

Allen-Bradley Company  
6200 Series Software  
PLC-3 Programming Terminal Software  
Release 4.10.03  
Program Listing Report

Processor File: 6200PLC3  
5 September 19108 - 13:36

REPORT OPTIONS

Page Width:	80
Page Length:	66
Graphics Capabilities:	NO
Right Power Rail:	YES
Address Display:	SYMBOL
Address Comments:	YES
Rung Comments:	YES
Output Cross Reference:	NO
Ladder Cross Reference:	NONE
Starting Rung:	M:0
Ending Rung:	F:32767

Rung M:0

This is a rung comment. This section of rungs show how BITS are converted.

This program is totally useless...

as far as controlling any process. Now on the other hand if you would like to see how different instructions are converted read on.

```

|                                     This is |
|                                     ouput  |
| This is |This is |This is |This is |O:010/00 |O:010/01 |
| input   |input   |input   |input   |in series|also an  |
| I:001/00 |I:001/01 |I:001/02 |I:001/03 |with...  |output   |
| SYM_I00100 SYM_I00101 SYM_I00102 SYM_I00103 |SYM_O01000 SYM_O01001 |
| I0:1     I0:1     I0:1     I0:1     |O0:10     O0:10  |
+----] [-----] [-----] [-----] [-----] ( )----- ( )-----+
| |      00      01      02      03      |      00      01      | | |
| |This is |This is |This is |This is |
| |input   |input   |input   |input   |
| |I:001/04 |I:001/05 |I:001/06 |I:001/07 |
| |SYM_I00104 SYM_I00105 SYM_I00106 SYM_I00107|
| | I0:1     I0:1     I0:1     I0:1     |
| +----] [-----] [-----] [-----] [-----]
| |      04      05      06      07      |

```

Rung M:1

This program was converted using the DHRIO option. Bits in the rack range will be remapped to I/O. Bits outside of this range will point to the INT array (I000 or O000).

```

| This is |This is |This is |This is |This is a |
| input   |input   |input   |input   |LATCH of  |
| I:001/10 |I:001/11 |I:001/12 |I:001/13 |O:020/07  |
| SYM_I00110 SYM_I00111 SYM_I00112 SYM_I00113 |SYM_O02007 |
| I0:1     I0:1     I0:1     I0:1     |O0:20     |
+----]/[-----]/[-----]/[-----]/[-----] (L)-----+
| |      10      11      12      13      |      07      | | |
| |This is |This is |This is |This is |
| |input   |input   |input   |input   |
| |I:001/14 |I:001/15 |I:001/16 |I:001/17 |
| |SYM_I00114 SYM_I00115 SYM_I00116 SYM_I00117|
| | I0:1     I0:1     I0:1     I0:1     |
| +----]/[-----]/[-----]/[-----]/[-----]
| |      14      15      16      17      |

```

Rung M:2

I/O bit addresses use the format: \_RRS:I.Data[M].B

where: RR = rack in octal

S = Starting module group

I = Input (or O for output)

M = Module group offset

B = Terminal number in decimal

This comnt					This shows
is for B			and will		how a D
file 0	Address	be used	appear		file
word 0	comments	on any	with the		address
bit 17 oct	can	address	address		converts
B0:0	B0:1	B7:2	B7:17		D0:2
+----]/[-----] [-----] [-----] [-----+----- (U)-----+					
	17	1	5	10	13
This comnt	During	over	i.e. if		
is for N	conversion	written	both exist		
file 0	Instructon	by	Address		
word 0	comments	Address	comment		
bit 17 oct	will be	comments	will win.		
N0:0	N0:1	N7:2	N7:17		
+----]/[-----] [-----] [-----] [-----+-----					
	17	1	5	10	

Rung M:3

BIT FILE	BIT FILE		BIT FILE
ADDRESS	ADDRESS		ADDRESS
#B0:0	#N4:4		#B0:0
+----] [-----]/[----- ( )-----+			
	260	44	16

Rung M:4

INDEX		INDEX
COUNTER		COUNTER
+XIN-----+		+BIN-----+
+--EXAMINE INDEXED BIT ON +-----+INDEXED BIT ON +--+		
Address	#B0:4	Address #B0:4
Counter	C0	Counter C0
Length	32	Length 32
Position	2	Position 2
+-----+   +-----+		

