

# K-04a

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## ELECTRICIAN TRAINING

### SKILL DEVELOPMENT GUIDE

PLC (Allen-Bradley)

**K-04a: Access and Modify Data Table**

Issued 01/01/98



## Task Preview

### Access and Modify Data Table

Typical data changes include modifying timer preset values, integer file elements, and bit file bits. Learners need to modify tables to recover from an “out-of-sequence” condition, to compensate for mechanical problems, or to troubleshoot the machine. The data associated with specific production parts such as dimensional information may also need to change. To access and modify a table, the Learner must display the ladder file, enter the address, and then change the data.

### How your skills will be checked

The Skill Check will require you to access and modify a data table. All tools, materials, and resources will be available. The Evaluator will verify that your demonstration meets the skill objective by observing or measuring each task standard. You must demonstrate safe work practices during the Skill Check. Contact your Evaluator whenever you are ready for the Skill Check.



## **Skill Objective**

Upon receiving a request to modify the data table, or after determining a need to perform a temporary modification, access and modify the data table.

### **Task Standards**

1. When the machine is cycled, the machine demonstrates the effect of the data table modification.
2. The machine operates within specifications and meets production requirements.

## What You Will Need

This section contains the safety information, tools, and resources you will need before accessing and modifying a data table.

### **SAFETY FIRST**

**DON'T TAKE  
CHANCES**

- Follow all Caterpillar Facility Safety Standards when performing this task in the plant.
- Use caution when working around the PLC; high voltage is present on the inside of the PLC cabinet door and near the input/output (I/O) chassis.
- Be careful when working near moving or rotating machinery.
- Wear safety glasses and hearing protection in assembly and production areas.
- Use caution when making any modifications, pay attention to values, addresses, etc.
- When making any modifications to a program data table, use caution when cycling the machine.



- PC equipped with PLC software
- PLC
- Interconnect cable
- Floppy disk (to back up processor memory, if necessary)
- Processor Keyswitch Key (if the processor is not in the REM position)
- Password (if necessary)



- Electrical Schematics
- Ladder Diagram printout
- Engineering Modification



## Task Steps

### Access and Modify Data Table

1. **Using the interconnect cable, connect the PC to the PLC.**
  - When connecting to a 5/15 or 5/25 - Connect the PC cable to the PEER COMM INTFC communication port (that is for the programming terminal) on the front panel of the PLC.
  - When connecting to a 5/40 - Connect the PC cable to the Data Highway+ communication port Channel 1A on the front panel on the PLC. If communication is not established, connect to the Channel 2A.
2. **Turn PC power on.**
  - The ALLEN-BRADLEY MAIN MENU INTERFACE screen displays.
  - If the PC boots up to DOS, perform these steps: At the C:\ prompt type **cd\ipds**. Press <Enter>. Type **abmenu** and then press <Enter>. The ALLEN-BRADLEY MAIN MENU INTERFACE screen displays.
3. **Press the PLC-5 function key.**
  - The PLC-5 PROGRAMMING SOFTWARE screen displays.
  - There are two paths for connecting to the PLC. You can go through the “WHO” screens or go directly online to the PLC station. When you are operating at a stand-alone station, you can go directly online. Electricians frequently use the “WHO” screens when connected to a data highway. If the PC is connected to a highway, go to step 4. If not, go to step 6.
4. **Press the <Who> function key.**
  - The DH+ NETWORK MENU displays.
5. **Press the <Who Active> function key.**
  - The WHO ACTIVE - Active Station Identification screen displays the stations on the highway.

**6. Go online.**

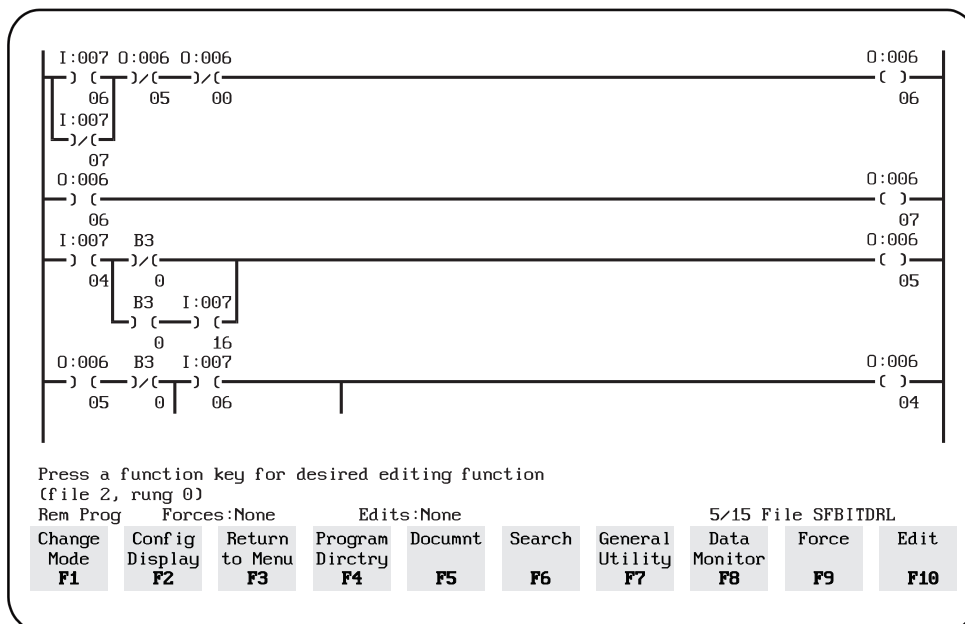
- Cursor to the PLC station you need to connect to, using the arrow keys.
- Press the <Online Program> function key.
- You may modify the data table in the RUN Mode or in the PROG Mode. If you modify in the RUN Mode, go to step 8. If you are modifying in the PROG Mode, continue to the next step.

