

Rung 1SBR0:0

Subroutine with parameters

	SBR	SBR	
	INPUT 1	INPUT 1	
	RET	RET	
	RETURN 1	RETURN 1	
	+SBR-----+	+RET-----+	
+	+SUBROUTINE	+RETURN ()	+
	Input parameter 1N2:0	Return parameter 1N2:0	
	+-----+	+-----+	

Rung 1SBR0:1

	Lines	
	Selected	P14 on  P15 on
	+CLR-----+	1N1:98  1N1:98
+	+CLEAR	+-- (U) -- (U) --+
	Destination 1N1:99	0   1
	0	
	+-----+	

Rung 1SBR0:2

	Lines	
	Selected	
	+FOR-----+	
+	+FOR	+--
	Label number 59	
	Index 1N1:22	
	Initial value 0	
	Final value 19	
	Step 1	
	+-----+	

Rung 1SBR0:3

	1B0:	
+	----- (U) --	+
	1596	

Rung 1SBR0:4

	V56 Open	V57 Open	V58 Open	V59 Open	Line	
	1B23:	1B23:	1B23:	1B23:	valves	
	182	183	184	185	open	
	182	183	184	185	1B0:	
+	-----] [-----] [-----] [-----] [-----] ( )-----	+	+	+	+	+
	182	183	184	185	1597	

Rung 1SBR0:5

	+RET-----+	
+	+RETURN ()	+
	Return parameter	
	+-----+	

Rung 1SBR0:6

	(TND) --	
+	-----	+

```

Rung 1SBR0:7
| Lines                               Selected
| Selected                             Route
|   59                                +MOV-----+
+---[LBL]-----+MOV-----+
|                                     |Source   1N10:[1N1:22]|
|                                     |   0|
|                                     |Destination 1N1:21|
|                                     |   0|
|                                     +-----+
Rung 1SBR0:8
|                                     Pump Used
|                                     +MOV-----+
+---[LBL]-----+MOV-----+
|                                     |Source   1N24:[1N1:21]|
|                                     |   0|
|                                     |Destination 1N1:23|
|                                     |   0|
|                                     +-----+
Rung 1SBR0:9
|                                     Transfer
|                                     Line
|   Pump Used                         Selected
| +EQU-----+                         1N1:99
+---+EQUAL-----+------(L)-----+
| |Source A   1N1:23|                       0
| |   0|
| |Source B   15|
| |   |
| +-----+
Rung 1SBR0:10
|                                     Transfer
|                                     Line
|   Pump Used                         Selected
| +EQU-----+                         1N1:99
+---+EQUAL-----+------(L)-----+
| |Source A   1N1:23|                       1
| |   0|
| |Source B   16|
| |   |
| +-----+
Rung 1SBR0:11
|                                     Transfer
|                                     Line
|   Pump Used                         Selected
| +EQU-----+                         1N1:99
+---+EQUAL-----+------(L)-----+
| |Source A   1N1:23|                       2
| |   0|
| |Source B   17|
| |   |
| +-----+
Rung 1SBR0:12
|                                     +RET-----+
+---[LBL]-----+RETURN ()-----+
|                                     |Return parameter|
|                                     +-----+

```

Rung 1SBR0:13

```
|  
+-----[END OF FILE]-----+  
|
```

Rung 1SBR1:0  
Diagnostic

```

|                                     FBC                                     |
|                                     RESULT                                  |
|                                     CONTROL                                |
|-----+FBC-----+-----+-----+
+-----+FILE BIT COMPARE      +- (EN) -+
|Source      #1B3:10+- (DN) |
|Reference   #1B4:10+- (FD) |
|Result      #1N89:82+- (IN) |
|Compare control 1R6:10+- (ER) |
|Length      255 |
|Position    0 |
|Result control 1R6:11 |
|Length      1 |
|Position    0 |
+-----+-----+-----+

```

Rung 1SBR1:1

```

|                                     DDT                                     |
|                                     RESULT                                  |
|                                     CONTROL                                |
|-----+DDT-----+-----+-----+
+-----+DIAGNOSTIC DETECT      +- (EN) -+
|Source      #1B3:90+- (DN) |
|Reference   #1B3:100+- (FD) |
|Result      #1N89:50+- (IN) |
|Compare control 1R6:12+- (ER) |
|Length      16 |
|Position    0 |
|Result control 1R6:13 |
|Length      1 |
|Position    0 |
+-----+-----+-----+