Rung M:5

INDEX		INDEX
COUNTER		COUNTER
+XIF-----+		+BIR-----+
+--EXAMINE INDEXED BIT OFF+-----+INDEXED BIT RESET +--+		
Address	#B4:0	Address #B4:0
Counter	C0	Counter C0
Length	32	Length 32
Position	2	Position 2
+-----+   +-----+		

Rung M:6

```

|                                     INDEX |
|                                     COUNTER |
|                                     +BIS-----+ |
+-----+INDEXED BIT SET +-----+ |
|                                     |Address  #B4:0| |
|                                     |Counter   C0| |
|                                     |Length    32| |
|                                     |Position   2| |
|                                     +-----+ |

```

Rung M:7

Timers

```

| TON TIMER |TON TIMER |TON TIMER |
| ENABLE    |TIMING    |DONE      |
| BIT       |BIT       |BIT       |
|          T0          T0          T0          |
+-----] [-----]/[-----] [-----] +TON-----+ |
|          TE          TT          TD          |Timer ON DELAY  +- (TE) -+ | |
|                                     |Timer          T0| |
|                                     |Time base     0.01+- (TD) |
|                                     |Preset        999| |
|                                     |Accum         0| |
|                                     +-----+ |

```

Rung M:8

TOF TIMER

```

| DONE      |
| BIT       |
|          T1          |
+-----] / [-----] +TOF-----+ |
|          TD          |Timer OFF DELAY  +- (TE) -+ | |
|                                     |Timer          T1| |
|                                     |Time base     0.1+- (TD) |
|                                     |Preset        999| |
|                                     |Accum         0| |
|                                     +-----+ |

```

Rung M:9

RTO TIMER

```

| ENABLE    |
| BIT       |
|          T300       |
+-----] / [-----] +RTO-----+ |
|          TE          |RETENTIVE TIMER ON+- (TE) -+ | |
|                                     |Timer          T300| |
|                                     |Time base     1.0+- (TD) |
|                                     |Preset        65535| |
|                                     |Accum         0| |
|                                     +-----+ |

```

Rung M:10

```

|          |RTO TIMER | |
|          |DONE      |
| LABEL FOUR|BIT       |RTO TIMER |
|          4          T300          T300          |
+-----LBLE-----] [-----] RES-----+ |
|          |          TD          |

```

Rung M:11

```

|       TOS TIMER
|       TIMING
|       BIT
|       SAME AS
|       TON TT BIT
|       T65
|
+---LBL-----] [-----+TOS TIMER
| 4         TT          |Timer T65|
|                               |Time base 0.01+- (TT) |
|                               |Preset    999|
|                               |Accum     0|
|                               +-----+

```

Rung M:12

```

|
|
| LABEL FIVE
| 5
|
+---LBL-----+TON-----+
| 5          |Timer T301|
|                               |Time base  SCAN+- (TD) |
|                               |Preset    100|
|                               |Accum     0|
|                               +-----+

```

Rung M:13

```

Counters
| CTU      |CTU      |CTU
| ENABLE   |DONE      |OVERFLOW
| BIT      |BIT       |BIT
| C253     |C253     |C253
|
+---] [-----]/[-----]/[-----+CTU-----+
| 17      DN      14          |Counter  C253|
|                               |Preset  32767+- (DN) |
|                               |Accum   0|
|                               +-----+

```

Rung M:14

```

| CTD      |CTD      |CTD
| ENABLE   |DONE      |UNDER FLOW
| BIT      |BIT       |BIT
| C254     |C254     |C254
|
+---] [-----] [-----] [-----+CTD-----+
| 16      DN      13          |Counter  C254|
|                               |Preset   35+- (DN) |
|                               |Accum   0|
|                               +-----+

```

Rung M:15

```

| CTD
| DONE
| BIT
| C254
|
+---] [-----] [-----] [-----RES-----+
|  DN

```

Rung M:16  
Block Transfers

					BT READ/	
	BTW	BTW			WRITE	
	ENABLE	DONE			CONTROL	
	BIT	BIT			WORD	
	B5:0	B5:0		+BTW-----+		
+-----]	/	[-----]	/	[-----]	+BLOCK TRANSFER WRITE	+- (EN) -+
	6	5		Rack	1	
				Group	7+- (DN)	
				Module	0	
				Control	#B5:0+- (ER)	
				Data file	#N2:0	
				Length	32	
				+-----+		

