



TRAINING SOLUTIONS

Allen Bradley SLC 500



RSLOGIX 500

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Fault Finding Overview

Data Table Files

Addressing

Input / Output (I/O) Addressing

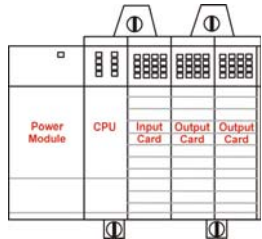
Input/Output can be address individually or as part of a 'word'

e.g. an Input in slot 1 bit 8 can be addressed as:

slot/bit I:1/8 - (slot 1, bit 8)

or

slot/word/bit I: 1.0/8 - (slot 1, word 0, bit 8).



Outputs = slot/bit **O:3/5** - output card in slot 3-address bit 5 (see previous chart).

Inputs = slot/bit **I:1/3** - input card in slot 1 address bit 3 (see previous chart).

32bit cards only take up 1 slot however they require 32bit addresses. In the table on the previous page there is a 32-bit Output card shown in slot 4, this is addressed as follows:

slot/bit **O:4/0 to O:4/31**

or

slot/word/bit **O:4.0/0 to 15** - and - **O:4.1/0 to 15**.

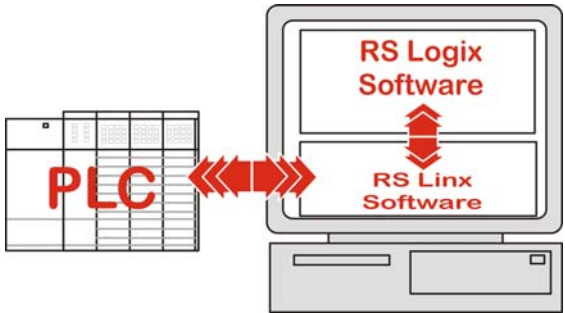
Binary (B) File Addressing (Internal Addresses)

Binary (**B3**) files can also be addresses individually or as part of a 'word'. Again the table shows they can be addresses as consecutive bits (**B3/0 to B3/47**) or, for example **B3/47** could also be addressed as **B3:2/15**.

e.g. address **B3/27** could also **B3:1/11**.

RS LINX®

Gone are the days of connecting a cable from the PC to the PLC and expecting it to communicate. All programming packages are now **Windows®** based and we therefore have to contend with the problems that **Windows®** and PCs can throw



Getting On Line

There are two main ways of getting *on-line* to a processor within **RS LOGIX®**.

ONLINE HELP

1. Like most *Windows*® based programs nowadays the manufacturers provide all the documentation as '*Help files*' within the package - this package is no different. As '*Help*' facilities go the *RS LOGIX*®'s *Help files* are very good and comprehensive.
2. To access '*Help*' click help [?] on the main tool bar
3. Click contents to give access to most of the help required.
4. The "Quick Start" Chapter is very good on how to create projects from first principles.
5. Every instruction has its own '*Help files*' via Complete Instruction Set.
6. The most useful '*Help*' from a maintenance perspective is the ***Programming Reference***. Includes Searching, Going on line, monitoring and troubleshooting.
7. If you are unfamiliar with *Windows*® and its basic functions, the use of a mouse etc. use the "*Understanding the Operating environment*" in '*Help*'.

Opening a file from the disk

[Downloading a program](#)

Selecting RUN or PROGRAM Mode

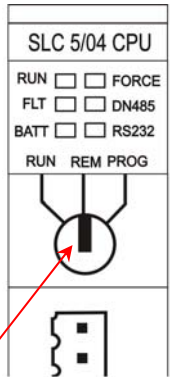
The key switch has 3 positions:

RUN REM PROG

The PLC has 4 modes:

RUN	- RUN mode
REMOTE RUN	- RUN mode
REMOTE PRG	- PROGRAM mode
PROGRAM	- PROGRAM mode

**Key
Switch**



RUN and **PROGRAM** mode can only be accessed by physically turning the key. The **REM** position allows the mode to be changed from the keyboard.