```

Rung 1SBR1:2

```

|-----+-----+-----+-----+
+-----+-----+-----+-----+ [END OF FILE] -----+-----+-----+
|

```

Rung 1SBR2:0

Block Transfers

BTR	BTR	BTR	BTR
ENABLE	DONE	ERROR	CONTROL
BR017:0	BR017:0	BR017:0	+BTR-----+
+----]/[-----]/[-----]/[-----]			+BLOCK TRANSFER READ +- (EN)-+
EN	DN	ER	Rack 001
			Group 7+- (DN)
			Module 0
			Control block BR017:0+- (ER)
			Data file 1BTD0:0
			BT Length 32
			Continuous NO
			BT Timeout 0
			+-----+

Rung 1SBR2:1

BTW	BTW	BTW	BTW
ENABLE	DONE	ERROR	CONTROL
BW017:0	BW017:0	BW017:0	+BTW-----+
+----]/[-----]/[-----]/[-----]			+BLOCK TRANSFER WRITE +- (EN)-+
EN	DN	ER	Rack 001
			Group 7+- (DN)
			Module 0
			Control block BW017:0+- (ER)
			Data file 1BTD1:0
			BT Length 13
			Continuous NO
			BT Timeout 0
			+-----+

Rung 1SBR2:2

Message

MSG	MSG	MSG	MSG
ENABLE	DONE	ERROR	CONTROL
0MSG0:0	0MSG0:0	0MSG0:0	+MSG-----+
+----]/[-----]/[-----]/[-----]			+SEND/RECEIVE MESSAGE +- (EN)-+
EN	DN	ER	Control block 0MSG0:0+- (DN)
			+- (ER)
			+-----+

Rung 1SBR2:3

	INPUT
	WORD 0
	I:000
+----- (IIN) -----+	

Rung 1SBR2:4

+-----[END OF FILE]-----+

Rung 1SBR3:0

Process control

PID	PID
ENABLE	CONTROL
1PD0:0	+PID-----+
+----]/[-----+PID	+-----+--+
EN	Control block 1PD0:0
	Process variable 1BTD0:4
	Tieback 0
	Control output 1BTD1:1
	+-----+--+

Rung 1SBR3:1

TPO	TPO
DONE	BASE TIME
1T0:12	+TPO-----+
+----]/[-----+TPO	+-----+-- (EN) -+
DN	Percent on 75
	+- (TT)
	Timer 1T0:12
	Time base 0.01+- (DN)
	Cycle time 50
	Current 0
	Output bit 1B3:/256
	+-----+--

Rung 1SBR3:2

|

+-----[END OF FILE]-----+

|

Rung 1SBR4:0

ASCII manipulation

ABL	ABL	ABL	
ENABLE	DONE	CONTROL	
MSG1:0	MSG1:0	+ABL-----+	
+----]/[-----]/[-----+-----+ASCII TEST FOR LINE +- (EN)-+			
EN	DN	Channel	RM-1+- (DN)
		Control block	MSG1:0+- (ER)
		Characters	0
		+-----+	

Rung 1SBR4:1

ACB	ACB	ACB	
ENABLE	DONE	CONTROL	
MSG1:1	MSG1:1	+ACB-----+	
+----]/[-----]/[-----+-----+ASCII CHARS IN BUFFER +- (EN)-+			
EN	DN	Channel	RM-1+- (DN)
		Control block	MSG1:1+- (ER)
		Characters	0
		+-----+	

Rung 1SBR4:2

ARD	ARD	ARD	
ENABLE	DONE	CONTROL	
MSG1:2	MSG1:2	+ARD-----+	
+----]/[-----]/[-----+-----+ASCII READ +- (EN)-+			
EN	DN	Channel	RM-1+- (DN)
		Destination	OST0:0+- (ER)
		Control block	MSG1:2
		String length	80
		Characters read	0
		+-----+	

Rung 1SBR4:3

ARL	ARL	ARL	
ENABLE	DONE	CONTROL	
MSG1:3	MSG1:3	+ARL-----+	
+----]/[-----]/[-----+-----+ASCII READ LINE +- (EN)-+			
EN	DN	Channel	RM-1+- (DN)
		Destination	OST0:1+- (ER)
		Control block	MSG1:3
		String length	80
		Characters read	0
		+-----+	