Rung M:17

					BT READ/	
	BTR	BTR			WRITE	
	ENABLE	DONE			CONTROL	
	BIT	BIT			WORD	
	B5:0	B5:0		+BTR-----+		
+-----]	/	[-----]	/	[-----]	+BLOCK TRANSFER READ	+- (EN) -+
	16	15		Rack	1	
				Group	7+- (DN)	
				Module	0	
				Control	#B5:0+- (ER)	
				Data file	#N2:0	
				Length	32	
				+-----+		

Rung M:18

Message

					MESSAGE	
	MSG	MSG			CONTROL	
	ENABLE	DONE			WORD	
	BIT	BIT				
	B5:10	B5:10		+MSG-----+		
+-----]	[-----]	[-----]	[-----]	[-----]	+MESSAGE	+- (EN) -+
	16	15		Control	#B5:10	
				Channel	E2.8.1.3.2+- (DN)	
				@ABCDEF		
					+- (ER)	
				+-----+		

Rung M:19

Move/Compare

		EQUAL TO		NOT EQUAL		LESS THAN				
	+EQU-----+		+NEQ-----+		+LES-----+					>
+--+A = B			+--+A <> B		+--+A < B					>
Source A	N4:0	Source A	N4:2	Source A	N4:4					>
	0		2		4					
Source B	N4:1	Source B	N4:3	Source B	N4:5					
	1		3		5					
	+-----+		+-----+		+-----+					

```

      MOVE WORD      |
<+MOV-----+ |
<+MOVE      +-+ |
<|Source      N4:6| |
|              6| |
|Destin      N4:7| |
|              7| |
+-----+ |

```

Rung M:20

```

|      LESS THAN      GREATER
|      OR EQUAL      THAN OR
|      TO      THAN      EQUAL TO
| +LEQ-----+ +GRT-----+ +GEQ-----+ >
+-+A <= B      +-+A > B      +-+A >= B      +-----+ >
| |Source A      N4:8| |Source A      N4:10| |Source A      N4:12|
| |              8| |              10| |              12|
| |Source B      N4:9| |Source B      N4:11| |Source B      N4:13|
| |              9| |              11| |              13|
+-----+ +-----+ +-----+
|
|

```

```

      MOVE WORD
      WITH MASK
<+MVM-----+ |
<+MOVE WITH MASK +-+ |
<|Source      N4:14| |
|              14| |
|Mask      N4:15| |
|              15| |
|Destin      N4:16| |
|              16| |
+-----+ |

```

Rung M:21

```

|      LIMIT TEST
| +LIM-----+
+-+LIMIT TEST +-----+ +MVS-----+ |
| |Low limit      N4:18| | |Source      E2.1.1.1.0| | |
| |              18| | |      ??????????| | |
| |Test      N4:19| | |Destin      N4:21| | |
| |              19| | |              21| | |
| |High limit      N4:20| | +-----+ |
| |              20| | +MVS-----+ |
| +-----+ +-----+ +MOVE STATUS +-+ |
| |Source      N4:22| | |
| |              22| | |
| |Destin      E2.1.1.1.1| | |
| |      ??????????| | |
+-----+ +-----+

```

Rung M:22  
Pointers

POINTER SECTION	POINTER FILE	POINTER WORD
+MOV-----+	+MOV-----+	+MOV-----+
+--MOVE	+--MOVE	+--MOVE
Source N3:5	Source N3:0	Source N3:80
5	0	80
Destin PSEC:5	Destin PFIL:5	Destin PWRD:5
5	0	80
+-----+	+-----+	+-----+

INDIRECT	
ADDRESS	
WORD MOVE	
<+MOV-----+	
<+MOVE	+--+
< Source PIND:5	
456	
Destin N0:87	
456	
+-----+	

Rung M:23

INDIRECT	
ADDRESS	
COMMENTS	THAT'S WHY
DON'T	THEY DON'T
CONVERT	SHOW UP
PIND:5	PIND:5
+----] [-----	( )-----+
4	17

Rung M:24

INPUT	
CONDITION	
FOR MCR	
I0:37	
+----] [-----	(MCR)-----+
17	

Rung M:25

File Move

	MOVE FILE	
MVF	CONTROL	
ENABLE	WORD WITH	
BIT	NONE/SCAN	
C24	+CTU-----+	
+----]/ [-----	+COUNT UP	+-- (CU) -+
17	Counter C24	
	Preset 5+-- (DN)	
	Accum 2	
	+-----+	



