MC

Rev:V2.4

: 2016 10 10

MC

V2.4

2016-10-10

B 5

518057
www.megmeet.com
400-666-2-163
0755-86600999

PLC

PLC

MC PLC

.....1
.....13
.....38
.....52
.....62
.....77
.....254
.....278
.....288
.....298

MC100 MC200 MC280 PLC

1

1.1 2

1.1.1 MC PLC 2

1.1.2 MC80 4

1.1.3 MC100 5

1.1.4 MC200 5

1.1.5 MC280 6

1.2 X_Builder 6

1.2.1 7

1.2.2 X_Builder 7

1.2.3 X_Builder 7

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1.3 8

1.3.1 8

1.3.2 9

1.3.3 9

1.4 10

1.4.1 Modbus 10

1.4.2 MCbus 10

1.4.3 10

1.5 MC PLC 10

1.5.1 10

1.5.2 IO 11

1.5.3 12

1.5.4 12

1.5.5 12

1.1

MC PLC

M C

		MC280	MC200	MC100	MC80
		32k 64kByte	12k 24kByte	16k 24kByte	6k 12kByte
		R	C 200	320 180	320 180
			1	EEPROM	EEPROM
		100ms T0 T209 10ms T210 T479 1ms T480 T511	100ms T0 T209 10ms T210 T251 1ms T252 T255		
		16 C0 C199 32 C200 C235 32 C236 C259 C301 C306	16 C0 C199 32 C200 C235 32 C236 C259		
		D0 D7999 R0 R32767	D0 D7999	D0 D7999	D0 D3999
		V0 V63			
		Z0 Z15			
		SD0 SD511	SD0 SD255		
		M0 M10239	M0 M1999	M0 M2047	M0 M1023
		LM0 LM63			
		SM0 SM511	SM0 SM255		
		S0 S4095	S0 S991	S0 S1023	S0 S1023
		3	3	3	3
		16	16	16	16
		8	6	6	6
		12	10	8	4
	PTO	6	2	2	2
		3	/	/	/
		6	/	/	/
		1	1	1	1
		0.065 S	0.09 S	0.3 S	0.3 S
		3	3	100 25	100
			2 /8	2 /8	
		PORT0 RS232 PORT1 RS485 PORT2 RS485	PORT0 RS232 PORT1 RS232/RS485	PORT0 RS232 PORT1 RS232/RS485	PORT0 RS232
		Modbus/ /MCbus/			

MC

MC100

1.2.1

X_Builder IBM PC Microsoft Windows
Windows 98 NT 4.0 Windows 2000 Windows XP Windows Vista Windows7
X_Builder

1-2 X_Builder

CPU	Intel Pentium 233 CPU	Intel Pentium 1G CPU
	64M	128M
	640 480 256	800 600 65535
	DB9 RS232 USB	RS232 USB
	PLC	

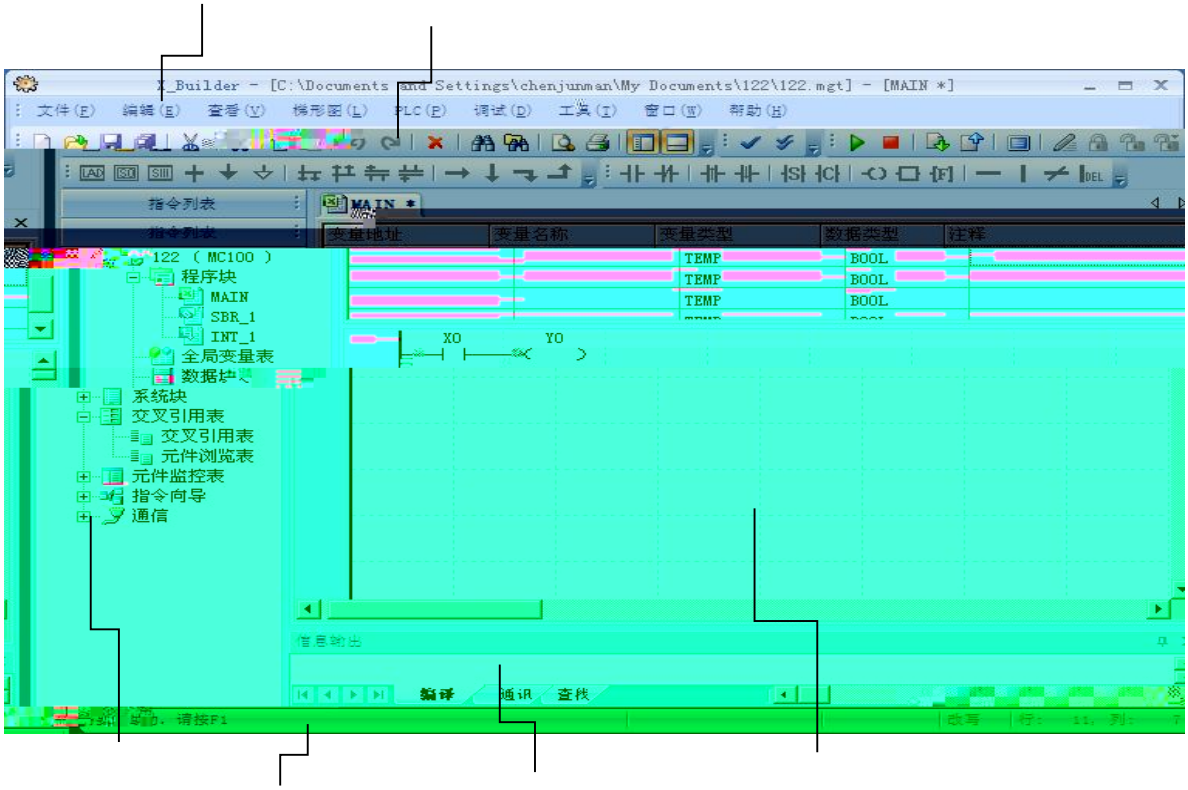
1.2.2 X_Builder

X_Builder

X_Builder

Windows X_Builder X_Builder

1.2.3 X_Builder



1-5 X_Builder

X_Builder X_Builder

1.2.4

PLC RS232 DB9
USB

1.3

MC MC MC100 MC200 MC280

1.3.1

1 MCA200-UDM01SL2 MCA200-UDM01



1-6

2 PLC PLC- -



1-7

3 X-builder PLC

4 PLC- - / /
PLC PLC



1-8

1.3.2

1 MCA200-UDM01SL1 MC PLC

2 UPLOAD ENT (WORK)

3 DOWNLOAD WORK

1.3.3

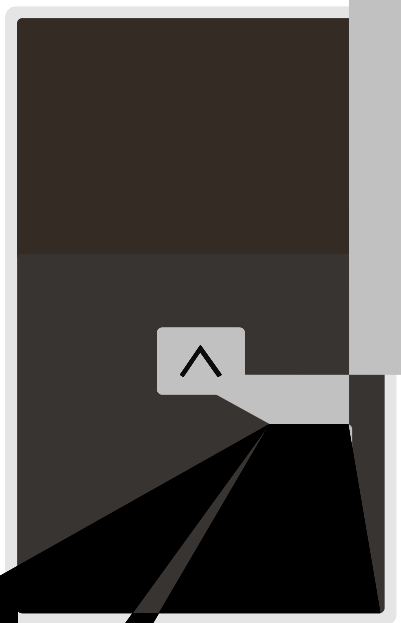
1

MON

2 PLC

3

ENT



1.4

MC100/200 PLC 2 PORT0 PORT1 MC280 PLC 3
PORT0 PORT1 PORT2 Profibus 485
3 Modbus MCbus

1.4.1 Modbus

PORT1 PORT2 RS485 PORT0 RS232/485 PLC
RS485 Modbus 1200 115200bit/s RTU
ASCII
PORT0 PORT1 RS232 PLC 1 1
Modbus *Modbus* *MC100* *MC200*

1.4.2 MCbus

MC100/MC280 PLC MCbus PORT1 PORT2 RS485 N:N
RS232/485 PORT0 MCbus
MCbus 2 32 PLC 115200bps
MCbus

1.4.3

ASCII
PLC
PLC RS232 RS485 RS485

1.5 MC PLC

MC PLC

1.5.1

MC80	
MC100	

MC200	
MC280	
MC100 (AC)	
MC100 (DC)	

1.5.2 IO

MC100	
MC200	

1.5.3

MC100	
MC200	

1.5.4

MC100	
MC200	

1.5.5

MC200	

MC PLC PLC

2.1 14
2.1.1 14
2.1.2 PLC 18
2.1.3 19
2.1.4 19
2.1.5 19
2.1.6 19
2.1.7 19
2.1.8 D 20
2.1.9 20
2.1.10 20
2.1.11 21
2.2 21
2.2.1 21
2.2.2 28
2.2.3 29
2.2.4 MC200 MC280 BFM 29
2.3 30
2.3.1 30
2.3.2 30
2.3.3 31
2.4 31
2.4.1 31
2.4.2 31
2.4.3 33
2.4.4 33
2.4.5 PLC 34
2.4.6 35
2.4.7 RAM 36

2.1

2.1.1

2-1 MC100

I/O	I/O	128
		I/O 4
		16k
		8000 D
		0.3 S/
		S S /
		32
		226
[7]		128 /128 X0 X177 Y0 Y177 [1]
		2048 M0 M2047
		64 LM0 LM63
		256 SM0 SM255
		1024 S0 S1023
		256 T0 T255 [2]
		256 C0 C259 [3]
		8000 D0 D7999
		64 V0 V63
		16 Z0 Z15
		256 SD0 SD255
		16 X0 X7
		6
		3
		8
	PTO	2
		1
		2 0 RS232 1 RS232 RS485
		Modbus MCbus 1 N N:N
		X0 X1 50kHz X0 X5 80kHz
		X2 X5 10kHz
		Y0 Y1 100kHz
		X0 X7 X0-X3 X4-X7
	[4]	2
		64 6 16
		3 8
		16
	[5]	X_Builder [6] IBM PC
		100 2

2-2 MC80

I/O	I/O	60	
		6k	
		4000 D	
		0.3 S/	
		S S /	
		32	
		200	
[7]		128 /128 X0 X177 Y0 Y177 [1]	
		1024 M0 M1023	
		64 LM0 LM63	
		256 SM0 SM255	
		1024 S0 S1023	
		256 T0 T255 [2]	
		256 C0 C255 [3]	
		4000 D0 D3999	
		64 V0 V63	
		16 Z0 Z15	
		256 SD0 SD255	
		16 X0 X7	
		6	
		3	
		4	
	PTO	2	
		1	
		1 0 RS232	
		Modbus	
		X0 X1	50kHz X0 X5 80kHz
		X2 X5	10kHz
		Y0 Y1	50kHz
		X0 X7	
	[4]	2	
		64 6 16	
			3 8
			16
	[5]	X_Builder [6]	IBM PC

2-3 MC200

I/O	I/O	512 256 /256	
		8 8	
		12k	
		8000 D	
		0.09 S /	
		S 280 S /	
		32	
		221	
[7]		256 /256 X0 X377 Y0 Y377 [1]	
		2000 M0 M1999	
		64 LM0 LM63	
		256 SM0 SM255	
		992 S0 S991	
		256 T0 T255 [2]	
		256 C0 C255 [3]	
		8000 D0 D7999	
		64 V0 V63	
		16 Z0 Z15	
		256 SD0 SD255	
		16 X0 X7 /	
		6	
		3	
		3	
		12	
	PTO	2	
		2 0 RS232 1 RS232 RS485 2 485 RS422 RS485	
		Modbus 1 N	
		X0 X1	50kHz X0 X5 80kHz
		X2 X5	10kHz
		Y0 Y1	100kHz
		X0 X17	
	[4]	2	
		64 6 16	
			3 8
	[5]	X_Builder [6]	IBM PC
		PDA	

2-4 MC280

I/O	512 256

I/O

(2) 10ms T210 T

2.1.3

X_Builder

2.1.4

X_Builder

0

2.1.5

MC200 EEPROM

RAM

MC100 FLASH

MC280 FLASH EEPROM

RAM

1 30

2 MC200 MC280 PLC

2.1.6

PLC STOP RUN EEPROM

2-5 PLC

	OFF→ON	STOP→RUN
EEPROM		
ò ò		
ò ò		

2.1.7

2-2

MC100

MC200 MC280

MC200

M100 M200

M300 M400

M100 M200 M300 M400



2-2

1 MC200 MC280 PLC PLC

2 MC100 PLC

2.1.8 D

MC100 EROMWR D D6000 D6999 EEPROM

2 5ms

EEPROM 100

EEPROM CPU

2.1.9

MC200 X0 X17 MC100 MC280 X0 X17

2.1.10

MC200 MC280

MC100 PLC

2.1.11

MC100 MC200 MC280 PLC

2-6

	PLC PLC

5 MC PLC 5

2.2

2.2.1

PLC PLC PLC

-
-
-
-
-
-
-
-
-
-

MC100 MC200 MC280 PLC SRAM

2-3



2-3

PLC

D M S T C

MC200 MC280

MC100

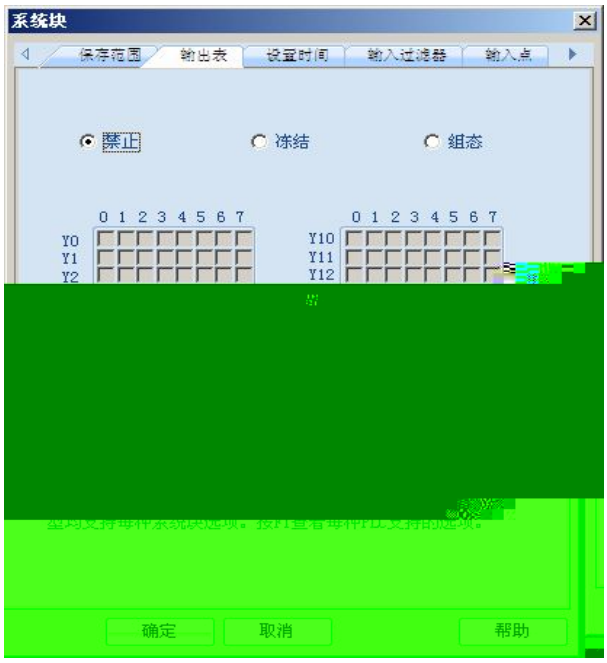
MC100 PLC T

PLC

PLC SRAM SRAM SRAM

SRAM PLC SRAM

PLC 2-4



2-4

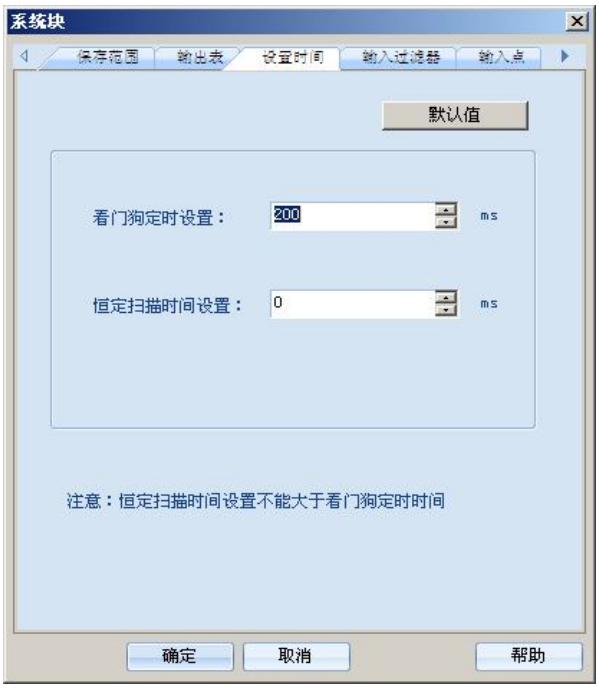
CPU

(1) PLC PLC

(2) PLC

(3) PLC 0

2-5



2-5

1.

PLC 0ms
1000ms 200ms

2.

0ms 1000ms 0ms

3. MC200 MC280
PLC
0ms 100ms 0ms

PLC
X0 X17 MC100 MC280 X0 X17
MC100 X0 X3 X4 X7 0 2 4 8 16 32 64
MC280 X0 X3 X4 X7 0 60ms MC200
0 60ms MC100 2-6



2-6

2-7

1

X0 X17 PLC RUN STOP

ON



2-7

2



2-8

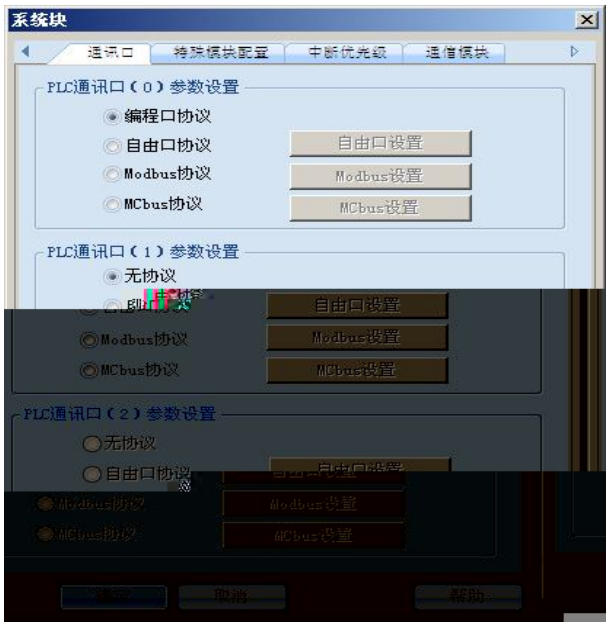
1. : PLC STOP RUN D

2. : STOP RUN

2.1.6

3.

PLC 2 3 2-9



2-9

0 1 2 0 1
2

1.

0 MC PLC
X_Builder 0 TM 0

2.

ASCII PLC
RUN

3. Modbus

Modbus Modbus

0 1 2

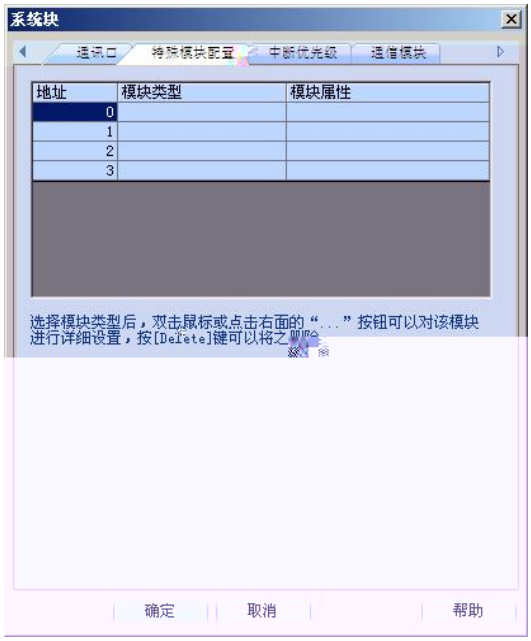
4. MCbus

MCbus PLC N : N MCbus PLC D M

0 1 2 MCbus

Modbus MCbus

MC200 2-10



2-10

1.