Rung 1SBR4:4

AWT	AWT	AWT	
ENABLE	DONE	CONTROL	
MSG1:4	MSG1:4	+AWT-----+	
+----]/[-----]/[-----+-----+ASCII WRITE +- (EN)-+			
EN	DN	Channel	RM-1+- (DN)
		Source	OST0:2+- (ER)
		Control block	MSG1:4
		String length	80
		Characters sent	0
		+-----+	

Rung 1SBR4:5

AWA	AWA	AWA	
ENABLE	DONE	CONTROL	
OMSG1:5	OMSG1:5	+AWA-----+	
+-----]/[-----]/[-----+-----+ASCII WRITE APPEND			+-- (EN) -+
EN	DN	Channel	RM-1+- (DN)
		Source	OST0:3+- (ER)
		Control block	OMSG1:5
		String length	80
		Characters sent	0
		+-----+	

Rung 1SBR4:6

AAL		AAL	
DONE		CONTROL	
OMSG1:6		+AAL-----+	
+-----]/[-----+-----+ASCII ALLOCATE			+-- (EN) -+
DN		Channel	RM-1+- (DN)
		Control block	OMSG1:6+- (ER)
		+-----+	

Rung 1SBR4:7

ADL		ADL	
ERROR		CONTROL	
OMSG1:7		+ADL-----+	
+-----]/[-----+-----+ASCII DEALLOCATE			+-- (EN) -+
ER		Channel	RM-1+- (DN)
		Control block	OMSG1:7+- (ER)
		+-----+	

Rung 1SBR4:8

		ACN	
		SOURCE A	
		+ACN-----+	
+-----+-----+STRING CONCATENATE+-----+-----+			
		Source A	OST0:0
		Source B	OST0:1
		Destination	OST0:2
		+-----+	

Rung 1SBR4:9

		ACI	
		SOURCE	
		+ACI-----+	
+-----+-----+STRING TO INTEGER CONVERSION+-----+-----+			
		Source	OST0:2
		Destination	1N77:0
			0
		+-----+	

Rung 1SBR4:10

		AIC	
		SOURCE	
		+AIC-----+	
+-----+-----+INTEGER TO STRING CONVERSION+-----+-----+			
		Source	1N77:1
			0
		Destination	OST0:3
		+-----+	



Rung 1SBR4:11

```

|                                     AEX                                     |
|                                     SOURCE                                 |
|                                     +AEX-----+                         |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                                     +STRING EXTRACT +--+                |
|                                     |Source      OST0:3| |                |
|                                     |Index        5| |                |
|                                     |Number       4| |                |
|                                     |Destination OST0:4| |                |
|                                     +-----+-----+-----+-----+

```

Rung 1SBR4:12

```

|           ASR                                     ASC                                     |
|           SOURCE A                               SOURCE                                 |
| +ASR-----+                                     +ASC-----+                         |
+--+ASCII STRING COMPARE +-----+-----+-----+-----+-----+-----+
| |Source A      OST0:4| |                                     +STRING SEARCH +--+                | | | |
| |Source B      OST0:5| |                                     |Source      OST0:6| |                |
| +-----+-----+ |                                     |Index        0| |                |
|                                     |Search      OST0:7| |                |
|                                     |Result      1N77:2| |                |
|                                     |              0| |                |
|                                     +-----+-----+-----+-----+

```

Rung 1SBR4:13

```

|                                     |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                                     [END OF FILE]                                     |
|                                     |

```

Rung 1TRN0:0

```
|
+-[AFI]-----[EOT]--+
|
Rung 1TRN0:1
|
+-----[END OF FILE]-----+
|
```



Rung 1STEP0:4

```

| | ISYM_IN04 | | SYM_OUT04 |
| | I:010 | | O:011 |
+----]/[-----+-----] ( )-----+
| | 04 | | 04 |
| | INPUT 05 | | OUTPUT 05 |
| | SYM_IN05 | | SYM_OUT05 |
| | I:010 | | O:011 |
+----]/[-----+-----] ( )-----+
| | 05 | | 05 |
| | INPUT 06 | | OUTPUT 06 |
| | SYM_IN06 | | SYM_OUT06 |
| | I:010 | | O:011 |
+----]/[-----+-----] ( )-----+
| | 06 | | 06 |
| | INPUT 07 | | OUTPUT 07 |
| | SYM_IN07 | | SYM_OUT07 |
| | I:010 | | O:011 |
+----]/[-----+-----] ( )-----+
| | 07 | | 07 |