Rung M:26

```

|                                     MOVE FILE
| MVF                                CONTROL
| ENABLE                             WORD WITH
| BIT                                 NONE/SCAN
| C24                                +MVF-----+
+----] [-----] +MOVE WITH FILES +- (EN) -+
|      17                                     |Source   B6:0|
|                                     |Destin  #B6:5+- (DN)|
|                                     |Counter  C24|
|                                     |Mode    NONE+- (ER)|
|                                     |Length  5|
|                                     |Position 2|
|                                     +-----+

```

Rung M:27

```

| MVF      |MVF      |MVF      | MOVE FILE
| ENABLE   |DONE      |ERROR    | CONTROL
| BIT      |BIT       |BIT      | WORD
| C25      |C25      |C25      | +MVF-----+
+----] [-----] [-----] [-----] +MOVE WITH FILES +- (EN) -+
|      EN      DN      13                                     |Source   #B6:10|
|                                     |Destin  #B6:15+- (DN)|
|                                     |Counter  C25|
|                                     |Mode    ALL+- (ER)|
|                                     |Length  5|
|                                     |Position 0|
|                                     +-----+

```

Rung M:28

```

|                                     MASKED
| MMF      |MMF      |MMF      | MOVE FILE
| ENABLE   |DONE      |ERROR    | CONTROL
| BIT      |BIT       |BIT      | WORD
| C26      |C26      |C26      | +MMF-----+
+----] [-----] [-----] [-----] +FILES MOVE WITH MASK +- (EN) -+
|      EN      DN      13                                     |Source A  #B6:20|
|                                     |Source B  B6:25+- (DN)|
|                                     |Destin   #B6:30|
|                                     |Counter  C26+- (ER)|
|                                     |Mode    1|
|                                     |Length  5|
|                                     |Position 0|
|                                     +-----+

```

Rung M:29

```

|----- (MCR) -----
|

```

Rung M:30  
File Search

				FILE
				SEARCH
				EQUAL
				CONTROL
				WORD
				+SEQ-----+
+-----]	[-----]	[-----]	[-----]	+SEARCH FOR A = B +- (EN) -+
	EN	DN	FN	Source A #B6:40
				Source B #B6:50+- (DN)
				Counter C27
				Mode INCREMENTAL+- (FN)
				Length 10
				Position 0
				+-----+

Rung M:31

				FILE
				SEARCH NOT
				EQUAL
				CONTROL
				WORD
				+SNE-----+
+-----]	[-----]	[-----]	[-----]	+SEARCH FOR A <> B +- (EN) -+
	EN	DN	FN	Source A #B6:60
				Source B #B6:70+- (DN)
				Counter C28
				Mode ALL+- (FN)
				Length 10
				Position 0
				+-----+

Rung M:32

				FILE
				SEARCH
				LESS THAN
				CONTROL
				WORD
				+SLS-----+
+-----]	[-----]	[-----]	[-----]	+SEARCH FOR A < B +- (EN) -+
	EN	DN	FN	Source A #B6:80
				Source B #B6:90+- (DN)
				Counter C29
				Mode 1+- (FN)
				Length 10
				Position 0
				+-----+

Rung M:33

				FILE	
				SEARCH	
SLE	SLE	SLE		LESS/EQUAL	
ENABLE	DONE	FOUND		CONTROL	
BIT	BIT	BIT		WORD	
	C30	C30	C30	+SLE-----+	
+-----]	[-----]	[-----]	[-----]	+SEARCH FOR A <= B +- (EN) -+	
	EN	DN	FN	Source A #B6:100	
				Source B #B6:110+- (DN)	
				Counter C30	
				Mode ALL+- (FN)	
				Length 10	
				Position 0	
				+-----+	

Rung M:34

				FILE	
				SEARCH	
SGR	SGR	SGR		GREATER	
ENABLE	DONE	FOUND		CONTROL	
BIT	BIT	BIT		WORD	
	C31	C31	C31	+SGR-----+	
+-----]	[-----]	[-----]	[-----]	+SEARCH FOR A > B +- (EN) -+	
	EN	DN	FN	Source A #B6:120	
				Source B #B6:130+- (DN)	
				Counter C31	
				Mode ALL+- (FN)	
				Length 10	
				Position 0	
				+-----+	

