

**Configuring a 1747-SN RIO Scanner for use with:
BULLETIN 1203-GD1, GK1, GM1
BULLETIN 1336-GM1**

APPLICATION NOTE

SEPTEMBER 30, 1996

PURPOSE

The purpose of this document is to provide guidelines for wiring and control schemes for SCANport devices including Bulletin 1305 and 1336 PLUS AC Drives. This document is a suggestion only. Users must ensure that installations meet applicable codes and are suitable for the existing conditions.

WHAT THIS NOTE CONTAINS

This document contains information on configuring the 1747-SN RIO Scanner and a simple example of an SLC ladder program using the 1747-SN.

INTENDED AUDIENCE

This application note should be used by personnel familiar with the hardware components and programming procedures necessary to operate SCANport devices. It is also assumed that the user has some familiarity with the SLC-500 and ladder programming.

WHERE IT IS USED

The diagrams, parameter settings and auxiliary hardware used in this application note are designed to address specific issues in many different applications. Some changes by the user may be necessary to apply the concepts of this document to a specific application.

TERMS AND DEFINITIONS

Gx1 1203-GD1, 1203-GK1 or 1336-GM1 RIO to SCANport communications module

1747-SN An RIO Scanner module for the SLC-500 product line

DESCRIPTION

These ladder programs use an SLC, a 1747-SN RIO Scanner module and a Gx1 RIO to SCANport module to control a 1336 PLUS drive.

APPLICATION CONSIDERATIONS

These example ladder programs were written to be simple and clear examples. They contain no error handling. Consult the SLC, 1747-SN Scanner or Gx1 manual for more information.

SCANport devices can have differing definitions for the use of the Logic Command/Status and Reference/Feedback words. Refer to the manual for your SCANport device for more information.

1747-SN CONFIGURATION

The first step in configuring the 1747-SN module is to pick the processor and filename. Enter a filename and then use the arrow keys to highlight the correct processor type:

```

+----- SLC-500 ADVANCED PROGRAMMING SOFTWARE ----- RELEASE 6.01 -----+
|
| +- PROCESSOR -- INPUTS ----- OUTPUTS -----+\ARCH\SLC500 -----+
| | Bul. 1761  MicroLogix 1000                               | Size      Date      |
| | 1747-L511  5/01 CPU - 1K USER MEMORY                    |-----+-----+
| | 1747-L514  5/01 CPU - 4K USER MEMORY                    |          2352    06-24-96
| | 1747-L524  5/02 CPU - 4K USER MEMORY                    | LC        70548    05-15-96
| | 1747-L532  5/03 CPU -12K USER MEMORY                    | GE        993     05-23-96
| | 1747-L541  5/04 CPU -12K USER MEMORY                    | E        59826    05-21-96
| |-----+-----+
| |                               Al|  SLC3SM1    70548    04-29-96
| |
| +- CHANGE PROCESSOR FILE -----+ 04-29-96
| | Name:          SN_APP                               | 04-11-96
| | F2 Processor:  1747-L532  5/03 CPU -12K USER MEMORY | 04-11-96
| |                               | 04-23-96
| |                               | 04-19-96
| |                               | 05-01-96 .
| |-----+-----+changes -----+
|
| +-+ ESC exits/Alt-U aborts changes -----+
|
| Press a function key, or Enter a New File Name
|
|          SELECT          CONFIGR ADJUST          SAVE &
|          PROC           I/O  FILTERS           EXIT
|          F2            F5    F6                F8

```

(The programming software may request more information about the processor -- this information can be found on the label affixed to the side of the processor.)

Next, press <F5> to configure the rack:

```

+----- SLC-500 ADVANCED PROGRAMMING SOFTWARE ----- RELEASE 6.01 -----+
|
| +- I/O CONFIGURATION FOR:SN_APP -----+
| | RACK 1 =      1746-A4  4-slot Backplane
| | RACK 2 =      NOT INSTALLED
| | RACK 3 =      NOT INSTALLED
| |
| |   SLOT      CATALOG #      CARD DESCRIPTION
| | * 0         1747-L532    5/03 CPU -12K USER MEMORY
| | * 1
| | * 2
| | * 3
| |   4
| |   5
| |   6
| |   7
| |   8
| |-----+-----+
| | ESC exits -----+
|
| Press a function key
|
| READ  ONLINE      MODIFY  MODIFY  DELETE  UNDEL  EXIT  SPIO
| CONFIG  CONFIG    RACKS   SLOT   SLOT   SLOT   F8   CONFIG
|  F1    F2         F4     F5    F6    F7