0 3

2.



2-11

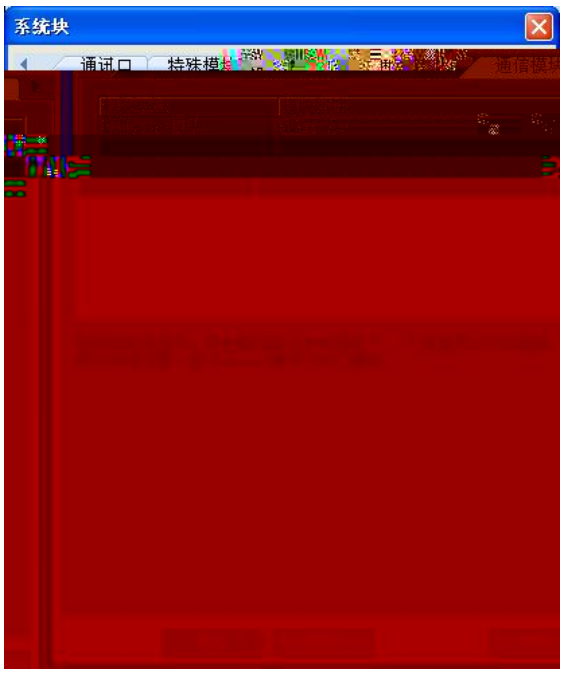
2-12

PLC

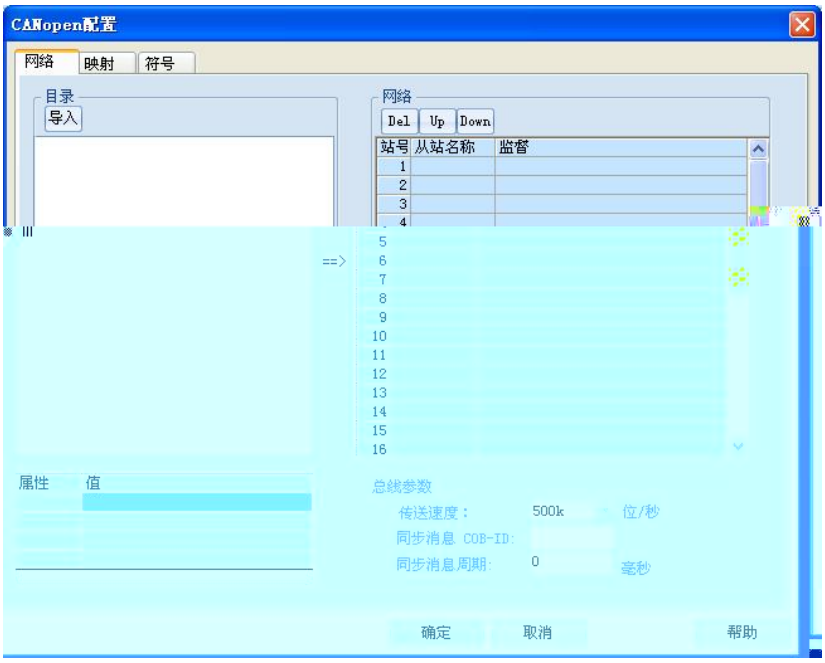


2-12

MC200



2-13



2-14 CANOPEN

2.2.2

D PLC PLC PLC

D

D D

MC280 D R

X_Builder

2.2.3

PLC

A Z a z 0 9
8

MC280/100/80 PLC 1000/500/140

2-15



2-15

2.2.4 MC200 MC280 BFM

MC200 MC280 PLC

MC200 MC280

MC200 MC280 BFM

TO MC200 BFM MC200

FROM MC200 BFM

MC200 MC280

MC200 MC280 BFM

TO MC200 BFM

SD3 SM3

SD3

ERR

M20 SD20



2-19 PLC

SD3 SD20

2.4.3

PLC

PLC PLC

PLC PLC

1 /

2 PLC

2.4.4

PLC PLC PLC

PLC

PLC

PLC PLC PLC

PLC PLC

PLC

PLC PLC PLC

PLC PLC

PLC

PLC PLC PLC

PLC PLC D

PLC

PLC PLC PLC

PLC

2.4.5 PLC

PLC

PLC PLC PLC

PLC 2-20



2-20 PLC

PLC

PLC PLC PLC 2-21



2-21 PLC

PLC

PLC

2.4.6

PLC

PLC

2-22



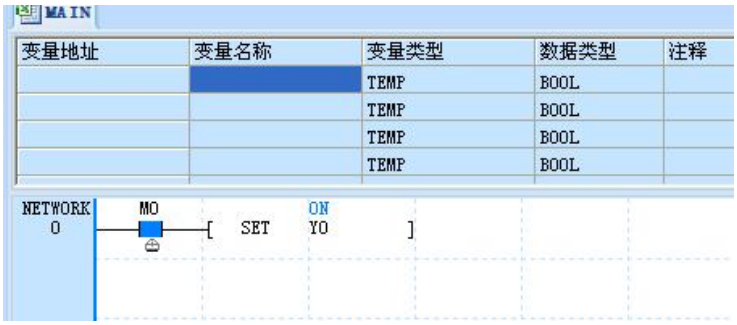
2-22

2-23



2-23

2-24



2-24

PLC 2-25

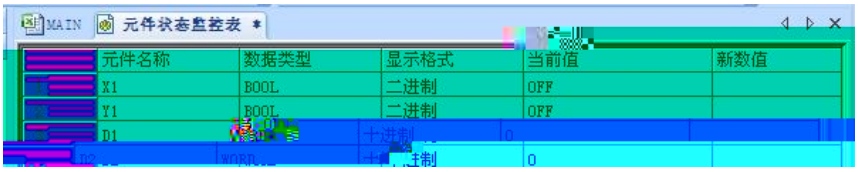


2-25

PLC

/

2-26

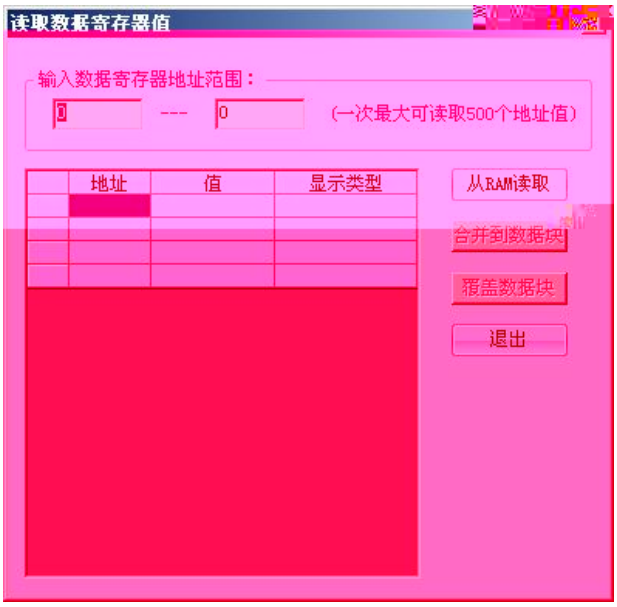


2-26

2.4.7 RAM

PLC D

RAM 2-27



2-27 RAM

16 10 8 2

MC PLC

3.1 39
3.1.1 39
3.1.2 40
3.1.3 41
3.1.4 41
3.1.5 42
3.1.6 42
3.1.7 43
3.1.8 43
3.1.9 44
3.1.10 44
3.1.11 45
3.1.12 45
3.1.13 45
3.2 46
3.2.1 Kn 46
3.2.2 Z 46
3.2.3 47
3.2.4 D R V 32 47
3.3 .....Ŏ× ϟ

β ν ĩ ..... ‹ & Ŏ c ѫ 6 Ơ ý × ĩ

3.1

3.1.1

PLC

3.1.2

MC PLC

MC PLC

3-1 MC PLC

		MC100	MC200	MC280	
		128 /128 X0 X177 Y0 Y177 [1]	256 /256 X0 X377 Y0 Y377 [1]	256 /256 X0 X377 Y0 Y377 [1]	8
		2048 M0 M2047	2000 M0 M1999	10240 M0 M10239	10
	5	64 LM0 LM63	64 LM0 LM63	64 LM0 LM63	10
		256 SM0 SM255	256 SM0 SM255	512 SM0 SM511	10
[4]		1024 S0 S1023	992 S0 S991	4096 S0 S4095	10
		256 T0 T255 [2]	256 T0 T255 [2]	512 T0 T511 [2]	10
		256 C0 C255 [3]	256 C0 C255 [3]	266 C0 C306 [3]	10
		8000 D0 D7999	8000 D0 D7999	8000 D0 D7999	10
	R			32768 R0 R32767	10
	5	64 V0 V63	64 V0 V63	64 V0 V63	10
		16 Z0 Z15	16 Z0 Z15	16 Z0 Z15	10
		256 SD0 SD255	256 SD0 SD255	512 SD0 SD511	10

1 X Y 8 X10 8
PLC

2 T

(MC80/ MC100/ MC200)

- 100ms T0 T209
- 10ms T210 T251
- 1ms T252 T255

(MC280)

- 100ms T0 T209
- 10ms T210 T479
- 1ms T480 T511

3 3 C

- 16 C0 C199
- 32 C200 C235
- 32 C236 C255

(MC280)

- 16 C0 C199
- 32 C200 C235
- 32 C236 C259 C301-C306 C260-C300

4 PLC

5 2

3.1.3

- X
- Y ( )

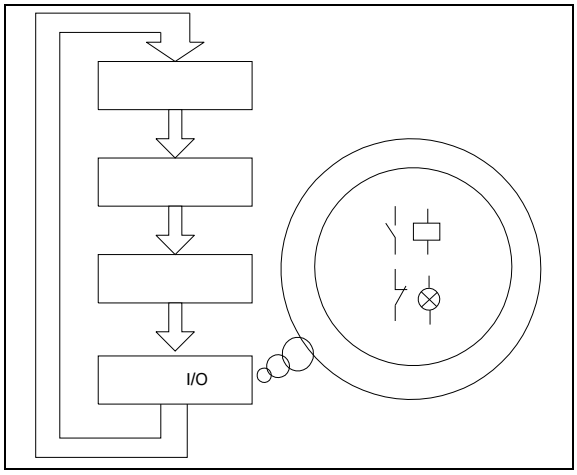
X Y

X Y

PLC I/O

3-2 *2.1.2 PLC*

PLC I/O



3-2 I/O

X X0 X17

X

X0 X5 X0

X7 SPD

Y Y0 Y1

0 I/O X

Y X

X0 X7 X10 X17 X20 X27 Y

Y0 Y7 Y10 Y17 Y20 Y27

X Y ON OFF

X

a b

Y

1 X

2 Y

3 STOP Y

3.1.4

: M

1 2

0

ON OFF

	M	M
RUN Ÿ STOP		
STOP Ÿ RUN		
		2.2.1

MCbus M

3.1.5

S

S0 S19

0

ON OFF

1 STL

2 STL

M S

1 2

	S	S
RUN Ÿ STOP		
STOP Ÿ RUN		
		2.2.1

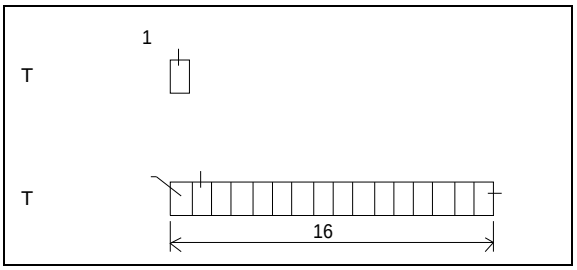
3.1.6

T

T 2

T 16

T



3-3 T

T 3

T

T	
T0 T209	
T210 T251	
T252 T255	

1ms T PLC

10ms 100ms T

PLC

0

ON OFF

T

4

4

1 2

	T MC200	T
RUN Ÿ STOP		
STOP Ÿ RUN		
		2.2.1

T 32767 32768 32767

T

3.1.7

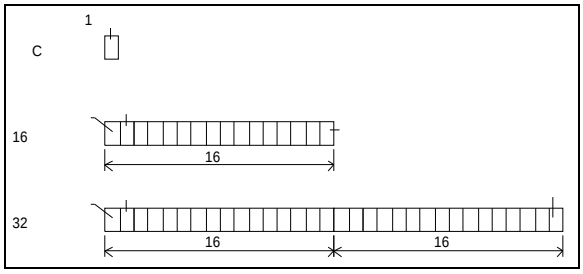
: C

C

2 4 C

16 32 C

C C



3-4 C

16 32

0

ON OFF

C 4 16

16 32 I/O

4

C

C		
C0 C199	16	16 16
C200 C235	32	32
C236 C259	32	I/O

3.1.9

SM

SM PLC SM
PLC SM

- SM0 RUN ON
- SM1

3.1.11

:Z

16

3.2.2 *Z* Z Z

0

1 2

3.1.12

LM 0

LM LM ON OFF

LM

LM

LM

1 2

4.4

3.1.13

V 0

V V ON OFF

V .

V

V

1 2

V

4.4

3.2

3.2.1 Kn

Kn

K n U n 1 8 n 4 U

1 K1X0 4 X0 X1 X2 X3
2 K3Y0 12 Y0 Y01 Y02 Y03 Y04 Y05 Y06 Y07 Y10 Y11 Y12 Y13

3 K4M0 16 M0 M1 M2 M3 é M15
4 K8M0 32 M0 M1 M2 M3 é M31

Kn

Kn

MOV 2#10001001 K2M0 MOV 16#89 K2M0 MOV 137 K2M0 K2M0

K2M0	M7	M6	M5	M4	M3	M2	M1	M0
16#89	1	0	0	0	1	0	0	1

Kn Kn

DBITS 16# FFFFFFF0 K1M0

2 K1M0 16 1c 28 K1M0 4

16 1c 2 K1M0=16 c 12

3.2.2 Z

MC200/ MC280 PLC Z Z

Z

= Z

D0Z0 Z0=3 D0 Z0 3

D3

Z0=3 MOV 45 D0Z0 MOV 45 D3 D3

45

1

LD M01

MOV 6 Z1

SFTR X0Z1 M0 8 2

LD M0 1
SFTR X6 M0 8 2

Z1=6
X0Z1 = X 0 Z1 = X6
2
LD M0 1

1 Z Z Z

MOV -30 Z20
MOV D100Z20 D0

MOV D70 D0
2 SM SD
3 Z Z D7999Z0 Z0=9 Z
D D7999

MOV 30 Z20
MOV D100Z20 D0

LD M0 1
MOV D130 D0

Z20=30
D100 Z20 = D 100 Z20 = D130

3.2.3

K1X0Z10
Z
Kn

LD M1
MOV 3 Z10

MOV K1X0Z10 D0

LD M1
MOV K1X3 D0

Z10=3
K1X0Z10=K1X 0 Z10 =K1X3

3.2.4 D R V

1 INT

Bit15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

2 DINT

D(R)		15														
	Bit15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
D+1 (R+1)	16															
	Bit15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

3 WORD

Bit15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

4 DWORD

D(R)	16															
	Bit15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
D+1 (R+1)	16															
	Bit15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

32 D R V

DINT DWORD REAL 32 D R V 16
D R V 32

MC200 PLC Big Endian 32 32
32

16# FEA8_67DA D0 D1

D0	0xFEA8
D1	0x 67DA

D R V 32

D V 16 INT WORD 32 DINT DWORD

D R V 16 32

MOV 16#34 D0 D0 D0 MOV 2 WORD

DMOV 16# FEA867DA D0 D0 D0 D0 D1 DMOV
2 DWORD

3.3

3.3.1

0 9 10 9

MC PLC 0

1 2.

