



This 3-1/2 day course is intended for students that have experience with Automation and Control Systems including control devices and PLCs. The student should also have some basic knowledge of RLL or control programming and be competent using a PC with XP Pro OS.

The following topics are covered:

- Overview of APT[®]
- PLC architecture
- Overview of program architecture
- Troubleshooting an existing program

The student will receive hands on experience with a live training system. Each Training System will provide a 2500 Series[™] Base, power supply, processor, digital input module, digital output module, and an analog input/output module connected to a PC Application Development Station.

1. Overview of APT[®]
2. Basics of APT[®]
3. Philosophy/History of APT
4. What APT[®] is:
5. APT[®] and TISOFT[®]
6. APT[®] and DOS[®]
7. APT[®] strengths
8. APT[®] limitations
9. Setting up APT[®]
10. "Installing" the program
11. Configuring the DOS[®] environment
12. Enabling communications to PLCs

APT[®] Manual set

Navigating the APT[®] toolbar

F1 : Help

Finding your way around

F2 : CTLS (controls)

F3 : OPTs (options)

What can you do?

How can you do it?

F10 : Explore

ESC : Cancel / Back out

F4 : Completion aids : What are they?

How do they help?

Interacting with APT[®]

Retrieving Saved program

Saving program

How to check to see if a program is the program on a PLC

What is a download?

What can cause a download to fail

Can a failed download be restarted?

How does APT[®] know a download was in progress and failed?

Determining what is going to change on a download : Verify

Running TISOFT[®]

Looking at the APT[®] program in TISOFT[®]

Finding an APT[®] point in TISOFT[®]

Generating reports

Compiler Reports

Symbol to address

Address to symbol

Online versus offline (Debug) point of view

Going online

Function Keys

How keys differ in online from offline

Aux functions

What they are / what they do

Charts

Building

Viewing

Trending

PLC architecture

Scan

Total

Discrete

SF

Time slice

Looking at the various queues

Discrete

Loop

Analogs



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What is it and why is it important
How it works
Tuning
Knowing when there is a problem
Image register
When is it updated
Why is this important to know
Status words
Overruns
What are they
Loops
What is an overrun
How to evaluate a loop for overrun potential
Analog alarms
Cyclic : Over runs are a real problem
How do you know when they are occurring
How to clear
What to do?
Setting up sample times to avoid overruns
Queues
What are queues
Normal
Cyclic
APT[®] extensions : what are they and how to use them

Overview of Program Architecture (Layout of APT[®])

Global versus Unit : What are they what's the purpose
Tables
Module Table (Hardware)
Normal I/O Cards
Profibus I/O cards
Comm Profibus

I/O Tables
Points
Connections to module tables
Device Tables
What are devices
Devices and real world points

Recipe Tables
What is a recipe and how can it be used
SFC - Sequential Flow Charts
CFC - Continuous Flow charts
CFB's what are they
Standard Blocks
Loops
Analog Alarms
Math blocks
Interlock
Math

Event
Continuous
Sampled
How do items in I/O table connect to CF Blocks
Trouble shooting an existing program
Types of problems
Discrete I/O failures : Limit / Proximity switch failures, Normally open/ closed points
Analog failures
Current loops
4 -20
Broken transmitter alarms

Finding the source of the problem
HMI alarms
Tracking down the problem
Cross reference
Debug charts

Forcing variables
Knowing what is forced
Unforcing

2500-TR-S3 APT Maintenance and Troubleshooting

Contact your CTI distributor for pricing and training schedule.