```

Rung 1STEP0:5

```

| INPUT 10 | INPUT 11 | INPUT 12 | INPUT 13 | OUTPUT 10 | OUTPUT 11 | OUTPUT 12
| SYM_IN10 | SYM_IN11 | SYM_IN12 | SYM_IN13 | SYM_OUT10 | SYM_OUT11 | SYM_OUT12
| I:010 | I:010 | I:010 | I:010 | O:011 | O:011 | O:011 >
+----] [-----]/[-----] [-----]/[-----] ( )----- (L)----- (U)----->
| 10 | 11 | 12 | 13 | 10 | 11 | 12 >

```

```

OUTPUT 13 |
SYM_OUT13 |
< O:011 |
<---- ( )-----+
< 13 |

```

Rung 1STEP0:6

```

| INPUT 14 | | OUTPUT 14 |
| SYM_IN14 | | SYM_OUT14 |
| I:010 | | O:011 |
+----] [-----] (L)-----+
| 14 | | 14 |

```

Rung 1STEP0:7

```

| INPUT 15 | | |
| THIS IS AN | |
| INSTRUCTN | |
| COMMENT | |
| SYM_IN15 | | OUTPUT 15 |
| I:010 | | SYM_OUT15 |
| | | O:011 |
+----]/[-----] (U)-----+
| 15 | | 15 |

```

Rung 1STEP0:8

```

| INPUT 16 | | OUTPUT 16 |
| SYM_IN16 | | SYM_OUT16 |
| I:010 | | O:011 |
+----] [-----] (U)-----+
| 16 | | 16 |

```

Rung 1STEP0:9

INPUT 17		OUTPUT 17	
SYM_IN17		SYM_OUT17	
I:010		O:011	
+----]/[-----]		(L)	+-----
17		17	

Rung 1STEP0:10

OSF		OSR	
OUTPUT		OUTPUT	
BIT		BIT	
1B0:		+OSR-----	
+----] [-----]		+ONE SHOT RISING	+--(OB)-+
2		Output bit 1B0:/0	
		Storage bit 1B0:/1+-	(SB)
		+-----	

Rung 1STEP0:11

OSR		OSF	
OUTPUT		OUTPUT	
BIT		BIT	
1B0:		+OSF-----	
+----] [-----]		+ONE SHOT FALLING	+--(OB)-+
0		Output bit 1B0:/2	
		Storage bit 1B0:/3+-	(SB)
		+-----	

Rung 1STEP0:12

Timers

TON	TON	TON			
1 SEC TIME	1 SEC TIME	1 SEC TIME		TON	
BASE	BASE	BASE		1 SEC TIME	
ENABLE	TIMING	DONE		BASE	
1T0:0	1T0:0	1T0:0		+TON-----	
+----] [-----]	/[-----]	[-----]		+TIMER ON DELAY	+--(EN)-+
EN	TT	DN		Timer 1T0:0	
				Time base 1.0+-	(DN)
				Preset 3600	
				Accum 0	
				+-----	

Rung 1STEP0:13

TON	TON	TON			
.01 SEC	.01 SEC	.01 SEC		TON	
TIME BASE	TIME BASE	TIME BASE		.01 SEC	
ENABLE	TIMING	DONE		TIME BASE	
1T0:1	1T0:1	1T0:1		+TON-----	
+----] [-----]	/[-----]	[-----]		+TIMER ON DELAY	+--(EN)-+
EN	TT	DN		Timer 1T0:1	
				Time base 0.01+-	(DN)
				Preset 3600	
				Accum 0	
				+-----	

Rung 1STEP0:14

```

| TOF      |TOF      |TOF      |
| 1 SEC    |1 SEC    |1 SEC    |
| TIME BASE|TIME BASE|TIME BASE|
| ENABLE   |TIMING   |DONE     |
| 1T0:2    |1T0:2    |1T0:2    |
+-----] [-----]/[-----] [-----] +TOF-----+
|          EN      TT      DN          |TIMER OFF DELAY +- (EN) -+
|                                     |Timer      1T0:2|
|                                     |Time base   1.0+- (DN)|
|                                     |Preset      2400|
|                                     |Accum       0|
+-----+

```

Rung 1STEP0:15

```

| TOF      |TOF      |TOF      |
| .01 SEC  |.01 SEC  |.01 SEC  |
| TIME BASE|TIME BASE|TIME BASE|
| ENABLE   |TIMING   |DONE     |
| 1T0:3    |1T0:3    |1T0:3    |
+-----] [-----]/[-----] [-----] +TOF-----+
|          EN      TT      DN          |TIMER OFF DELAY +- (EN) -+
|                                     |Timer      1T0:3|
|                                     |Time base   0.01+- (DN)|
|                                     |Preset      2400|
|                                     |Accum       0|
+-----+