0+0=0 0+1=1 1+0=1,1+1=10( )

MC PLC 1bit,1byte,1word,2word

1Bit

0

1Byte 8Bit

0	0	0	0	0	0	0	0

1Word 16Bit

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

2Word 32Bit

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 9 A(10) B(11) C(12) D(13) E(14) F(15) PLC

8 16 32 8 16 32 2 4 8

0 7 8 7

100 101 102 é é é é é é

20 21 22 é é é é é é

160 161 162 é é é é é é

80 81 82 é é é é é é

-

8Bit 11100011

1 27+1 26+1 25+0 24+0 23+0 22+1 21+1 20 = 227

-

32 AC2F

A 163+C 162+2 161+F 160 = 44079

PLC MC

D 32bit C

16bit D bit15 D -32,768 32,767 32bit

2 D bit31 D -2,147,483,648

2,147,483,647

0 1Word 7FFF 32767 2Word

7FFFFFFF 2,147,483,647

1 1

PLC

2 10

a m e a = m Ĭ b^e m d.ddd...dd b e 988436216

9.8844 108,

PLC

32bit

PLC

3.3.2

3-2

BOOL		1	ON OFF 1 0
INT		16	32768 32767
DINT		32	2147483648 2147483647
WORD		16	0 65535 16#0 16#FFFF
DWORD		32	0 4294967295 16#0 16#FFFFFFFF
REAL		32	1.175494E-38 3.402823E 38 [1]

X-builder

a. E-6 E6 X-builder

7 ñ ò -E6 -E-6

b. E-6 E+6 E6 -E-6 X-builder

7 6

ñ ò

3.3.3

3-3

BOOL										C	T			
	X	Y	M	S	LM	SM								
INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R
WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R

3.3.4

MC200 PLC

3-4

16	8949	32768 32767	
16	65326	0 65535	
32	2147483646	2147483648 2147483647	
32	4294967295	0 4294967295	
16	16#1FE9	16#0 16#FFFF	
32	16#FD1EAFE9	16#0 16#FFFFFFFF	
16	8#7173	8#0 8#177777	
32	8#71732	8#0 8#37777777777	
16	2#10111001	2#0 2#1111111111111111	
32	2#101110011111	2#0 2#1111111111111111 1111111111111111	
	3.1415E-16 3.1415E 3 0.016	1.175494E-38 3.402823E 38	IEEE-754 7

MC PLC

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4.1

LAD IL SFC

4.1.1 LAD

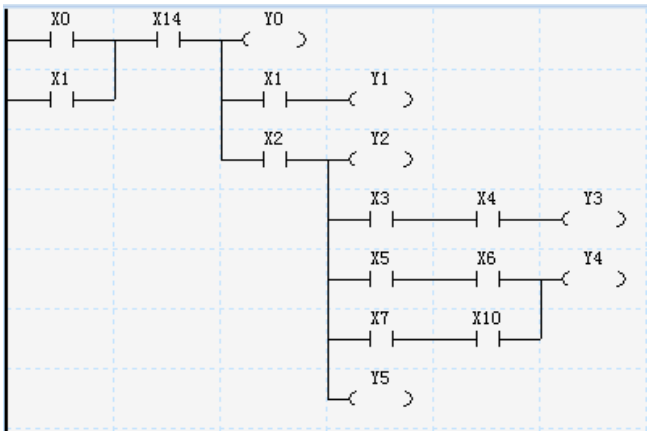
PLC PLC

1

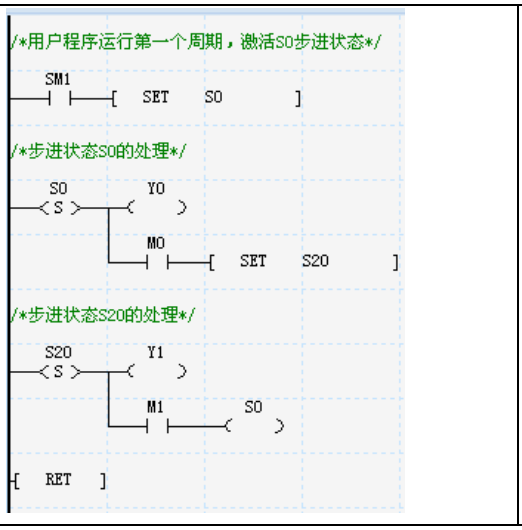
2

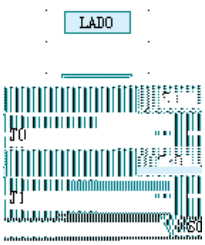
4.1.2 IL

PLC

	LD X0 OR X1 AND X14 MPS OUT Y0 AND X1 OUT Y1 MPP AND X2 MPS OUT Y2 AND X3 AND X4 OUT Y3 MRD LD X5 AND X6 LD X7 AND X10 ORB ANB OUT Y4 MPP OUT Y5

4.1.3 SFC





4-3

4.2

4.2.1

POU

MAIN

SBR

INT

4.2.2

2.2.1 X_Builder

4.2.3

D R D R D R

D R

4.3

4.3.1

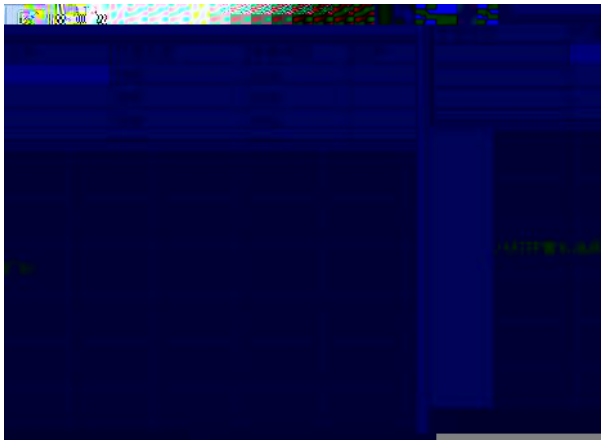


4-4



4-5

/* */



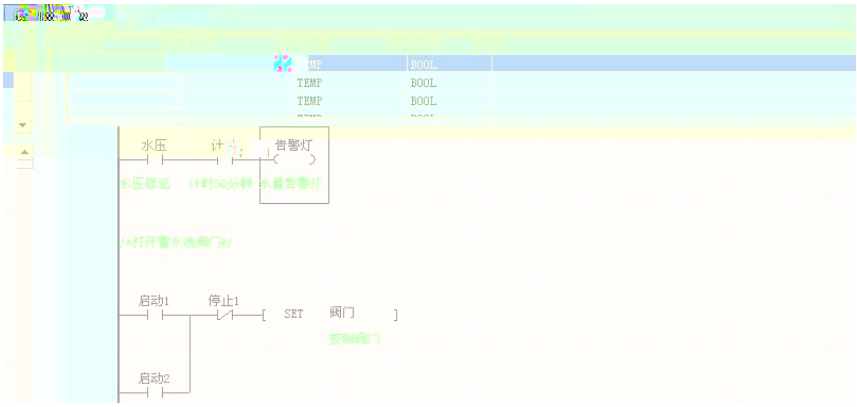
4-6

4.3.2

2.2.3 *4.4.3*


MAIN
全局变量表
变量名
变量地址
注释
1 水压 X0 水压标
2 计时 T0
3 启动1 M0
4 启动2 M1
5 停止1 M2
6 告警灯 Y0 水量告警灯
7 阀门 Y1

4-7



4-10

MC200 MC280 PLC

4.4

4.4.1

1

2

3

4.4.2

1 6

6

MAIN SBR1 SBR2 SBR3 SBR4 SBR5 SBR6

CALL

2

- MAIN SBR0 SBR0
- MAIN SBR0 SBR1 SBR0

3 64

4 16 16

5 CALL

6

4.4.3

1 Gy¾¼CP¹ºÂ»

LM V

2

3

IN OUT IN_OUT TEMP

- IN
- OUT
- IN_OUT
- TEMP

4

4-1 ¶

4-11 SBR_1



CALL SBR_1

LD M0
CALL SBR_1 3 2 D0

- IN1 3
- IN2 2
- OUT1 D0

4.5

4.5.1

- S 1 S_1 S_2 S_3
- D 1 D_1 D_2

4.5.2

SM180

SM181

SM182

4.5.3

SPD X0 X7

1

XMT 1 RCV

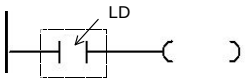
Modbus

MC PLC

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5.1

5.1.1 LD

															
LD															
S	BOOL	X	Y	M	S	LM	SM		Dx.y*		C	T			

MC200 MC100 MC80 MC280

1

* MC280

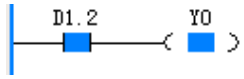
LD M0



OUT Y0

S

M0 ON Y0 ON



ON

OFF

LD D1.2

OUT Y0

D1 2 1 Y0 ON

MC100 M1536 M2047

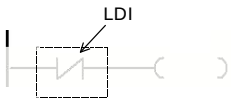
1

MC280 M1536 M10240

C256 C511 T256 T511 S0 S4096

1 Dx.y 4

5.1.2 LDI

															
LDI															
S	BOOL	X	Y	M	S	LM	SM		Dx.y*		C	T			

MC200 MC100 MC80 MC280

1

* MC280



LDI M0

OUT Y0

M0 OFF Y0 ON

OFF

ON

MC100 M1536 M2047

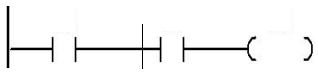
1

MC280 M1536 M10240

C256 C511 T256 T511 S0 S4096

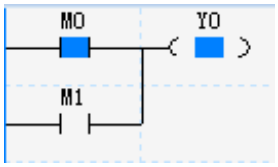
1 Dx.y 4

5.1.3 AND



S

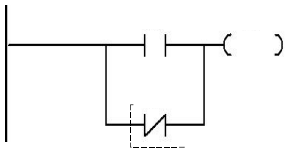
S ON/OFF




```
LD   M0
OR   M1
OUT  Y0
```

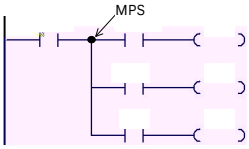
M0 M1 ON Y0 ON

5.1.6 ORI





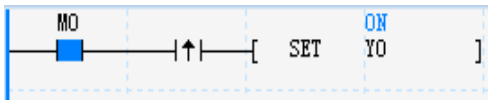
5.1.10 MPS

		**MC200 MC100 MC80 MC280**
		1

5.1.13 EU

		MC200 MC100 MC80 MC280
EU		
		2

OFF ON




```
LD    M0
EU
SET   Y0
```

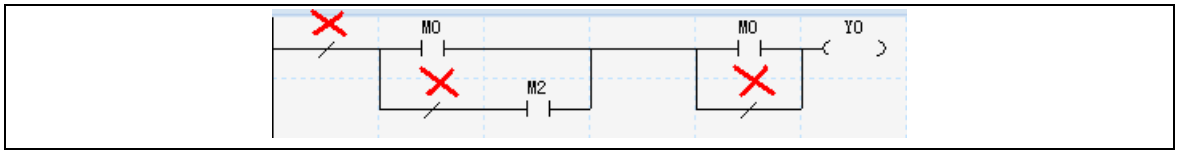
5.1.14 ED

		MC200 MC100 MC80 MC280
ED		
		2

ON OFF

INV

INV



5.1.16 SET

		MC200 MC100 MC80 MC280
SET (D)		
		1

S	BOOL		Y	M	S	LM	SM		Dx.y		C	T			

S




```
LD   M0
SET  M1
```

5.1.17 RST

		MC200 MC100 MC80 MC280
RST (D)		
RS		1

S	BOOL		Y	M	S	LM	SM		Dx.y		C	T			

S




```
LD   M0
RST  M1
```

D C

D T

5.1.18 NOP

		MC200 MC100 MC80 MC280
NOP		
		1

5.2

5.2.1 MC

[MC (S)]		MC200 MC100 MC80 MC280
		3

S	INT															

S

5.2.2 MCR

[MCR (S)]		MC200 MC100 MC80 MC280
		1

S	INT															

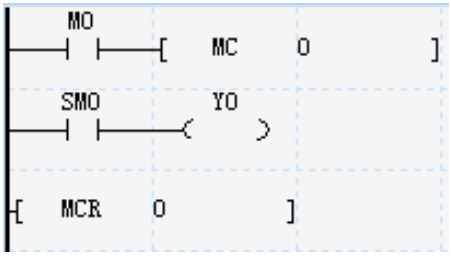
S

1 MC MCR MC-MCR MC
MC-MCR MC-MCR
0 7 MCR MC-MCR

2 MC MC-MCR

3 MC MC-MCR

OUT TON TOF PWM HCNT PLSY PLSR DHSCS SPD DHSCI DHSCR DHSZ DHST DHSP BOUT

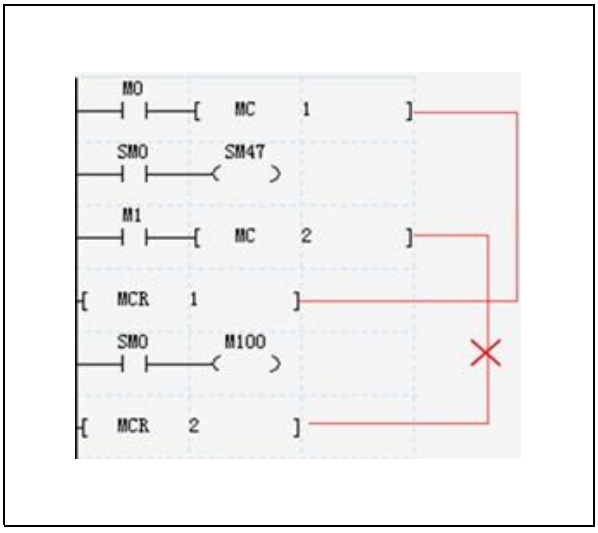



```
LD   M0
MC   0
LD   SM0
OUT  Y0
MCR  0
```

M0 ON MC 0 - MCR 0 Y0
ON M0 OFF MC 0 - MCR 0
OUT Y0
Y0 OFF

1 MCR
2 MCR
3 MC-MCR
7 MC-MCR

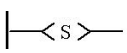
4 MC-MCR



SFC

5.3 SFC

5.3.1 STL SFC

		MC200 MC100 MC80 MC280
		3

S	BOOL	S	

D

5.3.5 RET SFC

		MC200 MC100 MC80 MC280
-[RET]		
RET		**1**

5.4

M

5.4.1 TON

													MC200 MC100 MC80 MC280			
D S													**5**			
D	INT											T				
S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	S

D

S

1 32,767 T

D

5.4.3 TOF

		MC200 MC100 MC80 MC280
TOF (D) (S)		

D

5.5

5.5.1 CTU 16

		MC200 MC100 MC80 MC280
D S		**5**

D	INT		

5.5.3 DCNT 32

		MC200 MC100 MC80 MC280
⊣⊢ [DCNT (D) (S)]		
D **S**		**7**

MC PLC

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6. ON 198
6. ON .....
RI ORI 202
OUT 202
SET 203
BRST 203
..... 204
.1 LD = < > <> >= <= LD 204
6.2 AND =ᵏ“ƺ ᵀᴹð<ᵀ$ ƺ= 9 ™ð Q@

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6.1

6.1.1 FOR

┤├─[FOR (S)]																
S																
S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	

MC200 MC100 MC80 MC280

3

S

6.1.2 NEXT

┤[NEXT]																

MC200 MC100 MC80 MC280

1

1 FOR NEXT FOR-NEXT

2 FOR

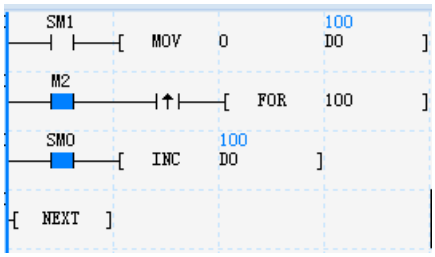
FOR-NEXT

FOR-NEXT

3 FOR

FOR-NEXT

FOR-NEXT



LD SM1
MOV 0 D0
LD M2
EU
FOR 100
LD SM0
INC D100
NEXT

D0=0 M2=OFF M2 OFF ON

FOR-NEXT 100 D0

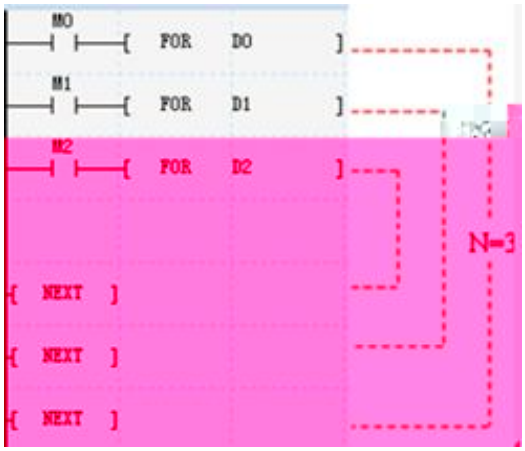
100 D0=100

1 FOR-NEXT POU

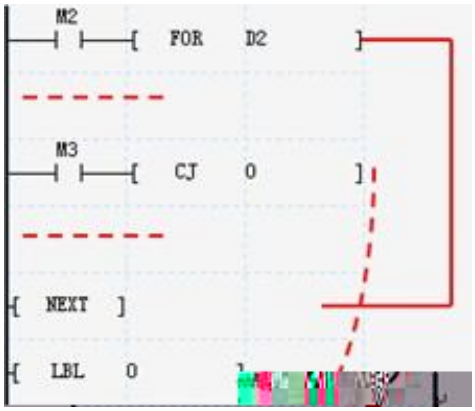
2 FOR-NEXT MC200 CPU

8 FOR-NEXT

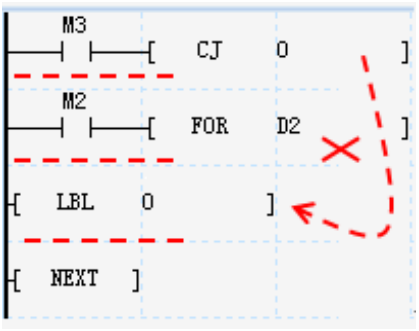
3 FOR-NEXT



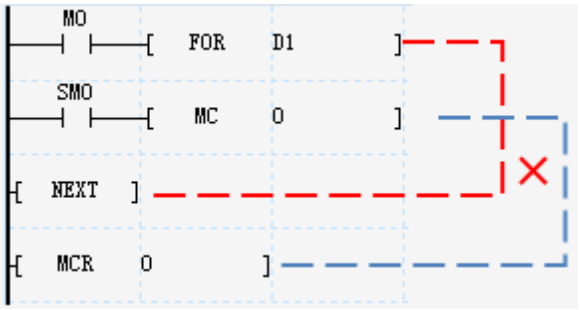
3 CJ



4 CJ



5 MC-MCR FOR-NEXT



FOR-NEXT

WDT

6.1.3 LBL

[LBL (S)]																MC200 MC100 MC80 MC280
S																**3**
S	INT															

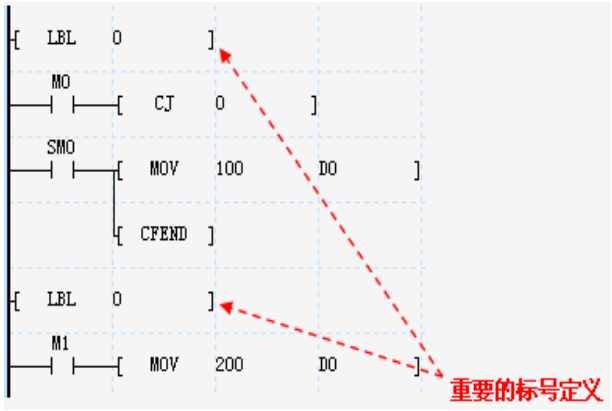
S

1 **S**

2 CJ

1 0 127

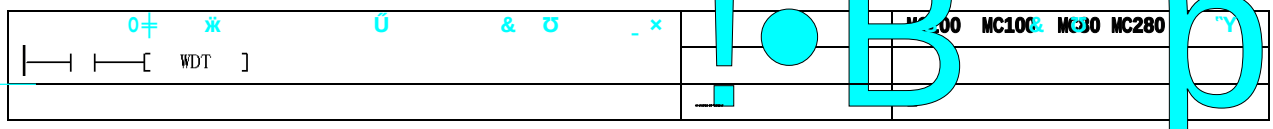
2



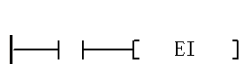
6.1.4 CJ

⊣⊢ ⊢[CJ (S)]																MC200 MC100 MC80 MC280
S																3
S	INT															

6.1.6 WDT



6.1.7 EI



6.1.11 CALL

		MC200 MC100 MC80 MC280
├─┤ ├─[CALL (子程序名)(参数1) (参数2) ...]		
1 2 é		

CALL

1 CALL CALL

2 CALL

SBR1 DINT/DWORD

- CALL SBR1 Z0 Z DINT/DWORD
- CALL SBR1 C199 C0 C199 DINT/DWORD
- CALL SBR1 K2X0 Kn 1 n 3 DINT/DWORD

SBR1 INT/WORD

- CALL SBR1 C200 C200 C255 INT/WORD
- CALL SBR1 K2X0 Kn 4 n 8 INT/WORD

3 CALL

SBR1 OUT IN_OUT

- CALL SBR1 321 OUT IN_OUT
- CALL SBR1 K4X0 K4X0 OUT IN_OUT
- CALL SBR1 SD0 SD0 OUT IN_OUT

4 CALL

6.1.12 CSRET

		MC200 MC100 MC80 MC280
├─┤ ├─[CSRET]		
CSRET		1

6.2

6.2.1 MOV

├─┤ ├─[MOV (S) (D)]																MC200 MC100 MC80 MC280
S D																5
S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	INT			KnY	KnM	KnS	KnLM		D	SD	C	T	V	Z	R	