Rung M:35

				FILE	
				SEARCH	
SGE	SGE	SGE		GRTR/EQUAL	
ENABLE	DONE	FOUND		CONTROL	
BIT	BIT	BIT		WORD	
	C32	C32	C32	+SGE-----+	
+-----]	[-----]	[-----]	[-----]	+SEARCH FOR A >= B +- (EN) -+	
	EN	DN	FN	Source A #B6:140	
				Source B #B6:150+- (DN)	
				Counter C32	
				Mode ALL+- (FN)	
				Length 10	
				Position 0	
				+-----+	

Rung M:36

Math

				ADDITION	
				+ADD-----+	
+-----]	[-----]	[-----]	[-----]	+ADD A + B	+--+
				Source A N4:30	
				1	
				Source B N4:31	
				1	
				Destin N4:32	
				2	
				+-----+	

Rung M:37

SUBTRACTON

```

+SUB-----+
+SUBTRACT A - B +-+
|Source A      N4:33|
|              7|
|Source B      N4:34|
|              4|
|Destin       N4:35|
|              3|
+-----+

```

Rung M:38

MULITPLCTN

```

+MUL-----+
+MULTIPLY A * B +-+
|Source A      H6:1|
|              999|
|Source B      H6:2|
|              1000|
|Destin       H6:9|
|              999000|
+-----+

```

Rung M:39

DIVISION

```

+DIV-----+
+DIVIDE A | B +-+
|Source A      F0:0|
|              50.00000|
|Source B      F0:1|
|              100.0000|
|Destin       F0:2|
|              0.5000000|
+-----+

```

Rung M:40

SQUARE  
ROOT

```

+SQR-----+
+SQUARE ROOT +-+
|Source      N4:42|
|              0|
|Destin     N4:43|
|              0|
+-----+

```

Rung M:41

NEGATE

```

+NEG-----+
+NEGATE +-+
|Source      N4:44|
|              0|
|Destin     N4:45|
|              0|
+-----+

```

Rung M:42

```

|                                     BIT WISE |
|                                     AND       |
|                                     +AND-----+ |
+-----+-----+-----+-----+-----+
|                                     +AND       +--+ |
|                                     |Source A   B6:160| |
|                                     | 0000000000000000| |
|                                     |Source B   B6:161| |
|                                     | 0000000000000000| |
|                                     |Destin    B6:162| |
|                                     | 0000000000000000| |
|                                     +-----+-----+ |

```

Rung M:43

```

|                                     BIT WISE |
|                                     OR        |
|                                     +OR-----+ |
+-----+-----+-----+-----+-----+
|                                     +OR        +--+ |
|                                     |Source A   B6:163| |
|                                     | 0000000000000000| |
|                                     |Source B   B6:164| |
|                                     | 0000000000000000| |
|                                     |Destin    B6:165| |
|                                     | 0000000000000000| |
|                                     +-----+-----+ |

```

Rung M:44

```

|                                     BIT WISE |
|                                     XOR       |
|                                     +XOR-----+ |
+-----+-----+-----+-----+-----+
|                                     +EXCLUSIVE OR +--+ |
|                                     |Source A   B6:166| |
|                                     | 0000000000000000| |
|                                     |Source B   B6:167| |
|                                     | 0000000000000000| |
|                                     |Destin    B6:168| |
|                                     | 0000000000000000| |
|                                     +-----+-----+ |

```

Rung M:45

```

|                                     BIT WISE |
|                                     NOT      |
|                                     +NOT-----+ |
+-----+-----+-----+-----+-----+
|                                     +NOT      +--+ |
|                                     |Source    B6:169| |
|                                     | 0000000000000000| |
|                                     |Destin    B6:170| |
|                                     | 0000000000000000| |
|                                     +-----+-----+ |

```

Rung M:46

Program Control

```

| REAL TIME |
| CLOCK |
| SECONDS |
| S1:5 |
+-----] [-----] [-----] [-----] (JSR) -----+
| 0 |

```

SUBROUTINE

THREE

3

(JSR)

Program Listing Report

PLC-3

File 6200PLC3

Rung M:47

```
Rung M:47
| REAL TIME |
| CLOCK |
| SECONDS | LABEL FOUR |
| S1:5 | 4 |
+----]/[----- (JMP) ----+
```

```
Rung M:48
|
+--NOP----- (END) --+
```

```
Rung M:49
|
+-----END OF PROGRAM-----+
```