```

Rung 1STEP0:16

```

| RTO      |RTO      |RTO      |
| 1 SEC    |1 SEC    |1 SEC    |
| TIME BASE|TIME BASE|TIME BASE|
| ENABLE   |TIMING   |DONE     |
| 1T0:4    |1T0:4    |1T0:4    |
+-----] [-----]/[-----] [-----] +RTO-----+
|          EN      TT      DN          |RETENTIVE TIMER ON+- (EN) -+
|                                     |Timer      1T0:4|
|                                     |Time base   1.0+- (DN)|
|                                     |Preset      1800|
|                                     |Accum       0|
+-----+

```

Rung 1STEP0:17

```

| RTO      |RTO      |RTO      |
| .01 SEC  |.01 SEC  |.01 SEC  |
| TIME BASE|TIME BASE|TIME BASE|
| ENABLE   |TIMING   |DONE     |
| 1T0:5    |1T0:5    |1T0:5    |
+-----] [-----]/[-----] [-----] +RTO-----+
|          EN      TT      DN          |RETENTIVE TIMER ON+- (EN) -+
|                                     |Timer      1T0:5|
|                                     |Time base   0.01+- (DN)|
|                                     |Preset      1800|
|                                     |Accum       0|
+-----+

```

Rung 1STEP0:18

```

|                                     |RTO      |
|                                     |.01 SEC  |
|                                     |TIME BASE|
|                                     |1T0:5    |
+-----] [-----] [-----] (RES)-----+

```

Rung 1STEP0:19

```

| GTN |
| 1 SEC |
| TIME BASE |
| DONE |
| OT0:36 |
+-----] / [-----+
| DN |
| |
| |
| |
| |
| |
+-----+
| GTN |
| 1 SEC |
| TIME BASE |
+GTF-----+
+GLOBAL TIMER ON +- (EN) -+
| Timer OT0:36 |
| Time base 1.0+- (DN) |
| Preset 90 |
| Accum 0 |
+-----+

```

Rung 1STEP0:20

```

| GTN |
| 1 SEC |
| TIME BASE |
| DONE |
| OT0:36 |
+-----] [-----+
| DN |
| |
| |
| |
| |
| |
+-----+
| GTN |
| 1 SEC |
| TIME BASE |
+GTF-----+
+GLOBAL TIMER OFF +- (EN) -+
| Timer OT0:36 |
| Time base 1.0+- (DN) |
| Preset 90 |
| Accum 0 |
+-----+

```

Rung 1STEP0:21

Counters

```

| CTU | | CTU | |
| COUNT UP | COUNT UP | CTU |
| ENABLE | DONE | OVER FLOW |
| 1C0:0 | 1C0:0 | 1C0:0 |
+-----] [-----] [-----] [-----+
| CU | DN | OV |
| |
| |
| |
| |
| |
+-----+
| CTU |
| COUNT UP |
+CTU-----+
+COUNT UP +- (CU) -+
| Counter 1C0:0 |
| Preset 999+- (DN) |
| Accum 0 |
+-----+

```

Rung 1STEP0:22

```

| CTD | | CTD | |
| COUNT DOWN | COUNT DOWN | CTD |
| ENABLE | DONE | UNDER FLOW |
| 1C0:1 | 1C0:1 | 1C0:1 |
+-----] [-----] [-----] [-----+
| CD | DN | UN |
| |
| |
| |
| |
| |
+-----+
| CTD |
| COUNT DOWN |
+CTD-----+
+COUNT DOWN +- (CD) -+
| Counter 1C0:1 |
| Preset 1234+- (DN) |
| Accum 0 |
+-----+

```

Rung 1STEP0:23

```

| |
| |
| |
| |
+-----+
| CTD |
| COUNT DOWN |
| 1C0:1 |
+-----+
| (RES) |
+-----+

```

Rung 1STEP0:24

Compare and Compute

	CMP		CPT	
	LESS THAN		MULTIPLY	
	+CMP-----+		+CPT-----+	
+-+	COMPARE	+	COMPUTE	+-+
	Expression		Destination 1N89:4	
	1N89:0<1N89:1		0	
	+-----+		Expression	
			1N89:2*1N89:3	
			+-----+	