S 1 MOV

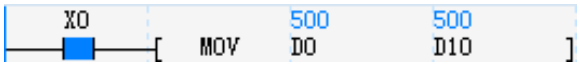
D 10

100 b

100 45535

S 2& C C0 C199

D S



LD X0
MOV D0 D10

X0=ON D0 D10 D10=500

6.2.2 DMOV

├─┤ ├─[DMOV (S) (D)]																MC200 MC100 MC80 MC280
S D																7
			KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD						

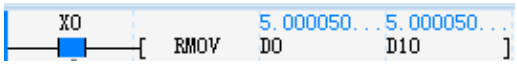
6.2.3 RMOV

RMOV (S) (D)		MC200 MC100 MC80 MC280
S D		7

S	REAL								D				V		R	
D	REAL								D				V		R	

S

D




```
LD   X0
RMOV D0  D10
```

X0=ON D0,D1 D10,D11 D10,D11 =5.000050

S

D S

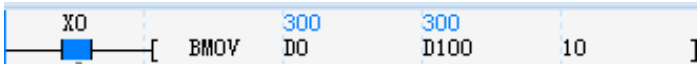
6.2.4 BMOV

BMOV (S1) (D) (S2)		MC200 MC100 MC80 MC280
S1 D S2		7

S1	INT		KnX	KnY	KnM	KnS	KnLM		D	SD	C	T	V		R	
D	INT			KnY	KnM	KnS	KnLM		D		C	T	V		R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	

S

D



S2

```
LD   X0
BMOV D0
D100 10
```

S1

S2 ***D*** X0=ON D0 10 D100 10

S2 ***S1*** D100=D0 D101=D1 …… D109=D9

S2

6.2.5 FMOV

														MC200 MC100 MC80 MC280		
S1 D S2														7		
S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	INT			KnY	KnM	KnS	KnLM		D		C	T	V		R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	

S1 1 ***S1*** ***D*** ***S2*** C C0 C199

2 ***S2*** 0

D 3 ***S1*** ***D*** Kn Kn

S2



LD X0
FMOV D0 D100
10

S1

D ***S2*** X0=ON D0 D100 10 D100=D101=

S1 =D109=D0=300

6.2.6 DFMOV

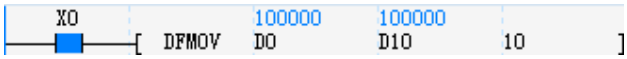
														MC200 MC100 MC80 MC280		
S1 D S2														9		
S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D	DINT			KnY	KnM	KnS	KnLM		D		C		V		R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	

S1 1 ***S1*** ***D*** ***S2*** C C200 C255

D 2 ***S2*** 0

3 ***S1*** ***D*** Kn Kn

S2



LD X0
DFMOV D0 D10
10

S1

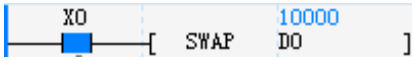
D ***S2***

S1 X0=ON D0,D1 D10 10 2 D10,D11 =
D12,D13 = = D28,D29 = D0,D1 =100000

6.2.7 SWAP

SWAP (D)		MC200 MC100 MC80 MC280
D		**3**

D	INT			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R	




```
LD   X0
SWAP D0
```

X0=ON D0=0x1027 4135 D0 D0=0x2710

D 10000

D

6.2.8 XCH

XCH (D1) (D2)		MC200 MC100 MC80 MC280
D1 ***D2***		**5**

D1	INT			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R	
D2	INT			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R	

MC PLC

D1 1

D2 2

D1

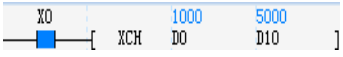
D2

D1 ***D2***

Kn *D1*

D2 Kn .

1



X0=ON D0 D10

D0=5000

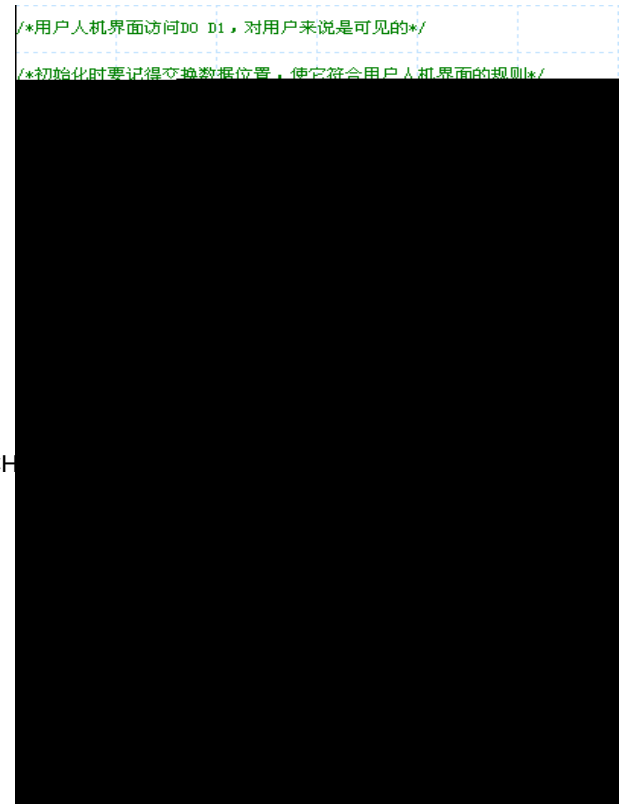
D10=1000

D0=1000 D10=5000

2

LD

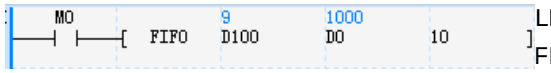
XCH



6.2.9 DXCH

6.2.11 FIFO

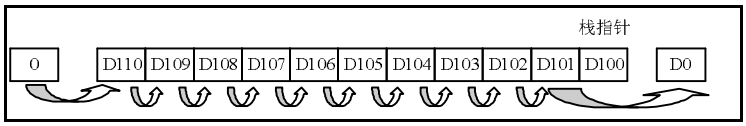
													MC200 MC100 MC80 MC280		
D1 D2 S													7		
D1	INT								D				V		R
D2	INT			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R
S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R



LD M0
FIFO D100 D0
10

1 ***D1***
D1 ***D2***
D1 1 ***D1*** ***S***
0

2 ***D1*** 0
SM180 1



1 M0=ON D101 D0 D101 D110
D110 0

2 D0=0 D100=10 D101=1000 D102=2000
D109=9000 D110=10000

3 D0=1000 D100=9 D101=2000 D102=3000
D109=10000 D110=0

1

2 ***D1***

3 ***S*** 0

6.2.12 LIFO

LIFO (D1) (D2) (S)		MC200 MC100 MC80 MC280
D1 D2 S		**7**

D1	INT								D				V		R	
D2	INT			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R	
S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	

1

S

1 ***D1***

D2 ***D1*** 1

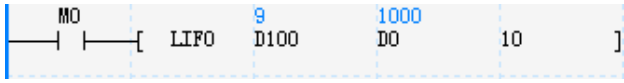
2 ***D1*** 0 SM180

1

1

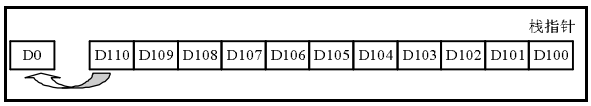
2 ***D1***

3 ***S*** 0



LD M0

LIFO D100 D0 10



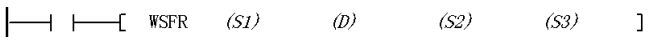
1 M0=ON D110 D0 D101 D110

2 D0=0 D100=10 D101=1000 D102=2000 D109=9000 D110=10000

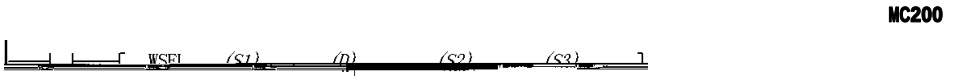
3 D0=10000 D100=9 D101=1000 D102=2000 D109=9000 D110=10000

6.2.13 WSFR

MC200 MC100 MC80 MC280



6.2.14 WSFL



6.3

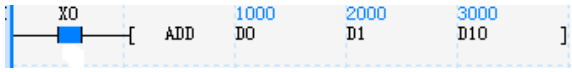
6.3.1 ADD

ADD (S1) (S2) (D)																MC200 MC100 MC80 MC280
S1 D																7
S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	INT			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R	

S1 1

S2 2

D



LD X0

ADD D0 D1 D10

X0=ON D0 1000 Å D1 2000 Å

D10=3000 Ä

1 ***S1*** ***S2*** ***D***

2 ***D*** 32767

SM181 ÄÄ 0 SM182

F 1Ç5 Ì ? ¾É 32768

6.3.2 SUB

SUB (S1) (S2) (D)																MC200 MC100 MC80 MC280
S1 D																7
S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	INT			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R	

6.3.3 MUL

		MC200 MC100 MC80 MC280
[MUL (S1) (S2) (D)]		
S1 ***S2*** ***D***		**8**

S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	DINT			KnY	KnM	KnS	KnLM		D		C		V		R	

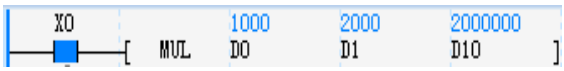
S1 1

S2 2

D

S1 ***S2*** ***D***

MUL 32



LD X0

MUL D0 D1 D10

X0=ON D0 1000 D1 2000

D10,D11 D10,D11 =2000000

6.3.4 DIV

		MC200 MC100 MC80 MC280
[DIV (S1) (S2) (D)]		
S1 ***S2*** ***D***		**7**

S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	INT			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R	

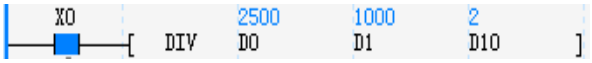
S1 1

S2 2

D

S1 ***S2*** ***D*** D

S2 0 0



LD X0

DIV D0 D1 D10

X0=ON D0 2500 D1 1000

D10,D11 D10=2 D11=500

6.3.5 SQT

SQT (S) (D)	
S **D**	

S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	
D	INT			KnY	KnM	KnS	KnLM		D		

S

D

1 ***S***

D

2 ***D*** 0

SM180

SM182

S 0



X0=ON

6.3.6 INC

INC (D)		MC200 MC100 MC80 MC280
D		**3**

D	INT		KnY	KnM	KnS	KnLM	D	C	T	V	Z	R

6.3.7 DMC

DEC (D)																MC200 MC100 MC80 MC280	
D																3	
D	INT			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R		

D -32768 32767

D 1



LD X0
DMC D0

X0=ON D0 1000 1 D0=999

6.3.8 VABS

VABS (S) (D)																MC200 MC100 MC80 MC280	
S D																5	
S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R		
D	INT			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R		

S ***S*** -32767 32767 ***S*** -32768

D

S

D



LD X0
VABS D0 D10

X0=ON D0 -1000 D10 D10=1000

6.3.9 NEG

NEG (S) (D)																MC200 MC100 MC80 MC280	
S D																5	
S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R		
D	INT			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R		

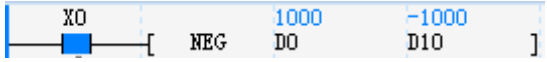
S ***S*** -32767 32767 ***S*** -32768

D

LD X0
NEG D0 D10

S

D



X0=ON D0 1000 D10 D10=-1000

6.3.10 DADD

DADD (S1) (S2) (D)																MC200 MC100 MC80 MC280
S1 S2 D																10
S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D	DINT			KnY	KnM	KnS	KnLM		D		C		V		R	

S1 1

S2 2

D

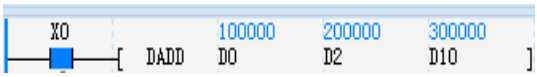
1 ***S1*** ***S2*** ***D***

2 ***D*** 2147483647

SM181 0

SM180 2147483648

SM182



LD X0

DADD D0 D2 D10

X0=ON D0,D1 100000 D2,D3

200000 D10,D11 D10,D11

=300000

6.3.11 DSUB

DSUB (S1) (S2) (D)																MC200 MC100 MC80 MC280
S1 S2 D																10
S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D	DINT			KnY	KnM	KnS	KnLM		D		C		V		R	

S1 1

S2 2

D

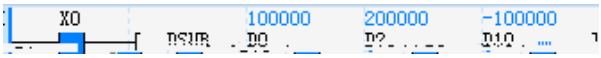
1 ***S1*** ***S2*** ***D***

2 ***D*** 2147483647

SM181 0

SM180 2147483648

SM182



LD X0

DSUB D0 D2 D10

X0=ON D0,D1 100000 D2,D3

200000 D10,D11 D10,D11

100000

6.3.12 DMUL

DMUL (S1) (S2) (D)		MC200 MC100 MC80 MC280
S1 S2 D		**10**

S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D							

6.3.14 DSQT

├─┤ ├─[DSQT (S) (D)]																MC200 MC100 MC80 MC280
S **D**																**7**
S	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D	DINT			KnY	KnM	KnS	KnLM		D		C		V		R	

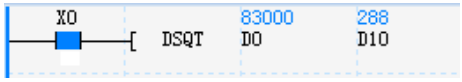
S

D

S 0

1 ***S*** ***D***

2 ***D*** 0 SM180




```
LD   X0
DSQT D0  D10
```

X0=ON D0,D1 83000 D10,D11 D10,D11 =288

SM182

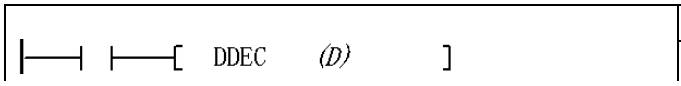
6.3.15 DINC

├─┤ ├─[DINC (D)]																MC200 MC100 MC80 MC280
D																**4**

D

D

6.3.16 DDMC



	MC200 MC100 MC80 MC280

6.3.18 DNEG

DNEG (S) (D)		MC200 MC100 MC80 MC280
S D		7

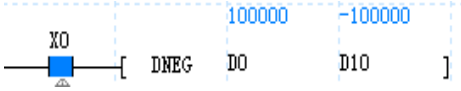
S	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D	DINT			KnY	KnM	KnS	KnLM		D		C		V		R	

S ***S*** 2147483647 2147483647 ***S*** 2147483648

D

S

D




```
LD   X0
DNEG D0  D10
```

X0=ON

6.3.20 DSUM

DSUM (S1) (S2) (D)															
S1 S2 D															
S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	DINT			KnY	KnM	KnS	KnLM		D		C		V		R	

MC200 MC100 MC80 MC280

9

S1

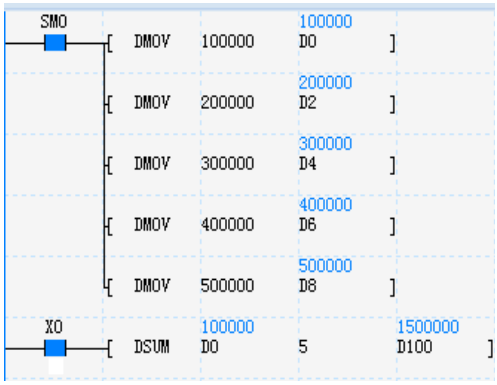
S2

D

S1 ***S2*** 2

D

0 ***S2*** 255




```
LD   SM0
DMOV 100000 D0
DMOV 200000 D2
DMOV 300000 D4
DMOV 400000 D6
DMOV 500000 D8
LD   X0
DSUM D0 5 D100
```

X0=ON D0 5 2
D100,D101
D100,D101 = D0,D1 D8,D9 =1500000

6.4

6.4.1 RADD

RADD (S1) (S2) (D)															
S1 S2 D															
S1	REAL								D				V		R	
S2	REAL								D				V		R	
D	REAL								D				V		R	

MC200 MC100 MC280

10

SM181 0 SM180

S1 1

S2 2

D

1 ***S1*** ***S2***

D

2 ***D***

1.701412e 038

1.701412e 038




```
LD   X0
RADD D0 D2 D10
```

X0=ON D0,D1 -1000.20 D2,D3 2000.500
D10,D11 D10,D11 =-1000.300

6.4.2 RSUB

⊢⊣ ⊢[RSUB (S1) (S2) (D)]		MC200 MC100 MC280
S1 S2 D		10

S1	REAL								D				V		R	
S2	REAL								D				V		R	
D	REAL								D				V		R	

S1 1

S2 2

D

1

6.4.4 RDIV

6.4.6 RVABS

RVABS (S) (D)		MC200 MC100 MC280
S D		7

S	REAL								D				V		R	
D	REAL								D				V		R	

S

D



S ***D***

LD X0

RVABS D0 D10

X0=ON D0,D1 -10000.2

D10,D11 D10,D11 =10000.2

6.4.7 RNEG

RNEG (S) (D)		MC200 MC100 MC280
S D		7

S	REAL								D				V		R	
D	REAL								D				V		R	

S

D



S ***D***

LD X0

RNEG D0 D10

X0=ON D0,D1 =10000.2

D10,D11 D10,D11 =-10000.2

6.4.8 SIN SIN

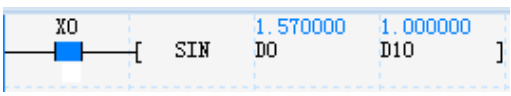
SIN (S) (D)		MC200 MC100 MC280
S D		7

S	REAL								D				V		R	
D	REAL								D				V		R	

2 ***D*** 0 SM180

S

D



1 ***S*** SIN

D

LD X0

SIN D0 D10

X0=ON D0,D1 =1.57 SIN D10,D11 D10,D11 =1

6.4.9 COS COS

COS (S) (D)																MC200 MC100 MC280
S D																7
S	REAL								D				V		R	
D	REAL								D				V		R	

S

D



LD X0
COS D0 D10

X0=ON D0,D1 =3.14 COS D10,D11 D10,D11 = -1.00000

1 ***S***

COS

D

2 ***D*** 0

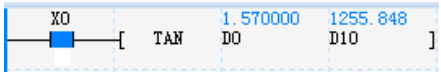
SM180

6.4.10 TAN TAN

TAN (S) (D)																MC200 MC100 MC280
S D																7
S	REAL								D				V		R	
D	REAL								D				V		R	

S

D



LD X0
TAN D0 D10

X0=ON D0,D1 =1.57 TAN D10,D11 D10,D11 =1255.848398

1 ***S***

TAN

D

2 ***D***

1.701412e 038

-1.701412e 038

SM181

0 SM180

6.4.11 POWER

⊣⊢ ⊢[POWER (S1) (S2) (D)]																MC200 MC100 MC280		
		S1		***S2***		***D***										**10**		
S1	REAL								D					V		R		
S2	REAL								D					V		R		
D	REAL								D					V		R		