Rung S:0

File Functions

```
| REAL-TIME |
| CLOCK |ADF |ADF |ADF | ADF
| INTERUPT |ENABLE |DONE |ERROR | CONTROL
| SUBROUTINE|BIT |BIT |BIT | WORD
| 1 | C40 | C40 | C40 | +ADF-----+
+---LBL-----] [-----] [-----] [-----+FILE ADD +- (EN) -+
| | EN | DN | 13 | |Source A #N4:60| |
| | | | | | |Source B N4:50+- (DN) |
| | | | | | |Destin #N4:70|
| | | | | | |Counter C40+- (ER) |
| | | | | | |Mode ALL|
| | | | | | |Length 10|
| | | | | | |Position 0|
| | | | | | +-----+
```

Rung S:1

```
| SBF |SBF |SBF | SBF
| ENABLE |DONE |ERROR | CONTROL
| BIT |BIT |BIT | WORD
| C41 | C41 | C41 | +SBF-----+
+---] [-----] [-----] [-----+FILE SUBTRACT +- (EN) -+
| EN | DN | 13 | |Source A N4:51| | |
| | | | | | |Source B #N4:80+- (DN) |
| | | | | | |Destin #N4:90|
| | | | | | |Counter C41+- (ER) |
| | | | | | |Mode ALL|
| | | | | | |Length 10|
| | | | | | |Position 0|
| | | | | | +-----+
```

Rung S:2

MLF	MLF	MLF	MLF
ENABLE	DONE	ERROR	CONTROL
BIT	BIT	BIT	WORD
C42	C42	C42	+MLF-----+
EN	DN	13	+FILE MULTIPLY +- (EN) -+
			Source A #N4:100
			Source B #N4:110+- (DN)
			Destin N4:52
			Counter C42+- (ER)
			Mode ALL
			Length 10
			Position 0
			+-----+

Rung S:3

DVF	DVF	DVF	DVF
ENABLE	DONE	ERROR	CONTROL
BIT	BIT	BIT	WORD
C43	C43	C43	+DVF-----+
EN	DN	13	+FILE DIVIDE +- (EN) -+
			Source A #N4:120
			Source B N4:53+- (DN)
			Destin #N4:130
			Counter C43+- (ER)
			Mode ALL
			Length 10
			Position 0
			+-----+

Rung S:4

SQF	SQF	SQF	SQF
ENABLE	DONE	ERROR	CONTROL
BIT	BIT	BIT	BIT
C44	C44	C44	+SQF-----+
EN	DN	13	+FILE SQUARE ROOT +- (EN) -+
			Source #N4:140
			Destin #N4:145+- (DN)
			Counter C44
			Mode ALL+- (ER)
			Length 5
			Position 0
			+-----+

Rung S:5

NGF	NGF	NGF	NGF
ENABLE	DONE	ERROR	CONTROL
BIT	BIT	BIT	WORD
C45	C45	C45	+NGF-----+
EN	DN	13	+FILE NEGATE +- (EN) -+
			Source #N4:150
			Destin #N4:155+- (DN)
			Counter C45
			Mode ALL+- (ER)
			Length 5
			Position 0
			+-----+

Rung S:6

ANF	ANF	ANF	ANF
ENABLE	DONE	ERROR	CONTROL
BIT	BIT	BIT	WORD
C46	C46	C46	+ANF-----+
+-----]	[-----]	[-----]	+AND WITH FILES +- (EN) -+
EN	DN	13	Source A #B6:200
			Source B #B6:210+- (DN)
			Destin #B6:220
			Counter C46+- (ER)
			Mode ALL
			Length 10
			Position 0
			+-----+

Rung S:7

ORF	ORF	ORF	ORF
ENABLE	DONE	ERROR	CONTROL
BIT	BIT	BIT	WORD
C47	C47	C47	+ORF-----+
+-----]	[-----]	[-----]	+OR WITH FILES +- (EN) -+
EN	DN	13	Source A #B6:230
			Source B #B6:240+- (DN)
			Destin #B6:250
			Counter C47+- (ER)
			Mode ALL
			Length 10
			Position 0
			+-----+