Select the Mode from the pull down menu, a '**are you sure**' message will appear. Click [**YES**].

NOTE

GREEN POWER LINES APPEAR DOWN EACH SIDE OF THE LADDER PROGRAM, INDICATING YOU ARE IN **RUN** MODE.

Navigating the program

GOTO Function

Searching for Addresses and Instructions

Being a **Windows®** based program, **RS LOGIX®** give a multitude of techniques for doing any particular function.

A Major Tip for working with RS Logix® software.

☞ USE THE RIGHT MOUSE KEY ☞

WHAT EVER YOU HAVE CLICKED ON AT ANY PARTICULAR TIME, PRESSING THE RIGHTHAND MOUSE KEYS. THIS WILL DISPLAY ALL THE FUNCTIONS YOU CAN USE WITH THAT PARTICULAR ELEMENT - BE IT AN INSTRUCTION, PROGRAM FILE, RUNG NUMBER ETC. - NON-MORE SO WHEN YOU ARE NAVIGATING A PROGRAM.

Exercise

Left mouse click on any instruction in the program, then right mouse click and a list of functions will appear.

Left mouse click on a rung number a different set of functions will appear.

TIP

DON'T TYPE IN ADDRESSES IF YOU DON'T NEED TO

You are more likely to make mistakes if you are not fully conversant with the package or use it very rarely.

Search / Find

The way you *search/find* is determined by whether or not you can see the element on the screen at that particular time.

Cross Reference

Displaying Cross Reference Information on the Ladder Program

Monitoring

Monitoring the Ladder Program

[Custom Data Monitor \(CDM\)](#)

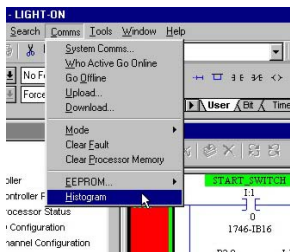
[Multi Point Monitor \(MPM\)](#)

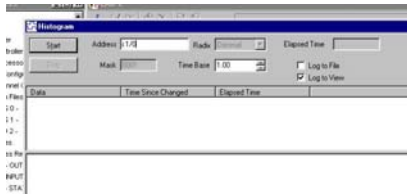
[Histogram Function \(Timing Diagram\)](#)

This is a very impressive function, which is only available when connected to a PLC that is in **RUN** mode.

To open:

1. Select [Comms] then [Histogram] from the main menu.





- When presented with the dialog box enter the address to be monitored in the Address Box. This may be either a single bit address (**I:1/0**) or a word address (**O:3.0**).

If a bit address is selected:

- Select the time base.
- Click on the [Start] button.
- The upper of the two table will display selected transitions in the form of **ON / OFF** with time stamped data (see below).



The lower of the table displays the transitions in a histogram diagram (*Timing Diagram*) (see below).

If the [Log to File] 'tick' box is ticked the data is logged in the top table to a file called *Hist.log* in the default directory (i.e. *C:\Program Files\Rockwell Software\RS Logix 500 English\project*) and can be accessed via the **Windows®** [Explorer] menu.

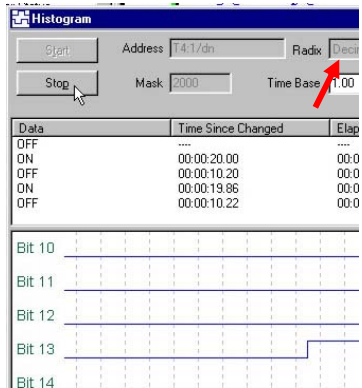
To stop the monitoring

Click the [Stop] Button as show left.

If a word address is selected (e.g. O: 3.0.) We can choose the *Radix* - how the data is displayed – Decimal – Hex - Binary etc. Set this to binary for this exercise.

Remember to select the [*Time Base*].

The Mask allows us to mask bits we do not wish to monitor.



Advanced Diagnostics

Displaying Documentation

Good documentation is probably the biggest asset you can have when faultfinding.

Screen Properties

Force Function

OnLine Editing

Compare Function