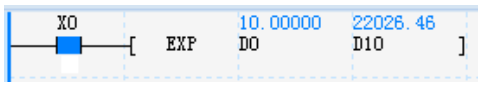
6.4.13 EXP

EXP (S) (D)		MC200 MC100 MC280
S D		7

S	REAL								D				V		R	
D	REAL								D				V		R	

S

D




```
LD   X0
EXP  D0  D10
```

X0=ON D0,D1 =10.0 EXP D10,D11 D10,D11 =22026.464844

1 ***S*** EXP

D

2 ***D***

1.701412e 038

1.701412e 038

SM181

0 SM180

6.4.14 RSUM

RSUM (S1) (S2) (D)		MC200 MC100 MC280
S1 S2 D		9

S1	REAL								D				V		R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D				V		R	
D	REAL								D				V		R	

S1

S2

D

S1 ***S2*** 2

D

1 0 ***S2*** 255

6.4.15 ASIN

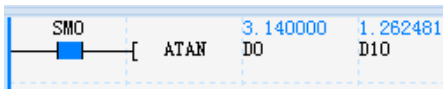
6.4.17 ATAN ATAN

ACOS (S) (D)													MC280	
ATAN (S) (D)													7	
S	REAL								D				V	R
D	REAL								D				V	R

2 ***D*** 0 SM180

S

D



LD SM0
ATAN D0 D10

1 ***S***
TAN-1 ***D***

SM0=ON (D0 D1) 3.14 TAN-1 (D10 D11) (D10 D11)=1.262481

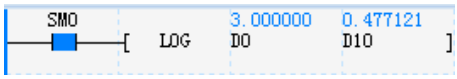
6.4.18 LOG

LOG (S) (D)													MC280	
LOG (S) (D)													7	
S	REAL								D				V	R
D	REAL								D				V	R

2 ***D*** SM181
0 SM180

S

D



LD SM0
LOG D0 D10

1 ***S*** LOG
D LOG 10

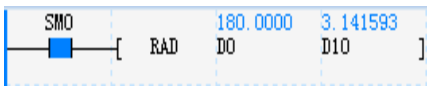
SM0=ON D0(D1) 3.0 D10(D11) D10(D11)=0.477121

6.4.19 RAD ->

RAD (S) (D)													MC280	
RAD (S) (D)													7	
S	REAL								D				V	R
D	REAL								D				V	R

S 1 ***S*** ***D***

D 2 0 SM180



LD SM0
RAD D0 D10

SM0=ON & D0(D1) Ä 180.0 Æ D10(D11) D10(D11)=3.141593

6.4.20 DEG ->

		**MC280**
DEG (*S*) (*D*)		**7**

S	REAL	D	

6.5

BOOL		1	ON OFF	1 LM
INT		16	-32768 +32767	1 V
DINT		32	-2147483648 +2147483647	2 V
WORD		16	0 65535	1 V
DWORD		32	0 4294967295	2 V
REAL		32	Ñ1.175494351 E - 38 ~ Ñ3.402823466 E + 38	2 V

BCD

-- BCD Binary Coded Decimal

BCD BCD 8421BCD

8421BCD

0	0000	0000
1	0001	0001
2	0010	0011
3	0011	0010
4	0100	0110
5	0101	1110
6	0110	1010
7	0111	1000
8	1000	1100
9	1001	0100

6.5.1 DTI

DTI (S) (D)																MC200 MC100 MC80 MC280
S D																6
S	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D	INT			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R	

S ***S*** 32767 ***S*** -32768 ***D***

D

S

D



LD X0

DTI D0 D10

X0=ON D0, D1 =10000 D10 D10=10000

6.5.5 INT

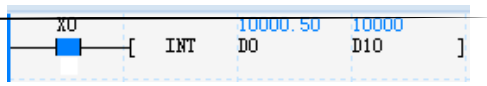
├─┤ ├─[INT (S) (D)]													MC200 MC100 MC280			
▲ S ▲ D													6			
S	REAL								D				V		R	
D	INT			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R	

S **S** 32767 **D**=32767 **S** -32768 **D**=-32768

D

1 **S**

D



LD X0
INT D0 D10

2

X0=ON & D0,D1 =10000.5 D10
D10=10000

6.5.6 DINT

MC200 MC100 MC280

├─┤ ├─[DINT (S) (D)]

6.5.7 BCD

		BC		
		S		
S	WORD		KnX	
D	WORD			

S 9999

D

S

16 BCD ***D***

BCD DO

D0=0x0D05 3333

13107

6.5.8 DBCD 32 BC

	DBCD	*(S)*	*(D)*	
		S	***D***	
S	DWORD		KnX	

6.5.9 BIN 16 BCD

		MC200 MC100 MC80 MC280

[BIN *(S)* *(D)*]

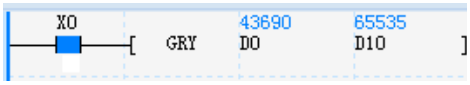
6.5.11 GRY 16

[GRY (S) (D)]		MC200 MC100 MC80 MC280
S **D**		**5**

S	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	WORD			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R	

S

D



LD X0

S

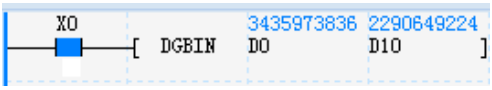
16 ***D***

6.5.14 DGBIN 32

├─┤ ├─[DGBIN (S) (D)]																MC200 MC100 MC80 MC280
S D																7
		¤ D 1														
S	DWORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D	DWORD			KnY	KnM	KnS	KnLM		D		C		V		R	

S

D




```
LD   X0
DGBIN   D0   D10
```

X0=ON D0,D1 =0xCCCCCCCC 3435973836 32

S 32 D10,D11 D10,D11 =0x88888888 2290649224

D

6.5.15 SEG 7

├─┤ ├─[SEG (S) (D)]																MC200 MC100 MC80 MC280

0 & fP—`H Žð y fP–¦

6.5.16 ASC ASCII

ASC (S1~S8) (D)		MC200 MC100 MC80 MC280
S1 S8 D		19

S1	WORD															
S2	WORD															
S3	WORD															
S4	WORD															
S5	WORD															
S6	WORD															
S7	WORD															
S8	WORD															
D	WORD								D		C	T	V	Z	R	

S1 S8 8 0
ASCII 0x21 0x7E
8 0X00
D

S1 S8 ASCII
D M186=OFF **D**
ASCII SM186=ON **D**
1 ASC



LD M0
ASC 12345678 D0
M0=ON ASCII
- SM186=OFF =0x3231
D1=0x3433 D2=0x 0x383
- SM186=ON D0=0x D1=0x3
D2=0x33 D
D7=0x38

6.5.17 ITA 16 0 16 ASCII

MC200 MC100 MC80 MC280

ITA (S1) (D) (S2)

- SM186=OFF D20=0x3839 D21=0x3637
- SM186=ON D20=0x39 D21=0x38 D22=0x37 D23=0x36

6.5.18 ATI ASCII 16 16

ATI (S1) (D) (S2)		MC200 MC100 MC80 MC280
S1 ***D*** ***S2***		**7**

S1			KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
D				KnY	KnM	KnS	KnLM		D		C	T	V	Z	R
S2			KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R

S1 ASCII

0x30 ***S1*** 0x39 0x41 ***S1*** 0x46 SM186=OFF

S1

V_{SL} V_{SH}

S_n D_n

D_n



S3 1 ***S3*** 64

PLC

V_{ML}

V_{MH} V_{SL} V_{SH}

S_n

D_n

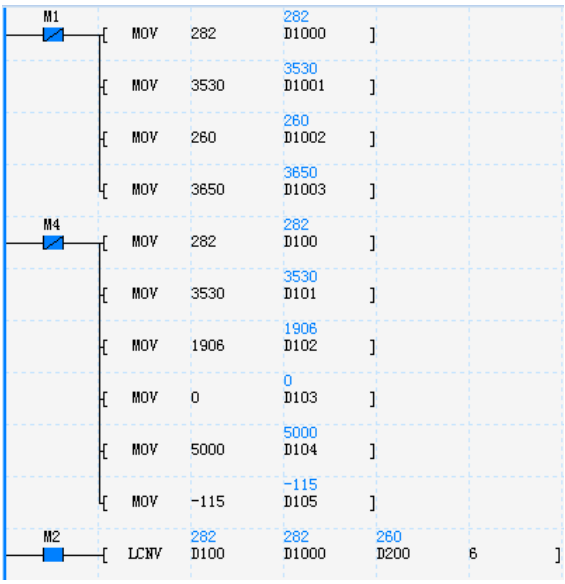
A $(V_{SL}$ $V_{SH})/(V_{ML}$ $V_{MH})*10000$

B V_{SL} $(V_{ML}*A/10000)$

D_n $(S_n*A/10000)$ B

D_n 32767 32767

-32768 -32768




```
LDI   M1
RMOV  282   D1000
RMOV  3530  D1002
RMOV  260   D1004
RMOV  3650  D1006
LDI   M4
RMOV  282   D100
RMOV  3530  D102
RMOV  1906  D104
RMOV  0     D106
RMOV  5000  D108
RMOV  -115  D110
LD    M2
RLCNV D100  D100  D1000  D200  6
  M2=ON     LCNV
```

D200(D201) = 260
D202(D203) = 3650
D204(D205) = 1955
D206(D207) = -34.3288
D208(D209) = 5184.267
D210(D211) = -154.357

6.6

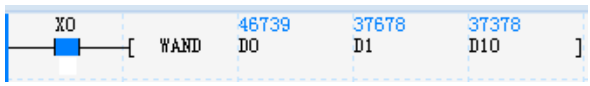
6.6.1 WAND

WAND (S1) (S2) (D)												MC200 MC100 MC80 MC280				
S1 S2 D												7				
S1	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S2	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	WORD			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R	

S1 1

S2 2

D




```
LD   X0
WAND
D0 D1 D10
```

X0=ON D0=2#10111 Ţ Æ ą

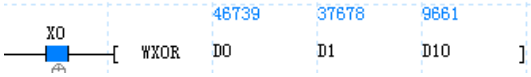
S1 ***S2***

D

S1 1

S2 2

D



X0=ON D0=2#1011011010010011 46739 D1=2#1001001100101110

37678 D10 D10=2#0010010110111101 9661

S1 ***S2***

D

6.6.4 WINV

																MC200 MC100 MC80 MC280
[WINV (S) (D)]																
S ***D***																**5**
S	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	WORD			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R	



S ***C***

D

X0=ON D0= 46739 D10 D10= 18796

S

D

6.6.5 DWAND

																MC200 MC100 MC80 MC280
[DWAND (S1) (S2) (D)]																
S1 ***S1*** ***D***																**10**
S1	DWORD		KnX	KnY	KnM	& KnS	KnLM	KnSM	D	SD	C		V		R	

6.6.6 DWOR

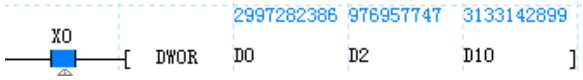
├─┤ ├─[DWOR (S1) (S2) (D)]																MC200 MC100 MC80 MC280
S1 S2 D																10
S1	DWORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DWORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D	DWORD			KnY	KnM	KnS	KnLM		D		C		V		R	

D

S1 1

S2 2

D



LD X0
DWOR D0 D2 D10

X0=ON D0, D1 =2#10110010101001101110011001010010 2997282386

D2, D3 =2#00111010001110110011000100110011 976957747

S1 ***S2*** D10, D11 D10, D11 =2#10111010101111111111011101110011 3133142899

6.6.7 DWXOR

├─┤ ├─[DWXOR (S1) (S2) (D)]																MC200 MC100 MC80 MC280
S1 S2 D																10
S1	DWORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DWORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D	DWORD			KnY	KnM	KnS	KnLM		D		C		V		R	

S1 1

S2 2

D



LD X0
DWXOR D0 D2 D10

X0=ON D0,D1 =2#10110010101001101110011001010010 2997282386

D2,D3 =2#00111010001110110011000100110011 976957747

D10, D11 D10, D11 =2#10001000100111011101011101100001

S1 ***S2*** 2292045665

D

6.6.8 DWINV

├─┤ ├─[DWINV (S) (D)]																
S D																
S	DWORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D	DWORD			KnY	KnM	KnS	KnLM		D		C		V		R	

S

D



LD X0
DWINV D0 D10

X0=ON D0,D1 =2#10110010101001101110011001010010 2997282386

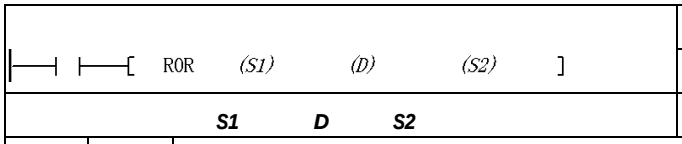
D10,D11 D10,D11

S =2#01001101010110010001100110101101 1297684909

D

6.7

6.7.1 ROR 16



S1	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
D	WORD			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R

S1 1

D

S2 2

S1

S2

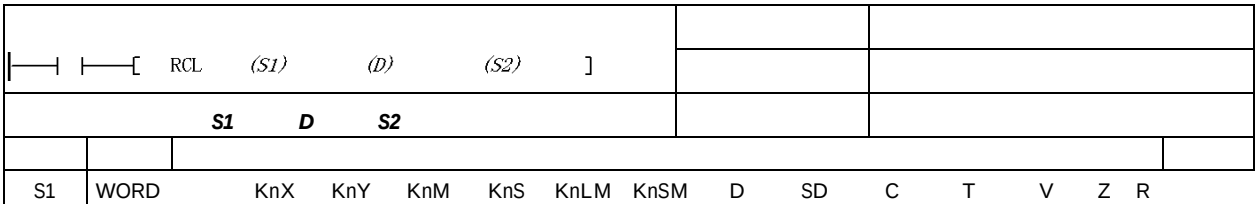
D

SM181

0

Kn Kn 4

6.7.4 RCL 16



6.7.6 DROL 32

├─┤ ├─[DROL (S1) (D) (S2)]		
S1 **D** **S2**		

S1	DWORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D	DWORD			KnY	KnM	KnS	KnLM		D		C		V		R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	

S1 1 0 Kn Kn 8

D

S2 2



LD M0
DROL D0 D10 30

S1 M0=ON D0,D1 =2#10110011100110001001110010101100 3013123244
S2 ***D*** 30 D10,D11 D10,D11
=2#00101100111001100010011100101011 753280811 SM181=ON

SM181 ROL

6.7.7 DRCR 32

├─┤ ├─[DRCR (S1) (D) (S2)]		
S1 **D** **S2**		

S1	DWORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D	DWORD			KnY	KnM	KnS	KnLM		D		C		V		R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	

S1 1 0 Kn Kn 8

D

S2 2



LD M0
DRCR D0
D10 11

S1 1 M0=ON D0,D1 =2#10110011100110001001110010101100 3013123244
SM181 ***S2*** SM181=OFF 11 D10,D11 D10,D11
D =2#00101011000101100111001100010011 722891539 SM181=ON
2 RCR

6.7.8 DRCL 32

DRCL (S1) (D) (S2)															
S1 ***D*** ***S2***															
S1	DWORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R
D	DWORD			KnY	KnM	KnS	KnLM		D		C		V		R
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R

S1 1 0 Kn Kn 8

D

S2 2



LD M0
DRCL D0 D10 25

S1 1M0=ON D0,D1 =2#10110011100110001001110010101100 3013123244

SM181 ***S2*** SM181=OFF 25 D10,D11 D10,D11

D =2#00101100010110011100110001001110 0 1488165020 SM181=ON

2 RCL

6.7.9 SHR 16

S1 ***D*** ***S2***															
S1	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
D	WORD			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R

S1 1

D

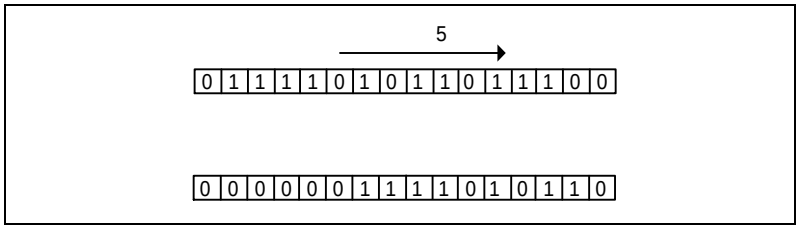
S2 2



LD M0
SHR D0 D10 5

S1

S2 ***D***



S2 0 ***S1***

Kn Kn 4

M0=ON D0=2#0111101011011100 31452 5 D10

D10=2#0000001111010110 982

6.7.10 SHL 16

SHL (S1) (D) (S2)															
S1 ***D*** ***S2***															
S1	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
D	WORD			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R

S1 1

D

S2 2

S1

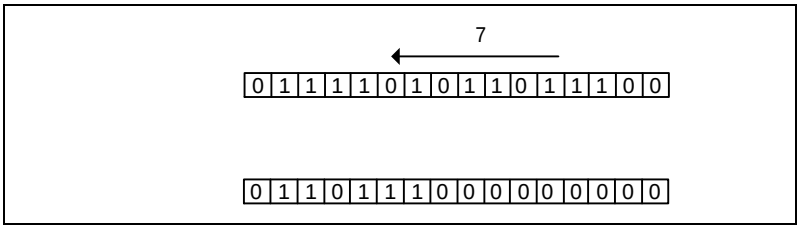
S2 ***D***

S2 0 ***S1***

Kn Kn 4




```
LD   M0
SHL  D0  D10  7
```



M0=ON D0=2#0111101011011100 31452 7 D10 D10=2#0110111000000000 28160

6.7.11 DSHR 32

DSHR (S1) (D) (S2)															
S1 ***D*** ***S2***															
S1	DWORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R
D	DWORD			KnY	KnM	KnS	KnLM		D		C		V		R
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R