Rung S:8

XOF	XOF	XOF	XOF
ENABLE	DONE	ERROR	CONTROL
BIT	BIT	BIT	WORD
C48	C48	C48	+XOF-----+
+-----]	[-----]	[-----]	+EXCLUSIVE OR WITH FILES+- (EN) -+
EN	DN	13	Source A #B6:260
			Source B #B6:270+- (DN)
			Destin #B6:280
			Counter C48+- (ER)
			Mode ALL
			Length 10
			Position 0
			+-----+

Rung S:9

NTF	NTF	NTF	NTF
ENABLE	DONE	ERROR	CONTROL
BIT	BIT	BIT	WORD
C49	C49	C49	+NTF-----+
+-----]	[-----]	[-----]	+FILE COMPLEMENT +- (EN) -+
EN	DN	13	Source #B6:290
			Destin #B6:300+- (DN)
			Counter C49
			Mode ALL+- (ER)
			Length 10
			Position 0
			+-----+



Rung S:10

```
|
+----- (RET) -----|
```

Rung S:11

Bit Shift

```
| |BSL |BSL |BSL |BSL |
| SUBROUTINE|ENABLE |DONE |ERROR |CONTROL |
| THREE |BIT |BIT |BIT |WORD |
| 3 C50 C50 C50 +BSL-----+
+----LBL-----] [-----] [-----] [-----] +BIT SHIFT LEFT +- (EN) -+
| | EN DN 13 |File #B6:310| | |
| | | | |Source I0:70/07+- (DN) |
| | | | |Destin O0:71/06|
| | | | |Counter C50+- (ER) |
| | | | |Length 20|
+-----+|
```

Rung S:12

```
| |BSR |BSR |BSR |BSR |
| ENABLE |DONE |ERROR |CONTROL |
| BIT |BIT |BIT |WORD |
| C51 C51 C51 +BSR-----+
+----] [-----] [-----] [-----] +BIT SHIFT RIGHT +- (EN) -+
| EN DN 13 |File #B6:312| | | |
| | | | |Source I0:70/01+- (DN) |
| | | | |Destin O0:71/02|
| | | | |Counter C51+- (ER) |
| | | | |Length 20|
+-----+|
```

Rung S:13

FIFO

```
| |FFL |FIFO |FIFO |FFL/FFU |
| LOAD |FULL |EMPTY |CONTROL |
| BIT |BIT |BIT |WORD |
| C52 C52 C52 +FFL-----+
+----] [-----] [-----] [-----] +FIFO LOAD +- (LD) -+
| 17 14 13 |Source I0:72| | | |
| | | | |0000000000000000+- (FL) |
| | | | |FIFO #N4:160|
| | | | |Counter C52+- (EM) |
| | | | |Length 10|
+-----+|
```

Rung S:14

```
| |FFU |FIFO |FIFO |FFL/FFU |
| UNLOAD |FULL |EMPTY |CONTROL |
| BIT |BIT |BIT |WORD |
| C52 C52 C52 +FFU-----+
+----] [-----] [-----] [-----] +FIFO UNLOAD +- (UN) -+
| 16 14 13 |Destin O0:72| | | |
| | | | |0000000000000000+- (FL) |
| | | | |FIFO #N4:160|
| | | | |Counter C52+- (EM) |
| | | | |Length 10|
+-----+|
```

Rung S:15

Diagnostic

FBC	FBC	FBC		FBC
ENABLE	DONE	FOUND		CONTROL
BIT	BIT	BIT		WORD
C53	C53	C53		+FBC-----+
+----]	[-----]	[-----]	[-----]	+FILE BIT COMPARE +- (EN) -+
EN	DN	FN		Source #N5:0
				Reference #N5:10+- (DN)
				Result N5:20
				Counter C53+- (FN)
				Mode ALL
				Length 10
				Position 0
				+-----+

Rung S:16

DDT	DDT	DDT		DDT
ENABLE	DONE	FOUND		CONTROL
BIT	BIT	BIT		WORD
C54	C54	C54		+DDT-----+
+----]	[-----]	[-----]	[-----]	+DIAGNOSTIC DETECT +- (EN) -+
EN	DN	FN		Source #N5:30
				Reference #N5:40+- (DN)
				Result N5:50
				Counter C54+- (FN)
				Mode ALL
				Length 10
				Position 0
				+-----+

Rung S:17

				(RET) -+
--	--	--	--	----------

Rung S:18

				-END OF PROGRAM-
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