Rung 1STEP0:25

	LIM		ADD	
	TEST		DESTINATN	
	+LIM-----+		+ADD-----+	
+-+	LIMIT TEST (CIRC)	+	ADD	+-+
	Low limit 0		Source A 1N89:6	
	0		0	
	Test 1N89:5		Source B 1N89:7	
	0		0	
	High limit 300		Destination 1N89:8	
	0		0	
	+-----+		+-----+	

Rung 1STEP0:26

	MEQ		SUB	
	COMPARE		DESTINATN	
	+MEQ-----+		+SUB-----+	
+-+	MASKED EQUAL	+	SUBTRACT	+-+
	Source 0B1:0		Source A 1N89:9	
	0000000000000000		0	
	Mask 00000FFF		Source B 1	
	0		0	
	Compare 0B1:1		Destination 1N89:9	
	0000000000000000		0	
	+-----+		+-----+	

Rung 1STEP0:27

	EQU		MUL	
	SOURCE A		DESTINATN	
	+EQU-----+		+MUL-----+	
+-+	EQUAL	+	MULTIPLY	+-+
	Source A 1T0:2.ACC		Source A 1N89:10	
	0		0	
	Source B 1C0:3.ACC		Source B 1N89:11	
	0		0	
	+-----+		Destination 1N89:11	
			0	
			+-----+	



Rung 1STEP0:28

	NEQ		DIV	
	SOURCE A		DESTINATN	
	+NEQ-----+		+DIV-----+	
+-+	NOT EQUAL		DIVIDE	+-+
	Source A 1L3:1		Source A 1N89:12	
	0		0	
	Source B 999999		Source B 2	
	+-----+		Destination 1N89:13	
			0	
			+-----+	

Rung 1STEP0:29

	LES/GRT		SQR	
	SOURCE A		DESTINATN	
	+LES-----+		+SQR-----+	
+-+	LESS THAN		SQUARE ROOT	+-+
	Source A 1F8:4		Source 1N89:14	
	0.000000		0	
	Source B 5.500000		Destination 1N89:15	
			0	
	+-----+		+-----+	

Rung 1STEP0:30

	LES/GRT		NEG	
	SOURCE A		DESTINATN	
	+GRT-----+		+NEG-----+	
+-+	GREATER THAN		NEGATE	+-+
	Source A 1F8:4		Source 1N89:16	
	0.000000		0	
	Source B 5.500000		Destination 1N89:17	
			0	
	+-----+		+-----+	

Rung 1STEP0:31

	LEQ		TOD	
	SOURCE A		DESTINATN	
	+LEQ-----+		+TOD-----+	
+-+	LESS THAN OR EQUAL		TO BCD	+-+
	Source A 1N3:3		Source 1B3:4	
	0		0000000000000000	
	Source B 1N3:4		Destination 0:013	
	0		0	
	+-----+		+-----+	

Rung 1STEP0:32

	GEQ		FRD	
	SOURCE A		DESTINATN	
	+GEQ-----+		+FRD-----+	
+-+	GREATER THAN OR EQUAL		FROM BCD	+-+
	Source A 1N3:5		Source I:013	
	0		0	
	Source B 1N3:6		Destination 1B3:5	
	0		0000000000000000	
	+-----+		+-----+	

Rung 1STEP0:33  
Move and bitwise logic

```

|
|           MOV
|           DESTINATN
|-----+
|+MOV-----+
|
|           |Source      255|
|           |
|           |Destination 1B3:6|
|           | 0000000000000000|
|-----+

```

Rung 1STEP0:34

```

|
|           MVM
|           DESTINATN
|-----+
|+MVM-----+
|-----+
|+MOVE WITH MASK
|
|           |Source      1B3:7|
|           | 0000000000000000|
|           |Mask        00000F0F|
|           |
|           |Destination 1B3:8|
|           | 0000000000000000|
|-----+

```

Rung 1STEP0:35

```

|
|           AND
|           DESTINATN
|-----+
|+AND-----+
|-----+
|+BITWISE AND
|
|           |Source A    1B3:9|
|           | 0000000000000000|
|           |Source B    1B3:10|
|           | 0000000000000000|
|           |Destination 1B3:11|
|           | 0000000000000000|
|-----+

```

Rung 1STEP0:36

```

|
|           OR
|           DESTINATN
|-----+
|+OR-----+
|-----+
|+BITWISE INCLUSIVE OR
|
|           |Source A    1B3:12|
|           | 0000000000000000|
|           |Source B    1B3:13|
|           | 0000000000000000|
|           |Destination 1B3:14|
|           | 0000000000000000|
|-----+

