



This Distributed control System Trainer outlines the principle of Distributed control System used in Industrial Environment. The SCADA software & an interfacing package, PLC /Hybrid Controller / Honeywell C 300 DCS Master Controller based data logging & Distributed Control facility gives the overall idea regarding its application. Master Controller acquires Data, Send/Receive commands to remotely placed Controllers over USB / RS 485/ Ethernet/ Modbus/ TCP-IP/HART Network. Thus Master Controller Controls Process Plants forming Distributed Control System.

KEY WORDS:

- Distributed Control System.
- PLC / Hybrid Controller/ DCS Controller (True DCS) Based Process Control Techniques.
- SCADA Based Process Control
- USB/RS 485/ Ethernet/ Modbus/ TCP-IP/HART Communication
- Process Plants such Flow-Level-Pressure-Temperature Control Trainer shall be hooked up with DCS (Distributed Control System Trainer)

SUPERVISORY STATION	MASTER CONTROLLER (FOR 52244 H):
SCADA Software:	Hybrid controller, Make Honeywell, Model HC900 – C30, AI 8, AO4, DI 16, Do16, Control loops 8 with Hybrid Control Designer software Master Controller acquires Data, Send/Receive commands to remotely placed Controllers. Communication: RS 232 / RS 485 / Ethernet (TCP-IP) Ladder diagram programming on PC. 24VDC, 3A Power source.4" X 2" X 2". I/P- O/P LED indication on front panel. PC interface facility. PC-PLC interfacing
Necessary I/p-O/p	RS View 75 Tags/150Tags SCADA S/W, PID setting(P, PI And PID mode), Auto/Manual Tuning of PID, Software Data Storage, Off Line analysis, Online Data Acquisition, Simulation and Printing Of data in Graphical and tabular form. Interactive Graphical User Interface (GUI) includes. (Push Buttons, Indicating Lamps etc. fitted in front DOOR Panel of System)

Note: Specifications are subject to change.

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simulating devices.	Cabinet) Front panel for display of digital input/output status:
Computer	PC with Latest Configuration color monitor: 15", PC Pentium Dual Core, with serial communication ports, 300/500 GB HDD, 2/4 GB RAM

* To demonstrate proper Operation of the DCS, you will need to hook up the Supervisory Station to the below mentioned Process Control Loops

*The DCS system is supplied complete with Software, Controller, network module & I/O modules that are needed to monitor & control the process plant.

OPTIONAL LOOPS/ PROCESS PLANTS TO BE HOOKED UP WITH DISTRIBUTED CONTROL SYSTEM

*You can select any of the following Loops as per your requirement

- A] FLOW CONTROL SYSTEM TRAINER –52221 to 52224
- B] LEVEL CONTROL SYSTEM TRAINER – 52225, 52226, 52227
- C] WATER PRESSURE CONTROL SYSTEM TRAINER – 52228
- D] AIR PRESSURE CONTROL SYSTEM TRAINER – 52229
- E] AIR TEMPERATURE CONTROL SYSTEM TRAINER – 52230
- F] WATER TEMPERATURE CONTROL SYSTEM TRAINER – 52231
- G] CASCADE CONTROL SYSTEM TRAINER – PCST – 52240
- H] RATIO CONTROL SYSTEM TRAINER – PCST – 52242

RANGE OF EXPERIMENTS:

- Study of Distributed Control Systems
- Study of Proportional (P), Integral (I) and Derivative control (D) Actions.
- Study of PLC Based (52243)/ Hybrid Controller Based (52244)/ Advanced DCS Based (52245) Process Control.
- Study of operation and calibration of transmitters, I/P converter and Control Valve.
- Study of Communication Protocols such as - USB/RS 485/ Ethernet/ Modbus/ TCP-IP/HART
- Study of Individual Process Plants hooked up with the DCS.
- Study of SCADA Application Software/ Computerized Control of Process Plants.

Features:

- Three Different Options to make the meet the requirements of the User viz.:
 - A] BASIC DCS TRAINER -52243
 - B] HYBRID DCS TRAINER - 52244
 - C] ADVANCED DCS TRAINER (52245 - TRUE INDUSTRIAL DCS)
- Understand the concept of Distributed Control System.
- User Friendly, Self Explanatory Systems.
- Explains the modern Process Control Techniques used in Industries
- Enhanced Electrical Safety Considerations.
- Training Manual & 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, SCADA Application software connectivity for analysis of Process Plants.
- System Dimension: 4.5 Ft. (L) X 1.5 Ft. (W) X 4.5 Ft. (H)

Services Required:

- Electric supply 230 V AC, 50 Hz.
- Clean, dry and dust free Compressed air supply 2.1 kg/cm²

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