15 Kg/cm², with 1/2'' BSP connection
For pressure gauge, inlet & drain facility
- ❖ Piping: - 1'' Class B GI with 1'' SS ball valves: 17 no.
- ❖ Flowmeter: - 2 no. Size: 1'', Turbine type/ wfm type,
Range: 0-2000 LPH, supply: 24 V DC, 100 mA.
Output: 4-20 mA, Type: 3-wire type.
Mounting: Horizontal, Connection: 1''
- ❖ Level Transmitter: - Input: 0-400 /0-500 mm
Output: 4-20 mA, supply: 24 V DC, 100 mA.
Type: 2-wire capacitance type
Mounting: Top 2'' screwed connection.
- ❖ Pressure Transmitter: - Input: 0-2.5 Kg/cm²/ 0-4 Kg/cm²
Output: 4-20 mA, supply: 24 V DC, 50 mA.
Type: 2-wire Piezoresistive type
Medium: Water Pressure, Mounting: Top ½'' BSP connection.
- ❖ Temperature Transmitter: - Input: RTD, Output: 4-20 mA, Type: 2-wire type,
Range: 0-200 ° C.

- ❖ Thyresterized Phase Angle Control Card:- Input: 4-20 mA, Output: 0-230 VAC variable, 10 A Max.
- ❖ Pneumatic control valve: - 2 no. Size: 1'', Characteristics: Equal percentage.
Type: Two way Globe type with valve Positioner (Air to Close) & Two way Globe type with valve Positioner (Air to Open),
Cv: 9 US GPM, with diaphragm actuator.
Flange connection: PCD: 80 mm, ID: 26 mm, OD: 110 mm.
Positioner Action: 0.2 to 1.0 Kg/cm² (with Bypass), (Direct Action / Reverse Action)
Pneumatic Input Signal: 0.2 to 1.0 Kg/cm² (Without Bypass)
- ❖ Rotameter: - 2 no. Range: 0-2000 LPH, Glass tube type/ Acrylic body.
Connection: 1'', Mounting: Inlet- Bottom, Outlet- Top.
- ❖ E/P Converter: - Input: 4-20 mA, Output: 3-15 psi, Connection ¼'' NPT / BSP, Supply: 1.4 Kg/cm².
- ❖ Air Filter Regulator: - 0-10 Kg/cm² with pressure gauge, Connection ¼'' NPT / BSP.
- ❖ Level Switch: - Float operated, Float Material: SS304
Switching voltage: 240 VAC\200 VDC
Switching Current; 2A, Switch Action: Reversible, Weight: 315 Gms.
- ❖ Current Meters: - 3 no. Range 0-20 mA, Supply: 230 V AC, Cut out: 44mm×92 mm×110 mm.
- ❖ Isolator: - 2 no. Signal Isolators, Input: 4-20 mA, Output: 4-20 mA, Supply: 230 V AC.
- ❖ Supply: - 24 V DC, 1.5 A, Size: 48mm×126mm×68mm.
- ❖ Electronic PID Controller: - 2 Nos, Single input PID & Dual Input PID, with Serial PC Interface (ASCII Protocol) RS 232 cut out size: 92*92*144mm, Input-4-20 mA, Output: 4-20mA, Display: dual for PV & SP, bargraph Display for output & deviation, Hi-low alarm annunciation.
- ❖ Electrical Control panel: - MS Powder coated panel with switches, indicator, Test Points, controller on front facia, UK 2.5 Terminal connectors mounted on DIN rail channel, Use of 1sq mm Multistrand wire with proper insulated Lugs, Ferruling & neat wire dressing & clamping Wires & power cables are seated through 1''×1'' PVC cable tray.
Dimension: 1ft (L) ×1ft (W) ×1ft (H).
- ❖ PLC: - Allen-Bradley / Equivalent.
Analog input: 4, Analog outputs: 2
Digital inputs: 4, Digital outputs: 4
- ❖ SCADA Application Software: - (Optional) SCADA S/W, PID control setting (P, PI, PD and PID mode), Auto/Manual Tuning of PID, Data Storage, Off Line analysis, Online Data Acquisition, Simulation and Printing of data in Graphical and tabular form. Interactive Graphical User Interface (GUI) includes.
- ❖ Air Compressor: - (Optional) Tank capacity: 30 Liters, Discharge: 2 CFM
Motor: ½ H.P. 230 V AC Operated
Working Pressure: 3-4 Kg/cm²

- ❖ Computer: - PC with color monitor: 15'', PC Pentium Dual Core, (Optional) With 2 serial communication ports, 80 GB HDD, 512 MB RAM, Floppy Drive.

Features: -

- ❖ Compact Ergonomic Design.
- ❖ User Friendly, Self Explanatory Systems.
- ❖ Leak proof Safety Measures, sturdy piping.
- ❖ Enhanced Electrical Safety Considerations.
- ❖ Training Manuals Mimic Charts for Operation Ease.
- ❖ System Frame with Caster Wheel Arrangement for ease in movement.
- ❖ M.S. powder coated cubical plant with standard Instrument Mountings.
- ❖ Inbuilt Safety Measures to avoid improper usage.
- ❖ Computer Interface (Optional).

Range Of Experiments:

- ❖ Study of PLC.
- ❖ Study of PLC based control of Multiprocess systems.
- ❖ Study of data logging system.
- ❖ Study of feedback, cascade, Ratio and on-off, split Range, control schemes.
- ❖ Calibration of various sensors, transmitters like pressure, level, flow, control Valve, Rotameter, E/P, etc.
- ❖ ON-OFF control: Level, Pressure, and Temperature.
- ❖ Study of SCADA Application Software/ Computerized Control of PC-PLC Based Multi-Process Control System.

System Dimensions: 5.5 Ft. (L) X 2.5 Ft. (W) X 5.5 Ft. (H)

SERVICES REQUIRED:

- ❖ Single-phase electrical supply of 230V 50Hz.
- ❖ Water supply and drainage arrangement.
- ❖ Clean, Dry, Compressed Air Supply at 2.1 Kg/ cm².

Note: All descriptive matter and illustrations are intended to give only a general idea of the equipment. Detailed specifications may be altered at the company's discretion without any notice.

Manufactured / Marketed by

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