```

Rung 1STEP0:37

```

|
|           NOT
|           DESTINATN
|-----+
|+NOT-----+
|-----+
|+NOT
|
|           |Source      1B3:15|
|           | 0000000000000000|
|           |Destination 1B3:15|
|           | 0000000000000000|
|-----+

```

Rung 1STEP0:38

```

|                                     XOR                                     |
|                                     DESTINATN                             |
|                                     +XOR-----+                         |
+-----+BITWISE EXCLUSIVE OR +-----+
| Source A      1B3:16 |
|      0000000000000000 |
| Source B      65530 |
|                                     |
| Destination   1B3:17 |
|      0000000000000000 |
|                                     +-----+

```

Rung 1STEP0:39

```

|                                     CLR                                     |
|                                     DESTINATN                             |
|                                     +CLR-----+                         |
+-----+CLEAR +-----+
| Destination 1B3:18 |
|      0000000000000000 |
|                                     +-----+

```

Rung 1STEP0:40

```

|                                     RMW                                     |
|                                     DESTINATN                             |
|                                     +RMW-----+                         |
+-----+R-M-W +-----+
| Source      1B3:19 |
|      0000000000000000 |
| AND mask  000000FF |
| OR mask   0000FFFF |
|                                     |
| Destination 1B3:20 |
|      0000000000000000 |
|                                     +-----+

```

Rung 1STEP0:41

File instructions

```

|                                     FAL                                     |
|                                     MULTIPLY                             |
|                                     BY 3                                 |
| FAL      |FAL      |FAL      |FAL      |
| ENABLE   |DONE    |ERROR  |        |
| 1R6:0    |1R6:0    |1R6:0  |        |
+-----] [-----] [-----] [-----] +FILE ARITH/LOGICAL +- (EN) -+
|      EN   |  DN    |  ER   |        |
|                                     |Control   1R6:0 |
|                                     |Length   48+- (DN) |
|                                     |Position    9 |
|                                     |Mode      ALL+- (ER) |
|                                     |Destination #1N89:150 |
|                                     |          0 |
|                                     |Expression |
|                                     |#1N89:100*3 |
|                                     +-----+

```

Rung 1STEP0:42

```

| FSC          |FSC          |FSC          |FSC          |FSC          |
| ENABLE      |DONE        |ERROR        |FOUND        |NOT EQUAL    |
| 1R6:1      |1R6:1      |1R6:1      |1R6:1      |+FSC-----+
+----] [-----] [-----] [-----] [-----] +FILE SEARCH/COMPARE +- (EN) -+
|           EN      DN      ER      FD      |Control      1R6:1| | | |
|           |           |           |           |Length      25+- (DN)|
|           |           |           |           |Position     0|
|           |           |           |           |Mode        ALL+- (ER)|
|           |           |           |           |Expression   |
|           |           |           |           |#1B3:0<>#1B3:50 |
|           |           |           |           +-----+
    
```

Rung 1STEP0:43

Shift register

```

| BSL          |BSL          |BSL          |BSL          |
| ENABLE      |DONE        |UNLOAD       |LENGTH 64    |
| 1R6:2      |1R6:2      |1R6:2      |+BSL-----+
+----] [-----] [-----] [-----] +BIT SHIFT LEFT +- (EN) -+
|           EN      DN      UL      |File         #1B4:0| | |
|           |           |           |Control      1R6:2+- (DN)|
|           |           |           |Bit address  I:004/17|
|           |           |           |Length      64|
|           |           |           +-----+
    
```

Rung 1STEP0:44

```

| BSR          |BSR          |BSR          |BSR          |
| ENABLE      |DONE        |UNLOAD       |LENGTH 64    |
| 1R6:3      |1R6:3      |1R6:3      |+BSR-----+
+----] [-----] [-----] [-----] +BIT SHIFT RIGHT +- (EN) -+
|           EN      DN      UL      |File         #1B4:0| | |
|           |           |           |Control      1R6:3+- (DN)|
|           |           |           |Bit address  I:004/16|
|           |           |           |Length      64|
|           |           |           +-----+
    
```

