

SESSION PLAN

TC050 – Workshop Basic

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Course Summary and Equipment Requirements

This is a Knowledge Session.

At the end of this session the participants will be able to

- Connect to a 505 PLC via serial and ethernet
- Upload from and download configuration files to a 505 PLC
- Find and monitor any point within the configuration
- Force points within the configuration and find forces created by others
- Describe the program and data elements found within a 505 PLC configuration
- Perform basic editing of a 505 configuration
- Change the battery of a 505 PLC

It is broken up into the following modules

Module 1 - Connection to PLC
Duration - 30 minutes

Module 2 - Configuration transfer, find and monitor points, editing the PLC
Duration - 3 hours

The following equipment is required

- Item 1 – Laptop
- Item 2 – Data projector

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1 Purpose Statement

At the end of this session the participants will be able to

- Connect to a 505 PLC via serial and ethernet
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- Perform basic editing of a 505 configuration
- Change the battery of a 505 PLC

2 Introduction

The 505 PLC series was originally produced by the Texas Instruments corporation and then bought out by the Siemens corporation. Siemens is gradually moving all support to the Step7 PLC series and will eventually not be supporting the 505 series. CT Oceania is producing replacement parts for the whole 505 series.

The Water Corporation uses a large number of 505 series PLCs at a number of plants.

Inlecs need to be able to interrogate and monitor 505 PLCs. They also need to be able to backup and reload 505 PLCs and perform minor configuration changes.

This course is intended to familiarize Inlecs with the 505 series and allow them to effectively maintain the series.

2.1 Why the Participants Have Been Chosen

The participants have been chosen because they will be required to perform maintenance operations on the 505 PLC series that will include monitoring, fault finding, minor changes and card replacement.

2.2 Where the Course Fits In

This course requires that the participant be competent working in the Windows operating system environment.

It fits in alongside the introductory courses for other control system equipment as found in Water Corporation plant.

2.3 Objectives of This Course

The objectives of this course are that the participants learn to monitor and modify 505 PLC configurations including,

- Connect to a 505 PLC via serial and ethernet
- Upload from and download configuration files to a 505 PLC
- Find and monitor any point within the configuration
- Force points within the configuration and find forces created by others
- Describe the program and data elements found within a 505 PLC configuration
- Perform basic editing of a 505 configuration
- Change the battery of a 505 PLC

2.4 How the Session Will Run

This session is fully described in the training notes "TC050 – Workshop - Basic.ppt".

This session will be run as a Knowledge session

It will be broken up into two modules as follows,

Module 1

Explanation – Software versions available to configure a 505 PLC, Access to the PLC

Activity – Connect to a CPU via both methods

Revise

Module 2

Explanation - Upload/Download to the PLC, Find elements, monitor elements, editing.

- Activities
- Perform an upload and download operation.
 - Find specified points in ladder and Special Function Programming.
 - Document a point within the configuration
 - Monitor and trend a point
 - Describe point addressing within V memory and digital I/O
 - Perform a minor program change and monitor the results.

Revise

2.5 Motivation for the Attendees

This session will allow the attendees to be able to monitor, backup and modify 505 PLC configurations.

2.6 Prior Experience

Determine who has had prior experience.

Do they want to proceed directly to the test?

Would they be willing to demonstrate what they know as it is addressed in the course?

2.7 Test

The test for this session is

1. Upload a configuration from the PLC.
2. Determine the number of V memory elements used via a cross-reference.
3. Describe the two main programming structures found in a 505 configuration.
4. Monitor a point in Data Window and FTTrend.
5. Force a point.
6. Describe the representation of floating point values in the PLC and where they can be used.
7. Add a network to flash an output.

- Note: test must be
- Valid to the material covered
- Quick to set and take
- Reliable – clear answers
- Cover a good sample of the course
- Discriminate between attendees who now know the material and those who don't.

3 Conclusion

Help is available from the trainers at the Process Control Training Centre or from others who have done this course.

It is suggested that the participants first talk amongst themselves, then the nearest DC5/DC6, then the PCTC trainers and finally the Technical Consultant Process Control as they begin to apply the knowledge gained today.

Participants are welcome to book an appointment at the PCTC to refresh their skills and clarify or discuss any issues arising from field experiences. The PCTC is available at any time when it is not being used for a training session.