S1 1

D

S2 2

S1

S2 ***D***

S2 0 ***S1*** Kn Kn 8

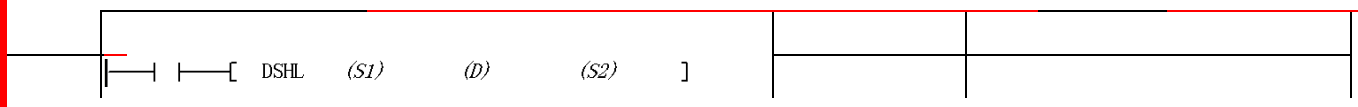



```
LD   M0
DSHR D0 D10 10
```

1 M0=ON D0,D1 =2#01110011100110001001110010101100 1939381420 10 D10,D11 D10,D11 =2#00000000000111001110011000100111 1893927

2 SHR

6.7.12 DSHL 32



6.7.14 SFTL

SFTL (S1) (D) (S2) (S3)																
S1 ***D*** ***S2*** ***S3***																
S1	BOOL		X	Y	M	S	LM	SM			C	T				
D	BOOL			Y	M	S	LM				C	T				
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S3	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	

S1 1

D

S2 2

S3 3

1

2 ***S2*** ***S3***

D

S2 ***S3***

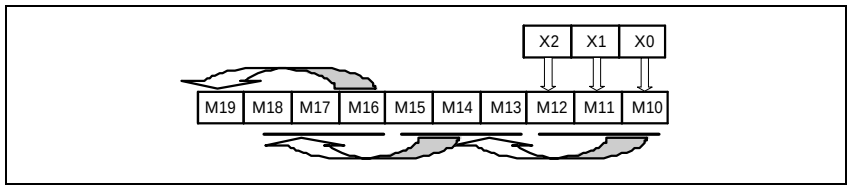
S3

S1

S3



LD M0
SFTL X0 M10 10 3



1 M0=ON M10 10 3

M17 M19 X0 3

2 X0=1 X1=0 X2=1 M10=0 M11=1 M12=1 M13=0 M14=0 M15=1 M16=0 M17=0 M18=0 M19=1

3 X0 X2 M10=1 M11=0 M12=1 M13=0 M14=1 M15=1 M16=0 M17=0 M18=1 M19=0

6.8

6.8.1 FROM

(S3) FROM (S1) (S2) (D)																
S1 ***S2*** ***D*** ***S3***																
S1	INT															
S2	INT															
D	INT								D				V		R	
S3	INT															

S1 ***S1*** BFM ***S2***

0 7 ***S3*** ***D*** ***S3***

FROM ***S3***

S2 BFM

0 32767

BFM

BFM

D

S3 BFM

1 32767

BFM

BFM



LD M0
FROM 0 3 D100 2

M0 ON 0 3 BFM 2

D100 D101

6.8.2 DFROM

[DFROM (S1) (S2) (D) (S3)]																
S1 ***S2*** ***D*** ***S3***																
S1	INT															
S2	INT															
D	DINT								D				V		R	
S3	INT															

BFM

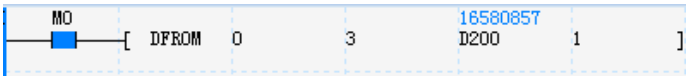
S1

0 7 ***S1*** BFM ***S2*** ***S3***
D ***S3***

S2 BFM

DFROM ***S3***

0 32767
BFM
BFM



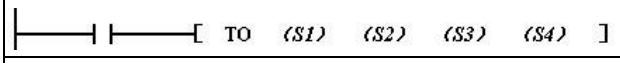
LD M0
DFROM 0 3 D200 1
M0 ON 0 3 BFM 1

D

S3 BFM D200,D201

1 32767
BFM

6.8.3 TO



S1 ***S2*** ***S3*** ***S4***

S1	INT															
S2	INT															
S3	INT								D				V		R	
S4	INT															

S1

0 7

S3 ***S4***

BFM

S2 ***S4***

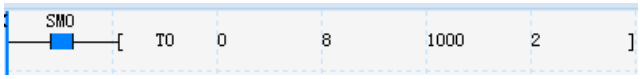
TO ***S4***

S2 BFM

0 32767

BFM

BFM




```
LD   SM0
TO   0   8   1000   2
```

PLC 0 BFM #8 BFM #9 1000

S3

S4 BFM

1 32767

BFM

BFM

6.8.4 DTO

[DTO (S1) (S2) (S3) (S4)]																
S1 ***S2*** ***S3*** ***S4***																
S1	INT															
S2	INT															
S3	DINT								D				V		R	
S4	INT															

S1 ***S3*** ***S4*** ***S1***

0 7 BFM ***S2*** ***S4***

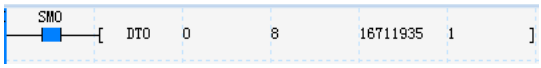
DTO ***S4***

S2 BFM

0 32767

BFM

BFM




```
LD   SM0
DTO  0  8  16711935  1
```

PLC 0 BFM#8 9

1 16711935

S3

S4 BFM

1 32767

BFM

BFM

6.8.5 VRRD

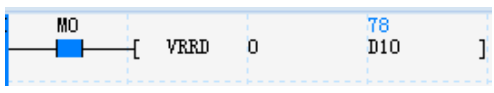
[VRRD (S) (D)]																
S ***D***																
S	WORD															
D	WORD								D				V			

S

0 255

D

0 255




```
LD    M0
VRRD  0  D10
```

M0 ON 0 D10

6.8.6 REFF

⊣⊢ ⊢[REFF (S)]															
S															
S	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R

S

- MC200 0 64ms 64
  64
- MC100 0 8 16 32 64
  8 0 16 8
  32 16 64 32
  64




```
LD   M0
REFF 30
```

X10 ON 30ms

X0 X17

6.8.7 REF I/O

⊣⊢ ⊢[REF (D) (S)															
D **S**															
D	BOOL		X	Y											
S	INT														

D X/Y

8 X0 X10 X20 é

Y0 Y10 Y20 é 0

S

8 16 256 8

PLC

1 Xn Yn 8

2 8

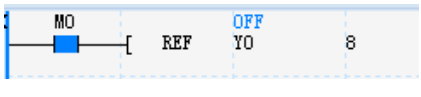
3 FOR-NEXT CJ

REF

4

REF

5




```
LD   M0
REF  Y0  8
```

M0 ON Y0 Y7

		D						R		
KnSM		D	SD	C	T	V	Z	R		

6.8.9 PR

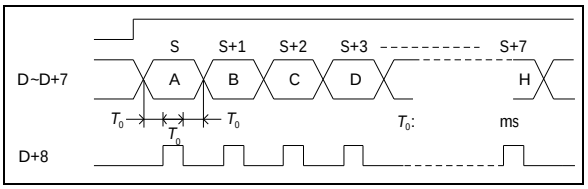
⊢⊣ ⊢[**PR**]															
(S) (D)															
S	WORD								D		C	T		R	
D	BOOL			Y											

S

D Y

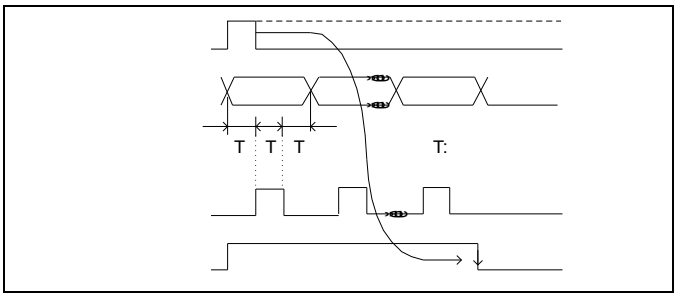
1 S S+7 8 1 D D+7 Y0

2 SM71 SM71



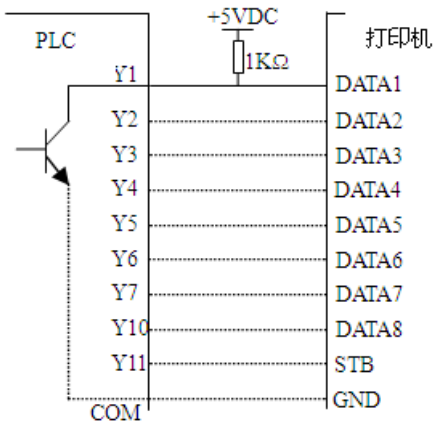
3 SM70 OFF 8 ON 1 16 H00 NUL

SM70 ON



1

2



$1K_{\Omega}$ 0 5VDC 1 Y11

FF Y0-Y7

D0-D7 ASCII

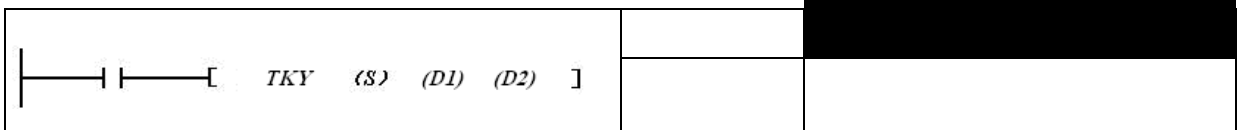
```
/*打印前数据取反*/
   SM1
  ---| |---[  MOV   0        Z0       ]
   SM1
  ---| |---[  FOR   8        ]
   SM0
  ---| |---[  WINV  DOZO     DOZO     ]
             [  INC   Z0      ]
[  NEXT  ]
/*由M0控制打印*/
   M0
  ---| |---[  PR    D0       Y1       ]
```

1

2

3 SM71 .

6.8.10 TKY



TKY

6.9

6.9.1 TRD

TRD (D)																		
D																		
D	WORD								D				V		R			

D ***D*** TRD

7

D




```
LD   M0
TRD  D10
```

M0 ON D10 7

	SD100		2000 2099	→	D10	
	SD101		1 12	→	D11	
	SD102		1 31	→	D12	
	SD103		0 23	→	D13	
	SD104		0 59	→	D14	
	SD105		0 59	→	D15	
	SD106		0 6	→	D16	

6.9.3 TADD

TADD (S1) (S2) (D)															
S1 S2 D															
S1	WORD								D	SD			V		R
S2	WORD								D	SD			V		R
D	WORD								D				V		R

D12	59		D22	58		D32	57

S1 1

S1 3

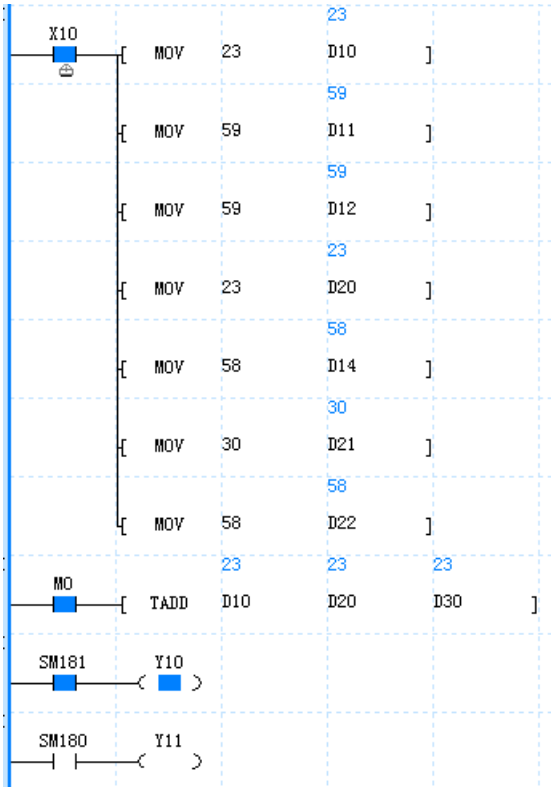
S2 2

S2 3

D

D 3

SM181 SM180




```
LD   X10
MOV  23  D10
MOV  59  D11
MOV  59  D12
MOV  23  D20
MOV  58  D21
MOV  58  D22
LD   M0
TADD D0  D20
D30
LD   SM181
OUT  Y10
LD   SM180
OUT  Y11
```

1 X10 ON D10 3 D20 3

2 M0 ON D10 3 D20 3

D30 3

3 SM181 ON SM180 OFF

0 23

0 59

0 59

S1			S2			D	
D10	23		D20	23		D30	23
D11	59		D21	58		D31	58

6.9.4 TSUB

TSUB (S1) (S2) (D)		MC280
S1 S2 D		

S1	WORD								D	SD			V		R	
S2	WORD								D	SD			V		R	
D	WORD								D				V		R	

S1 1

S1 3

S1			S2			D	
D10	23		D20	23		D30	23
D11	59		D21	59		D31	59
D12	58		D22	59		D32	59

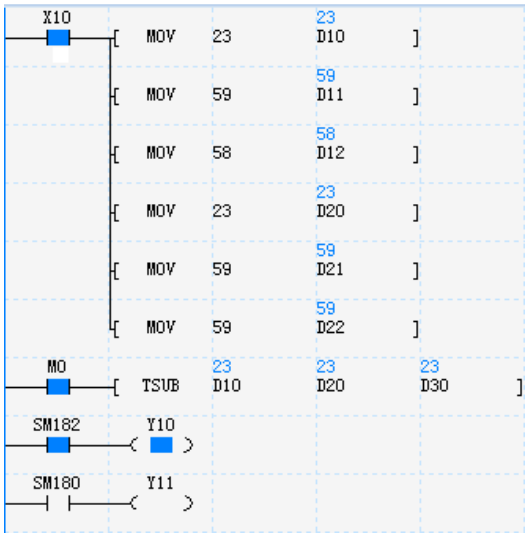
S2 2

S2 3

D

D 3

SM182 SM180




```
LD   X10
MOV  23  D10
MOV  59  D11
MOV  58  D12
MOV  23  D20
MOV  59  D21
MOV  59  D22
LD   M0
TSUB D10 D20 D30
LD   SM182
OUT  Y10
LD   SM180
OUT  Y11
```

1 X10 ON D10 3 D20 3

2 M0 ON D10 3 D20 3

D30 3

3 SM182 ON SM180 OFF

0 23

0 59

0 59

6.9.5 HOUR

HOUR (S) (D1) (D2)		MC280
S D1 D2		

S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D1	INT								D				V		R	
D2	BOOL			Y	M	S	LM									

D1 PLC

RUN Ÿ STOP

S 0

32767

2 ***D2*** ON

3 16 32767 0

D1

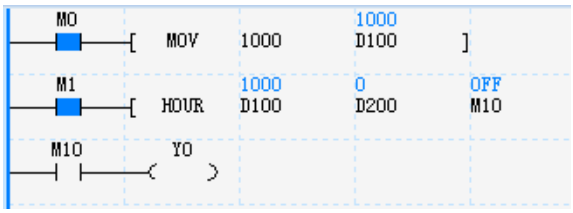
D1 ***D1***

1

D2

D1 ***S***

ON




```
LD    M0
MOV   1000  D100
LD    M1
HOUR  D100  D200  M10
LD    M10
OUT   Y0
```

ON

1 M0 ON HOUR

2 M1 ON HOUR

3 M1 ON 1000 M10 ON

1 PLC

6.9.6 DCMP = < > <> >= <=

S1	INT								D	SD			V		R	
S2	INT								D	SD			V		R	
D	BOOL			Y	M	S	LM				C	T				

S1 1 ***S1***
3 3

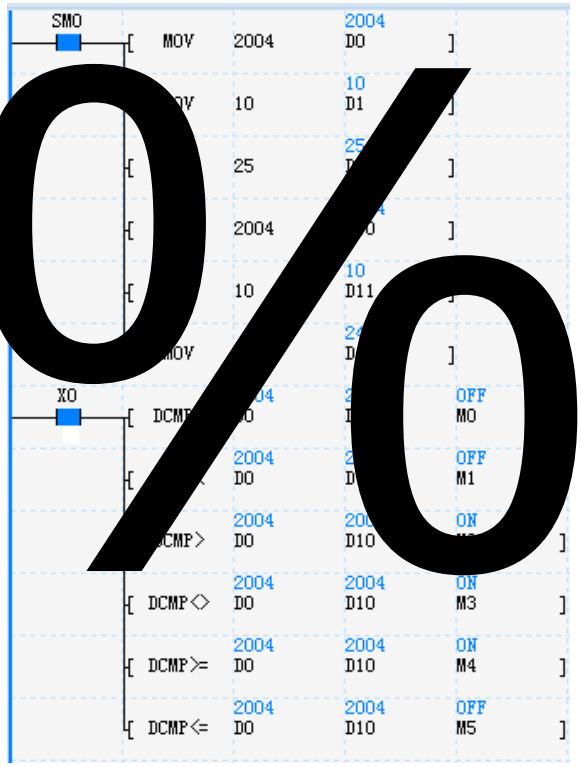
S2 2 ***S2***
3 3

D
D ON
OFF

S1 S2
BIN
D

S1 S2

2004 9
31 2003 2 29




```
LD      SM0
MOV 2004 D0
MOV 10   D1
MOV 25   D2
MOV 2004 D10
MOV 10   D11
MOV 24   D12
LD      X0
DCMP= D0 D10 M0
DCMP< D0 D10 M1
DCMP> D0 D10 M2
DCMP<> D0 D10 M3
DCMP>= D0 D10 M4
```

6.9.7 TCMP = < > <> >= <=

		MC280
├─┤ ├─[TCMP= (S1) (S2) (D)] ├─┤ ├─[TCMP< (S1) (S2) (D)] ├─┤ ├─[TCMP> (S1) (S2) (D)] ├─┤ ├─[TCMP<> (S1) (S2) (D)] ├─┤ ├─[TCMP>= (S1) (S2) (D)] ├─┤ ├─[TCMP<= (S1) (S2) (D)]		
S1 ***S2*** ***D*** ***S1*** ***S2*** ***D*** ***S1*** ***S2*** ***D*** ***S1*** ***S2*** ***D*** ***S1*** ***S2*** ***D*** ***S1*** ***S2*** ***D***		

S1	T	'ð IRM€ Œ	£%5D	F€	ï pñp 0• ·1			Λ				D	SD			V		R	
S2	T	ñ‰ UNT™ R	@2S		@™1 4h	H2ST	Q ¼h	0ñ	0•			D	SD			V		R	
D																			

6.9.8 HTOS



6.10 IO

6.10.1 HCNT

HCNT (D) (S)		
D **S**		

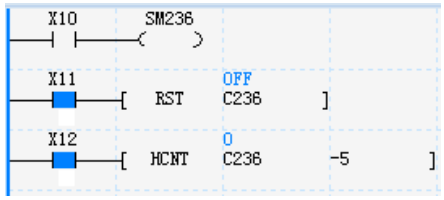
D	DINT										C					
S	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	

