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-Temperaure Control Trainer shall be hooked up with DCS (Distributed Control System Trainer)

SUPERVISORY STATION	MASTER CONTROLLER (FOR 52243):
	PLC : (Allen Bradley Micrologix 1400/ Equivalent) with 20 DI, 12 DO & 4AI, 2 AO (For Micrologix 1400).Master Controller acquires Data, Send/Receive commands to remotely placed Controllers. Communication: RS 232 / RS 485 / Ethernet/ TCP-IP
	Ladder diagram programming on PC. RS LOGIX 500 MICRO STARTER. 24VDC, 3A Power source.4" X 2" X 2". I/P- O/P LED indication on front panel. PC interface facility. PC-PLC interfacing
SCADA Software:	GE Proficy Ifix / Siemens WinCC Basic /Eqvt. SCADA Software, 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.
Necessary I/p-O/p	(Push Buttons, Indicating Lamps etc. fitted in front DOOR Panel of System

Note: Specifications are subject to change.

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 – 52232

G] CASCADE CONTROL SYSTEM TRAINER – PCST – 52231

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:

- 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/cm?

Note: Specifications are subject to change.

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