Rung 1STEP0:45

```

| BSR          |
| ERROR      |
| 1R6:3      |
+----] [-----] (MCR) -+
|           ER
    
```

Rung 1STEP0:46

```

| FFL          |FFL          |FFL          |FFL          |
| ENABLE      |DONE        |EMPTY        |CONTROL      |
| 1R6:4      |1R6:4      |1R6:4      |+FFL-----+
+----] [-----] [-----] [-----] +FIFO LOAD +- (EN) -+
|           EN      DN      EM      |Source      0N57:0| | |
|           |           |           |FIFO        #0N58:0+- (DN)|
|           |           |           |Control     1R6:4|
|           |           |           |Length     64+- (EM)|
|           |           |           |Position    0|
|           |           |           +-----+
    
```

Rung 1STEP0:47

```

| FFU          |FFU          |FFU          |          |
| ENABLE       |DONE         |EMPTY        |          |
| 1R6:5        |1R6:5        |1R6:5        |          |
+----] [-----] [-----] [-----] +FFU-----+
|              |              |              |          |
| EN           |DN           |EM           |          |
|              |              |              |          |
|              |              |              |          |
|              |              |              |          |
|              |              |              |          |
|              |              |              |          |
|              |              |              |          |
+-----+

```

Rung 1STEP0:48

```

| LFL          |LFL          |LFL          |          |
| ENABLE       |DONE         |EMPTY        |          |
| 1R6:6        |1R6:6        |1R6:6        |          |
+----] [-----] [-----] [-----] +LFL-----+
|              |              |              |          |
| EN           |DN           |EM           |          |
|              |              |              |          |
|              |              |              |          |
|              |              |              |          |
|              |              |              |          |
|              |              |              |          |
|              |              |              |          |
+-----+

```

Rung 1STEP0:49

```

| LFU          |LFU          |LFU          |          |
| ENABLE       |DONE         |EMPTY        |          |
| 1R6:7        |1R6:7        |1R6:7        |          |
+----] [-----] [-----] [-----] +LFU-----+
|              |              |              |          |
| EN           |DN           |EM           |          |
|              |              |              |          |
|              |              |              |          |
|              |              |              |          |
|              |              |              |          |
|              |              |              |          |
|              |              |              |          |
+-----+

```

Rung 1STEP0:50

```

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

```

Rung 1STEP0:51

Sequencer

```

| SQI/SQO      |          |          |          |
| CONTROL      |          |          |          |
| +SQI-----+          |          |          |
+--+SEQUENCER INPUT +-----+--+SEQUENCER OUTPUT +- (EN) +--+
| |File        |#0N60:10| |File        |#0N60:10|
| |Mask        |00000FFF| |Mask        |00000FFF+- (DN)
| |Source      |I:006|   |Destination  |O:006|
| |Control     |1R6:8|   |Control      |1R6:8|
| |Length      |4|       |Length       |4|
| |Position    |0|       |Position     |0|
| +-----+          |          |          |
+-----+          |          |          |

```

Rung 1STEP0:52

SQI/SQO	SQI/SQO		SQL	
ENABLE	DONE		CONTROL	
1R6:8	1R6:8		+SQL-----+	
+----]	[-----]	[-----]	+SEQUENCER LOAD	+-(EN)-+
EN	DN		File	#ON60:10
			Source	1N89:80+- (DN)
			Control	1R6:9
			Length	4
			Position	0
			+-----+	

Rung 1STEP0:53

Program control

			LABEL 1	
			1	
+-[AFI]	-----			-(JMP)-----+

Rung 1STEP0:54

			JSR TO	
LABEL 1			1SBR0	
1			+JSR-----+	
+---[LBL]	-----		+JUMP TO SUBROUTINE	+--+
			File	1SBR0
			Input parameter	1N89:83
			Return parameter	1N89:93
			+-----+	

Rung 1STEP0:55

+-----	-----			-(TND)-----+

Rung 1STEP0:56

+-----	-----			-[END OF FILE]-----+

NO FILES IN SECTION 2IBP

NO FILES IN SECTION 2SBR

Rung 2TRN0:0

|  
+--[AFI]-----[EOT]--+

Rung 2TRN0:1

|  
+-----[END OF FILE]-----+  
|

Rung 2STEP0:0

This step is in LP2. It shows what the addresses look like in a different processor.

TON LP2		TON LP2	
TIMER		SCAN	
DONE		TIMER	
2T5:9		+TON-----+	
+----]/[-----		+TIMER ON DELAY	+-(EN)-+
DN		Timer 2T5:9	
		Time base 0.01+-	-(DN)
		Preset 1000	
		Accum 0	
		+-----+	

Rung 2STEP0:1

+-----	[END OF FILE]	+-----