D

C236 C259

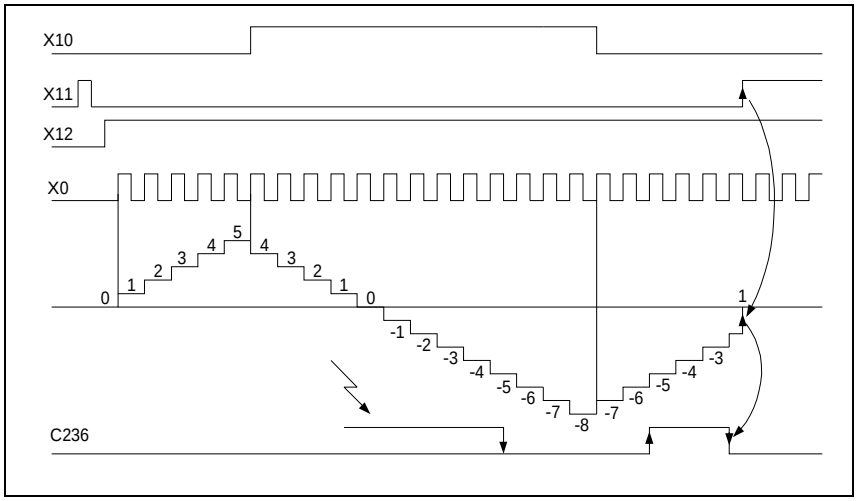
S 32

2147483648 2147483647




```
LD    X10
OUT   SM236
LD    X11
RST   C236
LD    X12
HCNT  C236  -5
```

S



HCNT

HCNT SPD

IO

IO

1 X12 OFF ON C236 X0 C236 C236 X0 X12 OFF X0 C236 X0

2 C236 6 5 C236 C236 5 6 C236

3 X11 ON RST C236 C236

4

		X0	X1	X2	X3	X4	X5	X6	X7	kHz		
										MC280	MC200	MC100
	C236	/								100	50	
	C237		/									
	C238			/							10	
	C239				/							
	C240					/						
	C241						/					
	C301							/			/	
	C302								/			
	C242	/									10	
	C243				/							
	C244	/										
	C245				/							
	C246									100	50	
	C247										10	
	C303										/	
	C248										10	
	C249											
	C250											
	C251	A	B							50	30	
	C304			A	B						/	
	C305					A	B					
	C306							A	B			
	C252	A	B								5	
	C253				A	B						
	C254	A	B									
	C255				A	B						
	C256 (X10)	A	B								/	
	C257 (X11)			A	B							
	C258 (X12)					A	B					
	C259 (X13)							A	B			
SPD										100	10	
										/	/	
/		0/10	1/11	2/12	3/13	4/14	5/15	6/16	7/17	/	/	

6.10.2 DHSCS

⊣ ⊢[DHSCS (S1) (S2) (D)]																
S1 S2 D																
S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DINT										C					
D	BOOL			Y	M	S						!ÊCF (õ‘ Ÿ ™˜ CfF2 1”)™• Ô€ X72 `-					

S1

32 DINT

· 2147483648 2147483647 MV

S2

C236 C259

D Y M

S

1 DHSCS

HCNT

HCNT

DHSCS

2 DHSCS ಕ



6.10.3 DHSCI

DHSCI (S1) (S2) (S3)																
S1 ***S2*** ***S3***																
S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DINT										C					
S3	WORD															

S1

32 DINT

2147483648 2147483647

S2

C236 C259

S3 20

25

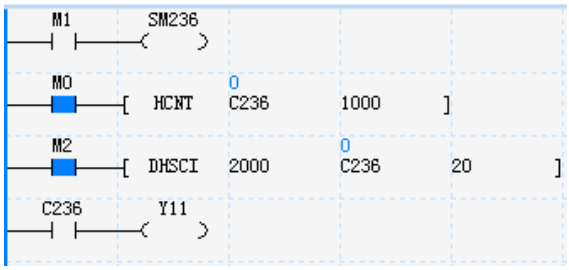
HCNT

OFF ON

DHSCI

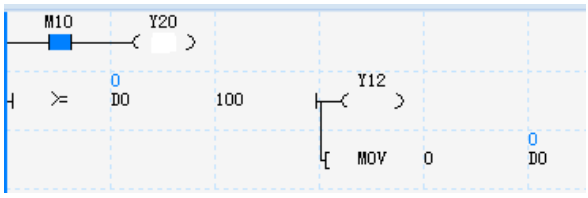
S1 ***S3***

4 PLC DHSCS DHSCI DHSCR DHSZ DHSP DHST IO




```
LD      M1
OUT     SM236
LD      M0
DHSCI   2000   C236   20
LD      C236
OUT     Y11
```

20




```
LD      M10
OUT     Y20
LD>=    D0   100
OUT     Y12
MOV     0    D0
```

1 DHSCI

HCNT

HCNT

DHSCI

2 DHSCI

DMOV MOV

DHSCI

3 DHSCI DHSCS DHSCR DHSZ DHSP DHST

6

6

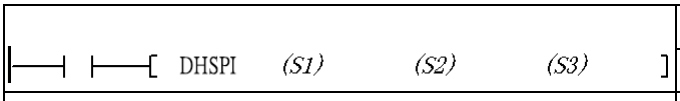
1 M1 ON C236 X0 OFF ON X0 IO C236 999 1000 C236 1001 1000 C236 C236 Y11 Y11

2 M2 ON DHSCI C236 2000 20

3 M0 ON SM236 C236 M0 OFF SM236 C236

4 C236 C236 2000 20 M10 ON Y20 Y20 D0 100 Y12 D0

6.10.4 DHSPI



S1 ***S2*** ***S3***

S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DINT									SD						
S3	WORD															

S1 32 DINT

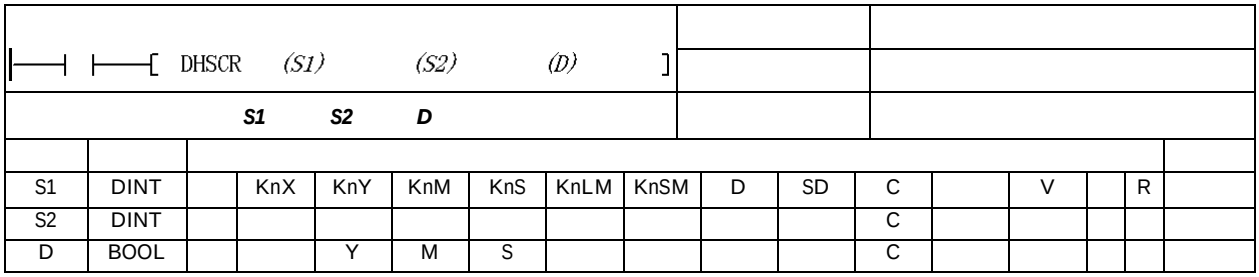
2147483648 2147483647

S2 ,

SD200,SD320,SD340,SD350,SD360,SD370

S3 53,54,55,56,57,58.

6.10.5 DHSCR



S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DINT										C					
D	BOOL			Y	M	S					C					

S1

32 DINT

2147483648 2147483647

S2

C236 C259

D Y M

S C

C ***S2***

HCNT

OFF C2N6C0. q 9 x,´ 7 9 7 ,´†"Ž qP `

DHSCR

S1 ***D***

Y

Y

DHSCR

1 DHSCR &%4×$•3 3

HCNT

HCNT

DHSCR

2 DHSCR DMOV MOV

DHSCR

3 DHSCR DHSCI DHSCS DHSZ DHSP DHST

6 6

4 PLC DHSCS

6.10.6 DHSZ

⊢⊣ ⊢[DHSZ (S1) (S2) (S3) (D)																
S1 ***S2*** ***S3*** ***D***																
S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S3	DINT										C					
D	BOOL			Y	M	S										

S1

1 32 DINT

2147483648

2147483647

S2

2 32 DINT

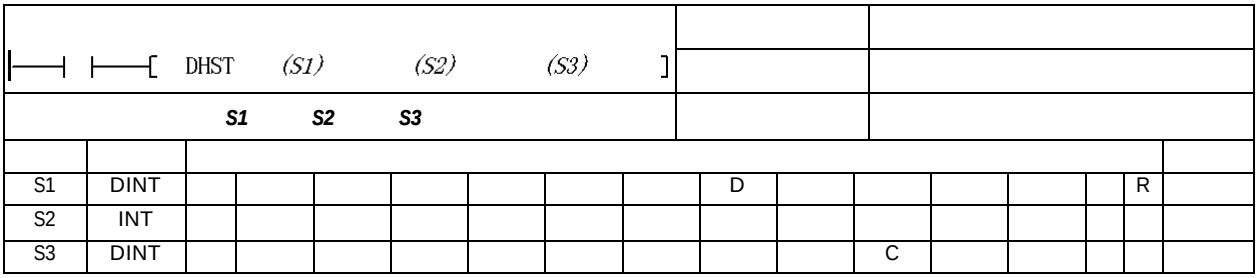
cïEÞ¿9 Ÿ ™ 2147483648

2147483647

S3

D EÃ* } 6

6.10.7 DHST



S1	DINT								D						R	
S2	INT															
S3	DINT										C					

S1 D

D

Y

D

S2 1 128

S3 C236 C259

1 HCNT

OFF ON

2

3

4

DHST

1 DHST HCNT

HCNT DHST

2 DHST

DMOV MOV

DHST

3 DHST DHSCI DHSCS DHSCR DHSP DHSZ

6 6

DHSP DHST

DHST DHSP

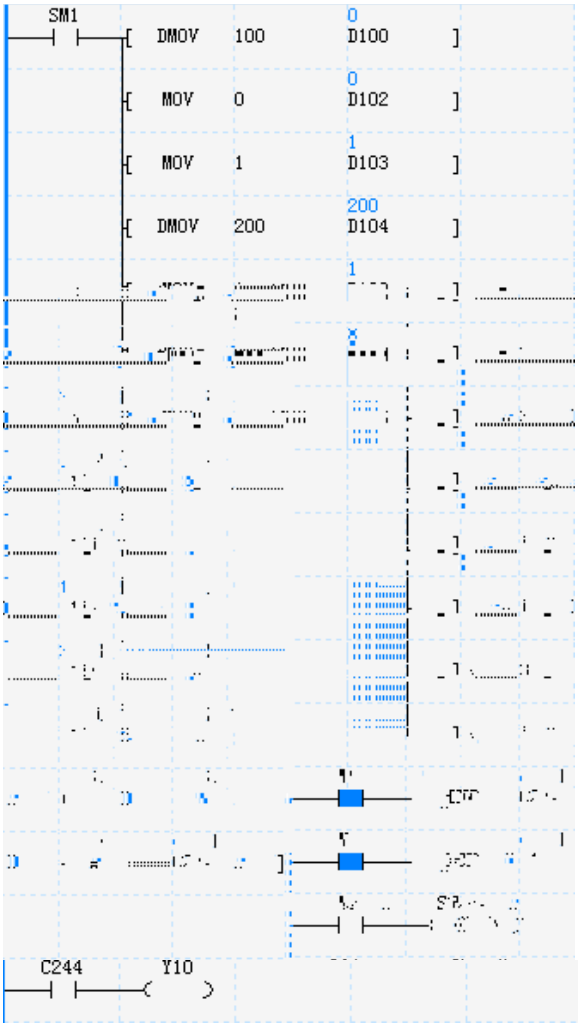
DHST DHSP

4 PLC DHSCS

DHSCI DHSCR DHSZ DHSP DHST

I/O

		Y	/	
D100=0	D101=100	D102=0	D103=1	1
D104=0	D105=200	D106=1	D107=0	2
D108=0	D109=300	D110=2	D111=1	3
D112=0	D113=300	D114=3	D115=1	4 1




```
LD    SM1
DMOV  100  D100
MOV   0    D102
MOV   1    D103
DMOV  200  D104
MOV   1    D106
MOV   0    D107
DMOV  300  D108
MOV   2    D110
MOV   1    D111
DMOV  100  D112
MOV   3    D114
MOV   1    D115
LD    M0
HCNT  C244  1000
LD    M1
DHST  D100  4  C244
LD    M2
OUT   SM244
LD    C244
OUT   Y10
```

1 D100 D115

2 M0 X6 ON C244 X0 OFF ON IO C244 999 1000
C244 1001 1000 C244 C244 Y10 Y10

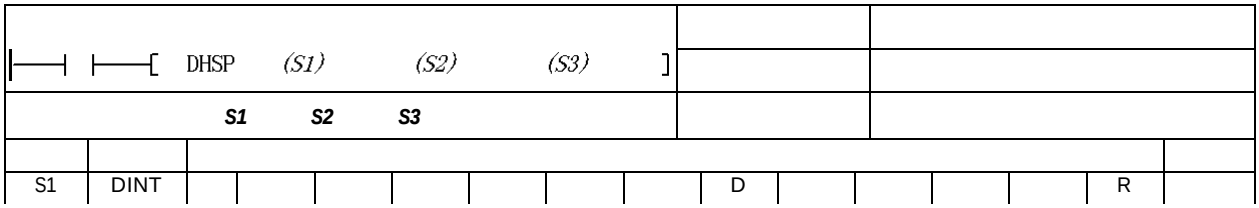
3 M1 ON DHST 1 1
2 1
SM185 SD184 SD182 SD183

4 M2 ON SM244 ON C244 M2 OFF SM244 OFF C244

5 X6 OFF C244

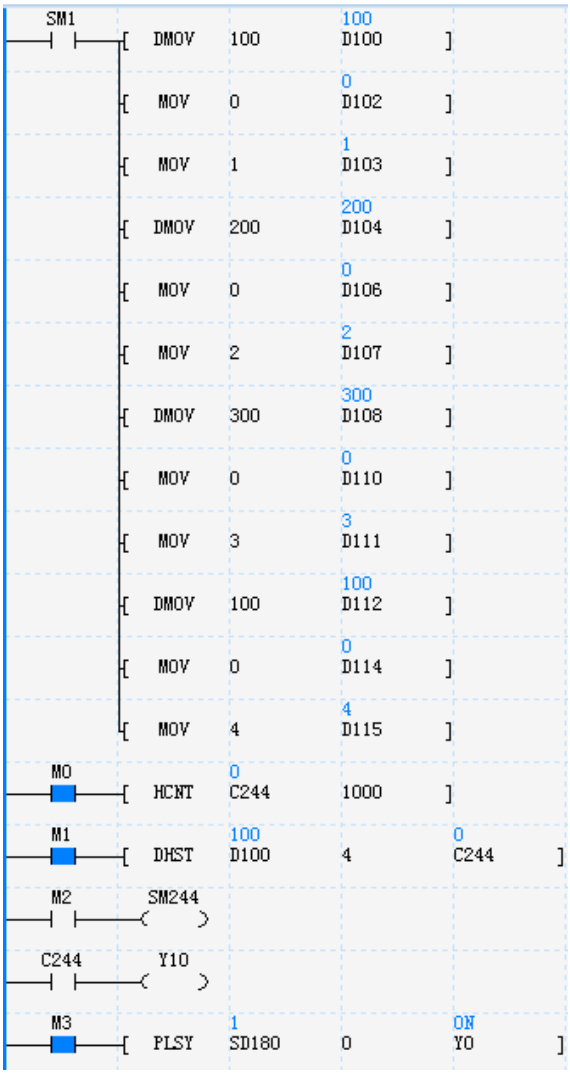
6 M0 X6 ON X2 ON C244 0 C244

6.10.8 DHSP



& × T

		SD180 SD181		
D100=0	D101=100	D102=0	D103=1	1
D104=0	D105=200	D106=0	D107=2	2
D108=0	D109=300	D110=0	D111=3	3
D112=0	D113=300	D114=0	D115=4	4 1




```
LD      SM1
DMOV    100   D100
MOV     0     D102
MOV     1     D103
DMOV    200   D104
MOV     0     D106
MOV     2     D107
DMOV    300   D108
MOV     0     D110
MOV     3     D111
DMOV    100   D112
MOV     0     D114
MOV     4     D115
LD      M0
HCNT    C244  1000
LD      M1
DHSP    D100  4   C244
LD      M2
OUT     SM244
LD      C244
OUT     Y10
LD      M3
PLSY    SD180 0   Y0
```

1 D100 D115

2 M0 X6 ON C244 X0 OFF ON IO C244 999 1000 C244 1001 1000 C244 C244 Y10 Y10

3 M1 ON DHSP 1 1 2 1

SM185 SD184 SD182 SD183

SD180 SD181

SD180 SD181 0

4 M2 ON SM244 ON C244 M2 OFF SM244 OFF C244

5 X6 OFF C244

6 M0 X6 ON X2 ON C244 0 C244

6.10.9 SPD

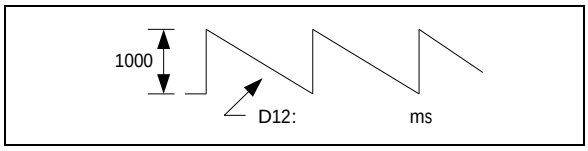
SPD (S1) (S2) (D)																
S1 ***S2*** ***D***																
S1	BOOL		X													
S2	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	WORD								D				V		R	

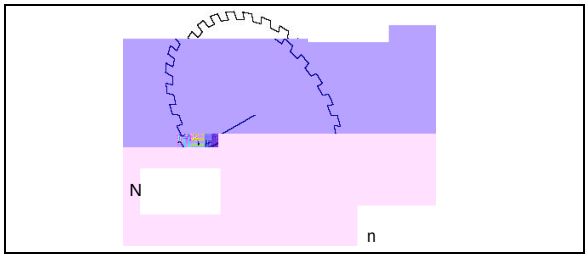
S1 X0 X5

S2 ms S2>0

D 65535

X0 X5 ms





1 SPD HCNT

6.10 *IO*

2 SPD X0 X5

3 SPD 10kHz 10kHz

4 SPD

1 M0 ON X0 1000ms

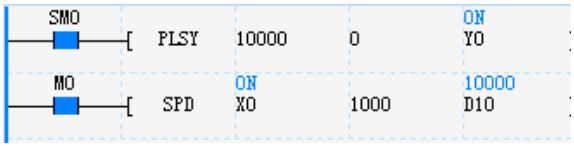
D10 D11

1000ms D12 1000ms

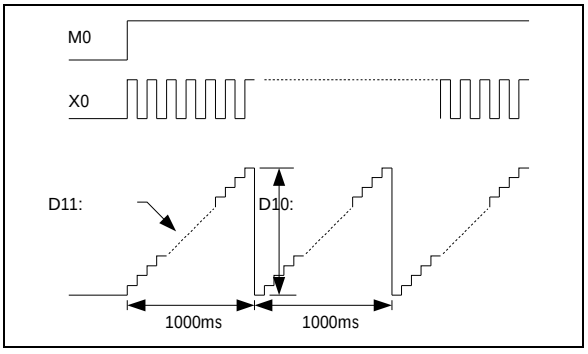
2 D10

3 X0 OFF ON 1000ms

D10




```
LD    SM0
PLSY  10000  0  Y0
LD    M0
SPD   X0  1000  D10
```



6.10.10 PLSY

6 PLSY

PWM PLSR

PLSY (S1) (S2) (D)																
S1 ***S2*** ***D***																
S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	V		R		
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	V		R		
D	BOOL			Y												