```

Pressing <F5> brings up the module type selection screen. Use the arrow keys to highlight the 1747-SN and press enter:

```
+----- SLC-500 ADVANCED PROGRAMMING SOFTWARE ----- RELEASE 6.01 -----+
+- I/O CONFIGURATION FOR:SN_APP -----+
|+- I/O MODULE SELECTION FOR SLOT:1 -----+
| CATALOG #      CARD DESCRIPTION
| 1746-BAS      BASIC Module - 5/02 Configuration
| 1747-DCM      Direct Commun. Module (1/4 RACK)
| 1747-DCM      Direct Commun. Module (1/2 RACK)
| 1747-DCM      Direct Commun. Module (3/4 RACK)
| 1747-DCM      Direct Commun. Module (FULL RACK)
| 1747-SDN      DeviceNet Scanner
| 1747-SN       Remote I/O Scanner
| 1747-DSN      Distributed I/O Scanner - 7 Blks
| 1747-DSN      Distributed I/O Scanner - 30 Blks
| 1747-KE       Interface Module, Series A
| 1747-KE       Interface Module, Series B
| OTHER        requires IDCODE entry
+---+ ESC exits -----+

Press ENTER to select I/O Module
Enter Module ID Code>

      SELECT
      MODULE
      F2
```

```
+----- SLC-500 ADVANCED PROGRAMMING SOFTWARE ----- RELEASE 6.01 -----+
+- I/O CONFIGURATION FOR:SN_APP -----+
| RACK 1 =      1746-A4  4-slot Backplane
| RACK 2 =      NOT INSTALLED
| RACK 3 =      NOT INSTALLED
|
| SLOT         CATALOG #      CARD DESCRIPTION
| * 0          1747-L532  5/03 CPU -12K USER MEMORY
| * 1          1747-SN     Remote I/O Scanner
| * 2
| * 3
| 4
| 5
| 6
| 7
| 8
+---+ ESC exits -----+

Press a function key

READ   ONLINE      MODIFY  MODIFY  DELETE  UNDEL  EXIT   SPIO
CONFIG CONFIG      RACKS   SLOT   SLOT   SLOT   F8     CONFIG
F1     F2           F4     F5     F6     F7     F8     F9
```

Press <F9> to bring up the 1747-SN configuration screen:

```
+----- SLC-500 ADVANCED PROGRAMMING SOFTWARE ---- RELEASE 6.01 -----+
+- I/O CONFIGURATION FOR:SN_APP -----+
| RACK 1 =      1746-A4   4-slot Backplane
| RACK 2 =      +- SPECIAL CONFIG FOR SLOT:      1  ---+
| RACK 3 =      |
|              | Module's ID Code:      13608
|      SLOT    C| Maximum Input Words:    32
| * 0          1| Maximum Output Words:   32
| * 1          1| Scanned Input Words:      32
| * 2          | Scanned Output Words:   32
| * 3          | M0 Length:              0
|              | M1 Length:              0
|              | 'G' File Size:         0
|              | ISR Number:            0
|              +- ESC exits -----+
+--- ESC exits -----+

Press a function key

      ISR          MODIFY          ADVNCD          G FILE
NUMBER          G FILE          SETUP          SIZE
      F1          F3          F5          F7
```

Press <F7> and set the G File Size to 3:

```
+----- SLC-500 ADVANCED PROGRAMMING SOFTWARE ---- RELEASE 6.01 -----+
+- I/O CONFIGURATION FOR:SN_APP -----+
| RACK 1 =      1746-A4   4-slot Backplane
| RACK 2 =      +- SPECIAL CONFIG FOR SLOT:      1  ---+
| RACK 3 =      |
|              | Module's ID Code:      13608
|      SLOT    C| Maximum Input Words:    32
| * 0          1| Maximum Output Words:   32
| * 1          1| Scanned Input Words:      32
| * 2          | Scanned Output Words:   32
| * 3          | M0 Length:              0
|              | M1 Length:              0
|              | 'G' File Size:         3
|              | ISR Number:            0
|              +- ESC exits -----+
+--- ESC exits -----+

Press a function key

      ISR          MODIFY          ADVNCD          G FILE
NUMBER          G FILE          SETUP          SIZE
      F1          F3          F5          F7
```