**7. Enter the PROG Mode.**

- You can enter the PROG Mode either of two ways: by using the Keyswitch or by using the software. If you use the software, press <Esc> to access the “Monitor File” function.

**8. Display the ladder file you want to modify.**

- Typically, if you are in the RUN Mode the machine would be in Manual mode, not AUTO Cycling, while making a change.
- Cursor to the ladder file you want to modify, using the arrow keys.
- Press the <Monitor File> function key. The Ladder Editor Main Menu displays. See Figure 4-1.



**Figure 4-1**  
**Ladder Editor Main Menu**

**9. Access the data table.**

- Move the cursor off of any instruction.
- Press the <Data Monitor> function key. The screen prompts you to enter an address.
- Type in the address and press <Enter>. The data table for the address displays. See *Figure 4-2*.

Address	EN	TT	DN	BASE	PRE	ACC
T4:0	0	0	0	10 msec.	0	0
T4:1	0	0	0	10 msec.	0	0
T4:2	0	0	0	10 msec.	300	0
T4:3	0	0	0	10 msec.	0	0
T4:4	0	0	0	10 msec.	0	0
T4:5	0	0	0	10 msec.	100	0
T4:6	0	0	0	10 msec.	25	0

Press a function key or enter a value.  
T4:0.ACC = █

Rem Prog    Forces:None    Data:Decimal    Addr:Decimal    5/15 File M8187SF5

Change Radix <b>F1</b>	Specify Address <b>F5</b>	Next File <b>F7</b>	Prev File <b>F8</b>
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**Figure 4-2**  
**Example of Data Monitor Screen - Timer File**

**10. Enter the new data.**

- Cursor to the data you want to change, using the arrow keys.
- The screen prompts you to press a function key or to type in the data.



**WARNING! The information you are about to enter will affect the operation of the machine.**

- Type in the new data and then press <Enter>.
  - If you want to make additional changes, you can select from two methods: You can press the <Specify Address> function key, type in the new address, and then cursor to the data you need to change. Or, use either the <Prev File> or <Next File> function key to move through the data files. Files are displayed in numerical order.
  - You must return the machine to the RUN Mode to cycle the machine after operating in the PROG Mode.
- 11. Press <Esc> to return to the Ladder file.**
- 12. Cycle the machine to verify that the program is functioning properly.**
- If the modification was a permanent modification, back up the processor memory. If the modification was temporary, leave a note explaining the modifications. Remember to remove the modifications.
  - The listing should be marked, dated, and signed. Also, update the office backup.
- 13. Exit the PLC-5 software.**
- Press the <Return to Menu> function key. The PLC-5 PROGRAMMING SOFTWARE screen displays.
  - Press the <Exit Sys> function key. The ALLEN-BRADLEY MAIN MENU INTERFACE screen displays.
- 14. Disconnect the PC from the PLC processor.**
- Power down the PC.
  - Remove the interconnect cable from the PLC communication port.



## Concept Check

### Access and Modify Data Table

Answer the following questions to check your understanding of accessing and modifying a data table. Circle the correct answer in each question. Then compare your responses with the answers at the bottom of this page. Some of the questions may have more than one correct answer. If you have difficulty answering a question, review the Skill Development Guide or ask your Trainer for assistance.

1. **To access a data table, you position the cursor on an instruction and press the <Data Monitor> function key.**
  - a. True
  - b. False
  
2. **After entering new data, you want to make additional changes. You can locate the address by**
  - a. pressing the <Specify Address> function key and typing in the new address.
  - b. pressing the <Next File> function key.
  - c. pressing the <Prev File> function key.
  - d. all of the above
  
3. **If the data table modification was a permanent modification, you must**
  - a. leave a note regarding the change.
  - b. back up the processor memory.
  - c. note the changes in the Ladder Diagram printout.
  - d. none of the above

Answers: (1. a 2. d 3. a, b, c)

## **Next Step**

If you are ready to demonstrate the task now, ask your Evaluator or Trainer to schedule the Skill Check. However, if you need to practice some of the steps first, continue to the next section.



## Practice

The following practice will help prepare you for the Skill Check. Ask your Trainer to set up the practice for you. After you complete a practice, ask your Trainer to check your work.

### Practice

Practice accessing and modifying a data table. Your Trainer will designate a PLC location and will provide you with a Ladder Diagram printout for the program. Your Trainer will ask you to perform the following types of data modifications:

- Change the preset value of a timer.
- Set or reset a bit to resequence the machine.
- Enter an integer value to enable a machine to move into position.

If you perform this task online, your Trainer must observe the practice. You will be required to cycle the machine to verify that the program is functioning properly and that the machine is operating to specifications. Be prepared to demonstrate safe work practices during this activity.

### Practice Objective

The ladder file must display the data table modification as specified by the Trainer. When you cycle the machine, the machine must demonstrate the effect of the data table modification.

## Next Step

Continue to practice until you are ready for the Skill Check. When you are ready to demonstrate the task, ask your Evaluator or Trainer to schedule the Skill Check.