

## SESSION PLAN

TC062

### Searching a Configuration

Module 1 - Description of Points Within Step7 PLCs Addressable by Citect

Module 2 - Datablocks, Direct and Indirect Citect References,  
Citect Driver Requirements for Datablock Arrangement.

Module 3 - Search Methods. Search for Explicit and Implicit References

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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 trace an address taken from a Citect tag or similar Panel point reference to the source area of configuration within a Step7 program.

The participants will be able to describe the difference between direct and indirect Citect references to Step7 code.

It is broken up into the following modules

Module 1	- Description of Points Within Step7 PLCs Addressable by Citect
Duration	- 45 minutes
Module 2	- Datablocks, Direct and Indirect Citect References, Citect Driver Requirements for Datablock arrangement.
Duration	- 60 minutes
Module 3	- Search Methods. Search for Direct and Indirect References
Duration	- 60 minutes

The following equipment is required

- Item 1 – laptop for each participant with Step7 V5.1 or V5.3 installed.
- Item 2 – data projector

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## 1 Purpose Statement

At the end of this session the participants will be able to trace an address taken from a Citect tag or similar Panel point reference to the source area of configuration within a Step7 program.

The participants will be able to describe the difference between direct and indirect Citect references to Step7 code.

## 2 Introduction

The Siemens Step7 300/400 PLC family is widely used within the Water Corporation.

Citect and Operator Interface Panels can reference almost any area or data type within a Step7 PLC but are usually configured to send and receive data from Data Blocks within the PLC configuration. This course will concentrate on the Citect system as it is the most commonly used interface system that requires frequent interrogation. Citect requires a specific Data Blocks structure.

This course arises from the ways in which Step7 can use Data Blocks. There are two types of Data Blocks. Shared Data Blocks are available for use as storage to any area of the program. They are referred to explicitly by the Step7 program. They are the best means of communicating with Citect as they can be structured in a way that best suits the Citect I/O driver.

Instance Data Blocks are the local storage for Function Blocks within the Step7 program. They are intended to be referred to from within the Function Block to which they are attached and to serve as local data storage for those blocks.

Where Citect tags address points within these "Instance" Data Blocks there are difficulties in tracking points as only the whole block shows within a cross reference and the block is unlikely to be structured to be a good fit with the Citect I/O driver.

### 2.1 Why the Participants have been Chosen

The participants of this course have been chosen because of their need to interrogate Step7 programs for fault finding and to implement minor changes.

### 2.2 Where This Course Fits in

This course comes after the Introduction to Siemens Software and Introduction to Siemens Hardware courses. Participants are required to have passed these courses.

### 2.3 Objectives of the Course

The objectives of this course are that the participants learn to

- Describe the different points within a Siemens Step 7 program that can be accessed by HMI/OIP systems such as Citect.
- Describe the difference between shared and instance Data Block
- Describe the structure of an instance Data Block including multiple instance Data Blocks.
- Describe the optimal structure of a Data Block for best use with the Citect I/O driver.
- Find any point within a Step7 program as referred to by Citect.

## 2.4 How the Session Will Run

This session is fully described in the training notes "Searching a Configuration.ppt".

This training will run as three Knowledge Sessions.

### Module 1

Explanation – Description of the types of points within a Step7 program that are able to be addressed by a Citect system.

Activity -

1. Open a Step 7 project
2. Identify the difference in address representation between Step7 and Citect for the same point.

Revise

### Module 2

Explanation – Description of the two types of Datablocks used - Direct and Indirect.  
Description of the Citect I/O driver requirements for Datablock arrangement.

Activity -

1. Identify and define the differences between Shared and Instance Datablocks.
2. Identify the recommended structure of Datablocks when implemented for use in transferring data to/from Citect.

Revise

### Module 3

Explanation – Description of the search tools available in Step7. Description of the means of identifying Indirect data references and of tracing them to their source

Activity -

1. Find specified points within a Step7 configuration.
2. Demonstrate difference search methods.

Revise

## 2.5 Motivation for the Participants

This session will enable the participants to search for points within a Step7 configuration to go quickly to the area of the configuration most relevant to their immediate investigation.

## 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?

### **3 Test**

The test for this session is

1. Determine which points within a datablock are not able to be read by Citect.
2. Determine which datablock from a range given is the best arranged for use by Citect.
3. Find explicitly defined points within a configuration.
4. Find implicitly defined points within a configuration.

### **4 Summary**

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.