Press <F5> and set the M0 file size to 3300. Press <F6> and set the M1 file size to 3300.

```

+----- SLC-500 ADVANCED PROGRAMMING SOFTWARE ----- RELEASE 6.01 -----+
+- I/O CONFIGURATION FOR:SN_APP -----+
| RACK 1 =      1746-A4   4-slot Backplane
| RACK 2 =      +- SPECIAL CONFIG FOR SLOT:      1  ---+
| RACK 3 =      |
|              | Module's ID Code:      13608
|   SLOT      C| Maximum Input Words:      32
| * 0         1| Maximum Output Words:     32
| * 1         1| Scanned Input Words:      32
| * 2         | Scanned Output Words:     32
| * 3         | M0 Length:                3300
|   4         | M1 Length:                3300
|   5         | 'G' File Size:            3
|   6         | ISR Number:              0
|   7         |
|   8         +- ESC exits -----+
+--- ESC exits -----+

Press a function key

INPUT  OUTPUT  SCANNED SCANNED M0 FILE M1 FILE
SIZE   SIZE   INPUT  OUTPUT  SIZE  SIZE
F1     F2     F3     F4     F5   F6

```

Press <Esc> to return to the screen below:

```

+----- SLC-500 ADVANCED PROGRAMMING SOFTWARE ----- RELEASE 6.01 -----+
+- I/O CONFIGURATION FOR:SN_APP -----+
| RACK 1 =      1746-A4   4-slot Backplane
| RACK 2 =      +- SPECIAL CONFIG FOR SLOT:      1  ---+
| RACK 3 =      |
|              | Module's ID Code:      13608
|   SLOT      C| Maximum Input Words:      32
| * 0         1| Maximum Output Words:     32
| * 1         1| Scanned Input Words:      32
| * 2         | Scanned Output Words:     32
| * 3         | M0 Length:                3300
|   4         | M1 Length:                3300
|   5         | 'G' File Size:            3
|   6         | ISR Number:              0
|   7         |
|   8         +- ESC exits -----+
+--- ESC exits -----+

Press a function key

ISR          MODIFY          ADVNCD          G FILE
NUMBER      G FILE          SETUP          SIZE
F1          F3             F5             F7

```

Press <F3> to bring up the G file editing screen which should be as shown below:

```
address      0      1      2      3      4      5      6      7      8      9
G1:0          8224      0      0

Press a function key, or Enter 'G'-file data
G1:1 =

BINARY  DECIMAL  HEX/BCD
DATA    DATA    DATA
F1      F2      F3
```

Press <F1> to change the display to the Binary mode (shown below):

```
address      15      data      0      address      15      data      0
G1:0          0010 0000 0010 0000
G1:1          0000 0000 0000 0000
G1:2          0000 0000 0000 0000

Press a function key, or Enter 'G'-file data
G1/16 =

BINARY  DECIMAL  HEX/BCD
DATA    DATA    DATA
F1      F2      F3
```

Word 0 is set by the programming software and should not be changed.

Words 1 and 2 are used to configure rack addresses 0 through 3 for starting quarters and rack sizes. Each rack address is described by four bits in word 1 and 4 bits in word 2. Rack 0 begins at the least significant bit.

Each bit in word 1 that is set to a one indicates the starting quarter of an RIO rack.

Each bit in word 2 that is set to a one indicates an RIO rack quarter that should be scanned.

For example: Rack 0 is scanned beginning at starting quarter 1 because bit 0 of word 1 is set. This rack is a full rack since all four bits for rack 0 are set in word 2 and none of the other three bits for rack 0 are set in word 1.

```
address      15      data      0      address      15      data      0
G1:0          0010 0000 0010 0000
G1:1          1111 0111 0101 0001
G1:2          1111 1111 1111 1111

Press a function key, or Enter 'G'-file data
G1/45 =

BINARY  DECIMAL  HEX/BCD
DATA    DATA    DATA
F1      F2      F3
```

The G file shown above will configure the 1747-SN module to scan RIO racks as follows:

Rack Address	Rack Size	Starting Quarter	Input Addresses	Output Addresses
0	full	first	I:000 - I:007	O:000 - O:007
1	half	first	I:010 - I:003	O:010 - O:003
1	half	third	I:014 - I:017	O:014 - O:017
2	quarter	first	I:020 - I:021	O:020 - O:021
2	quarter	second	I:022 - I:023	O:022 - O:023
2	half	third	I:024 - I:027	O:024 - O:027
3	quarter	first	I:030 - I:031	O:030 - O:031
3	quarter	second	I:032 - I:033	O:032 - O:033
3	quarter	third	I:034 - I:035	O:034 - O:035
3	quarter	fourth	I:036 - I:037	O:036 - O:037