7 PWM PLSY PLSR

8 DHSCS DHSCR DHSZ DHSP DHST HCNT PLSY

S1 Hz

MC100 MC200 1 100000 Hz MC280 1 200000 Hz ***S1*** 0 100000

S1

S2 PLS

0 2147483647

S2 0

S2

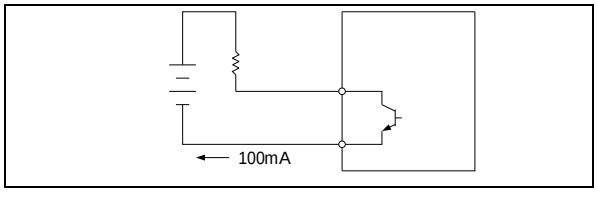
D MC100 MC200, Y0 Y1 MC280, Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7

PLC

1 PLC

2 PLC PLC

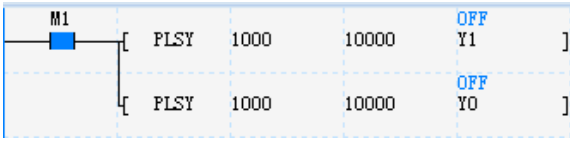
3 PLSY PWM PLSR



4 OFF PWM PLSY PLSR

100mA

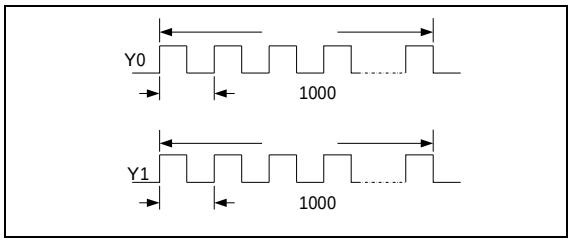
5



LD M1

PLSY 1000 10000 Y1

PLSR 1000 10000 Y0



1 M1 ON Y0 Y1 10000 1000Hz 10000

M0 OFF ON

M0 OFF OFF

2 50 ON 50 OFF

Y Y0

PORT0 Y1 PORT1

3 SM80 Y0 SM81 Y1 1

4 SM82 SM83 Y0 Y1 M0 OFF

5 SD50 Y0 PLSY PLSR

SD51 Y0 PLSY PLSR

SD52 Y1 PLSY PLSR

SD53 Y1 PLSY PLSR

SD54 Y0 Y1 PLSY PLSR

SD55 Y0 Y1 PLSY PLSR

6 SD50 SD55 DMOV SD5
MOV SD5
7 PLSY
DHSP

6.10.11 PLSR

PLSR (S1) (S2) (S3) (D)																
S1 ***S2*** ***S3*** ***D***																
S1	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S3	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D1	BOOL			Y												

S1 Hz 10 20000 Hz
20000 20000
10 10

S2 PLS 110
2147483647

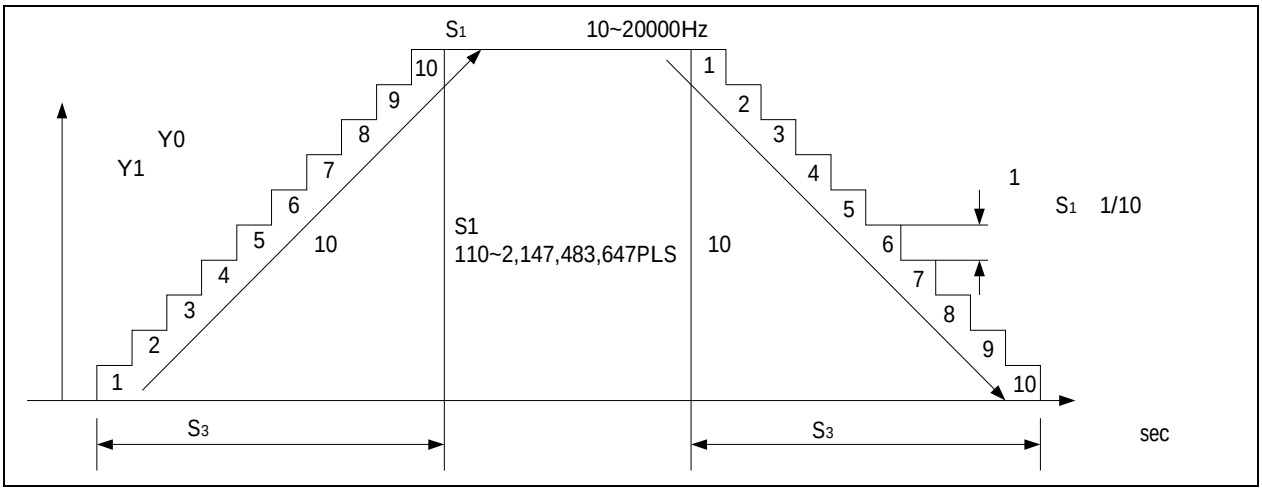
S3 ms
S1 ***S3***<100000 ***S3***=100000/***S1***
PLSR

S1 ***S3***>S2 909 ***S3***=S2 909/***S1***
PLSR

MC100 50ms

10
S1/10

D MC100 MC200,
Y0 Y1 MC280, Y0 Y1 Y2 Y3
Y4 Y5 Y6 Y7



1 10 20000Hz

2 PLC

Y0 PORT0

Y1 PORT1

3

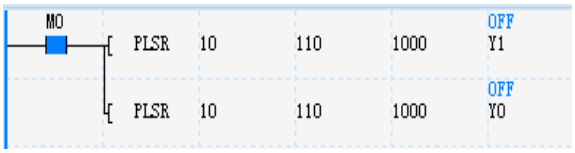
4 2 PLSR

PWM PLSY

5 PWM PLSY PLSR

6 DHSCS DHSCR DHSZ DHSP

DHST HCNT PLSR



LD M0

PLSR 10 110 1000 Y1

PLSR 10 110 1000 Y0

1 M0 ON Y0 Y1

110 M0 OFF

ON M0 OFF

OFF

2

M0 ON OFF

ON

3 SM80 Y0 SM81 Y1

SM80 SM81 1

4 SM82 SM83 Y0 Y1

M0 OFF SM82 SM83 OFF

SM82 SM83 ON

5 SD50 SD55

1 SD50 Y0 PLSY PLSR

2 SD51 Y0 PLSY PLSR

3 SD52 Y1 PLSY PLSR

4 SD53 Y1 PLSY PLSR

5 SD54 Y0 Y1 PLSY PLSR

6 SD55 Y0 Y1 PLSY PLSR

6 SD50 SD55 DMOV SD5

MOV SD5

6.10.12 PLS

⊣⊢ ⊢[PLS (S1) (S2) (D1)]																
S1 **S2** **D1**																
S1	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D1	BOOL			Y												

S1 D

S2 0 255

D MC100 MC200,
Y0 Y1 MC280, Y0 Y1 Y2 Y3
Y4 Y5 Y6 Y7

1 PLS

2 0

3 SM80 SM81

4 PLS_SET n
D M
LD SM0
DMOV 1 Dn
DMOV 1 Dn 2
DMOV 2 Dn 4
DMOV 2 Dn 6
DMOV 3 Dn 8
DMOV 3 Dn 10

DMOV M Dn 4M 4
DMOV M Dn 4M 2
DMOV Dn 4M
MOV Dn 4M 2
MOV Dn 4M 3
MOV Dn 4M 4

1 PTO PLS
PLS

2 *P* F_N N
F_{max} F_{min} T_{up}
T_{down}

1 N N 1
N :

$$P \quad \frac{(F_N \quad F_{N\ 1})\ (F_N \quad F_{N\ 1})\ T_{up}}{2000\ (F_{max} \quad F_{min})}$$

2 N N 1
N :

$$P \quad \frac{(F_N \quad F_{N\ 1})\ (F_N \quad F_{N\ 1})\ T_{down}}{2000\ (F_{max} \quad F_{min})}$$

3

1 N=1 N 1 F_{min}

2 1 1

$$P \quad \frac{(F_1 \quad F_{min})\ (F_1 \quad F_{min})\ (T_{up} \quad T_{down})}{2000\ (F_{max} \quad F_{min})}$$

3

$$P \quad \frac{(F_M \quad F_{M\ 1})\ (F_M \quad F_{M\ 1})\ (T_{up} \quad T_{down})}{2000\ (F_{max} \quad F_{min})}$$

4

5 999 999

4 PLC

5

6 PLSY,PLSR,PLS

6.10.13 PLSB

]|		
(S1) (S2) (S3) (S4) (D)		

S1	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S2	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S3	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S4	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D1	BOOL			Y												

S1 HZ

0 20000Hz

S2 HZ

10 20000 (Hz)

S3 (PLS)

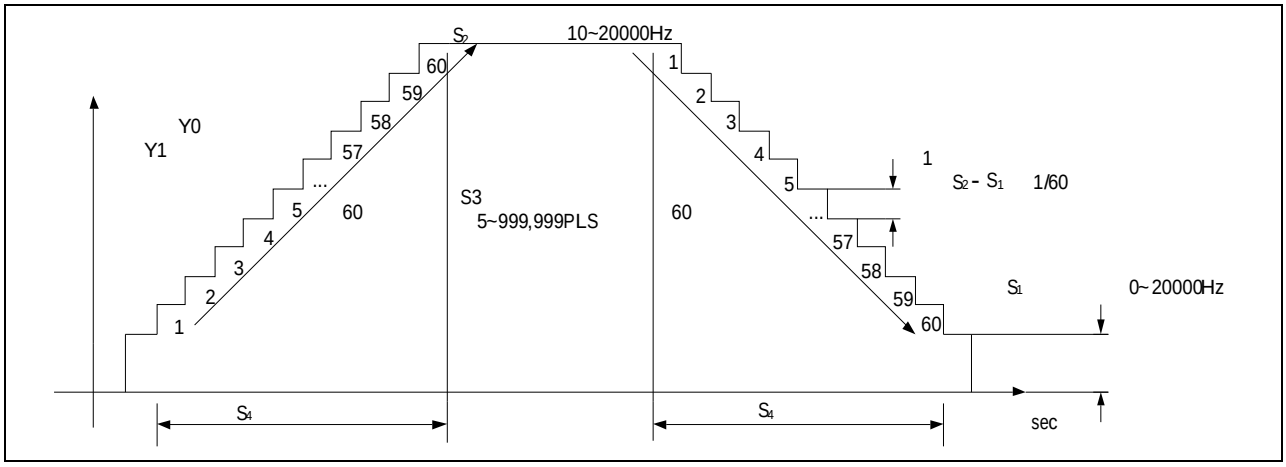
5-999999

S4 (mS)

0-10000

D

MC100 MC200, Y0 Y1 MC280,
Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7



1 10-20000Hz

2

3 60

4

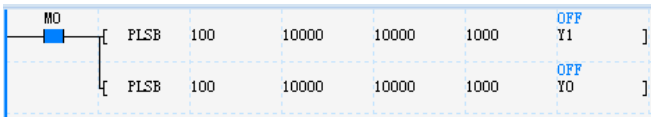
5 ( )

6 2 PLSB Y000 Y001
PWM PLSY

7 PWM PLSY PLSB

8 DHSCS DHSCR DHSZ DHSP
DHST HCNT PLSB

9 Y0 Y1




```
LD   M0
PLSR 100 10000 10000 1000 Y1
PLSR 100 10000 10000 1000 Y0
```

1 M0 ON Y0 Y1
10000 M0 OFF
ON M0 OFF
OFF

2
M0 ON OFF ON

3 SM80 Y0 SM81 Y1
SM80 SM81 1

4 SM82 SM83 Y0 Y1
M0 OFF SM82 SM83 OFF
SM82 SM83 ON

5 SD50 SD55
1 SD50 Y0 PLSB
2 SD51 Y0 PLSB
3 SD52 Y1 PLSB
4 SD53 Y1 PLSB
5 SD54 Y0 Y1 PLSB
6 SD55 Y0 Y1 PLSB

6 SD50 SD55 DMOV SD5
MOV SD5

6.10.14 PWM

⊣⊢ ⊢[PWM (S1) (S2) (D)]																
S1 S2 D																
S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	BOOL			Y												

S1 ms/ s

0 32767 ms ***S1*** 32767

S1

SM84 0 ***S1*** ***ms*** SM84 1 ***S1***

s

S2 ms

1 32767

S2

SM84 0 ***S1*** ***ms*** SM84 1 ***S1***

s

S2 ***S1***

D MC100 MC200, Y0

Y1 MC280, Y4 Y5 Y6 Y7

D ***S1*** ***S2*** PWM

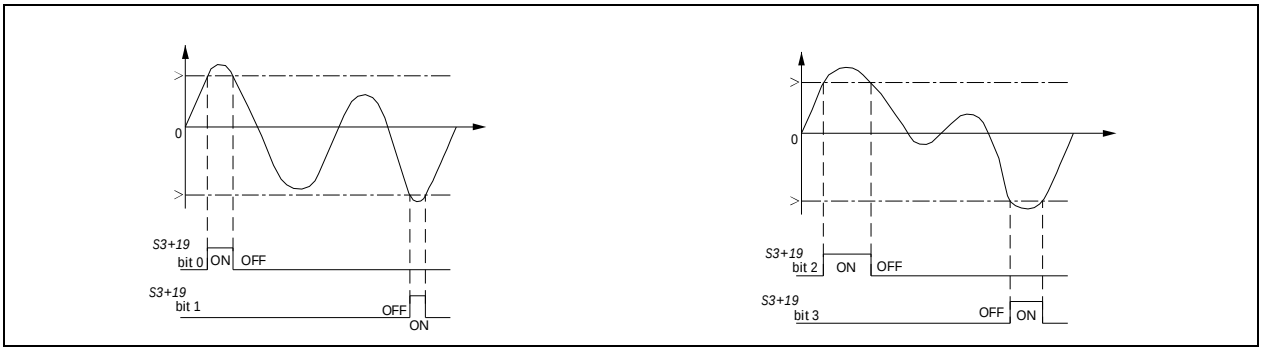
1 ***S1*** 0 OFF ***S1***=***S2***

&˘ ON { ˥ & ý & ŗ 6ö ž

ÔN ▯ ŭ˥ × 1

[PID (S1) (S2) (S3) (D)															
	S1		***S2***		***S3***		***D***								
NT								D					R		
NT								D					R		
NT								D					R		
NT								D					R		

8 ***S3 1*** BIT1=ON BIT2=ON BIT5=OFF PID
S3 15 S3 18 PID ***S3 19***
PID



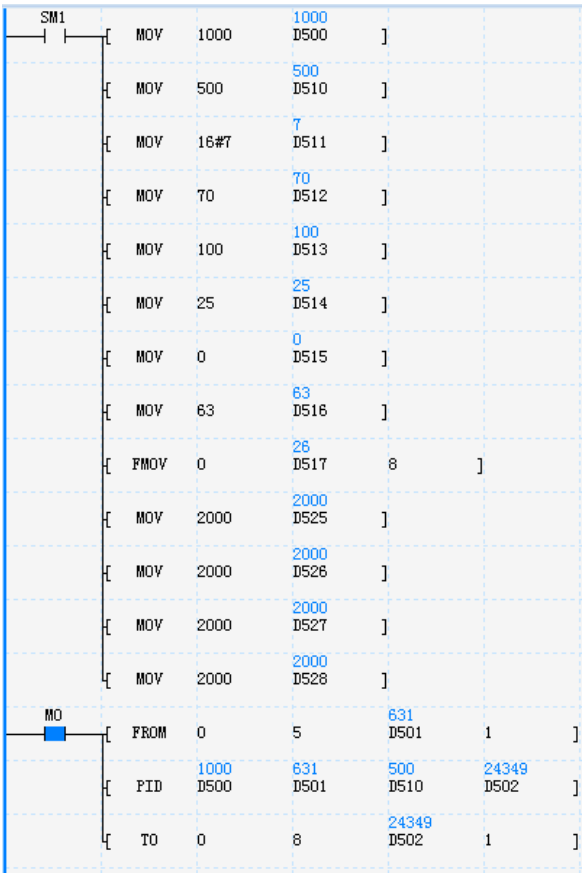
9 PID

	PID
	$\Delta MV = KP\left\{(EV_n - EV_{n-1}) + \frac{T_S}{T_I}EV_n + D_n\right\}$ EV_n $PV_{nf\ 1}$ SV D_n $\frac{T_D}{T_S\ \breve{U}_D\ T_D}$ PV_{nf} $PV_{nf\ 2}$ $2PV_{nf\ 1}$ $\frac{\breve{U}_D\ T_D}{T_S\ \breve{U}_D\ T_D}$ $D_{n\ 1}$ MV_n φMV
	$\Delta MV = KP\left\{(EV_n - EV_{n-1}) + \frac{T_S}{T_I}EV_n + D_n\right\}$ EV_n SV $PV_{nf\ 1}$ D_n $\frac{T_D}{T_S\ \breve{U}_D\ T_D}$ $2PV_{nf\ 1}$ PV_{nf} $PV_{nf\ 2}$ $\frac{\breve{U}_D\ T_D}{T_S\ \breve{U}_D\ T_D}$ $D_{n\ 1}$ MV_n φMV

EV_n			D_n	
$EV_{n\ 1}$	1		$D_{n\ 1}$	1
SV			KP	
PV_{nf}			T_S	
$PV_{nf\ 1}$	1		T_I	
$PV_{nf\ 2}$	2		T_D	
φMV			U_D	
MV				

```
// PID
LD      SM1          //
MOV     1000    D500 //
MOV     500     D510 //          Ts          1   32767   ms
                     //
MOV     7       D511 //
MOV     70      D512 //                      0   99[   ]   0
MOV     100     D513 //          Kp      1   32767[   ]
MOV     25      D514 //          TI      0   32767    100ms     0
                     //
```

```
MOV     0       D515    //          KD      0   100[  ]    0
MOV     63      D516    //          TD      0   32767   10ms    0
                        //
FMOV    0       D517    8   //      PID
MOV     2000    D525    //                          0   32767
MOV     2000    D526    //                          0   32767
MOV     2000    D527    //                          0   32767
MOV     2000    D528    //                          0   32767
//PID
LD      M0              //          PID
FROM    0   5   D501    1   //
PID     D500 D501 D510 D502     //PID         PID S1 S2 S3 D
TO      0   8   D502    1   //PID
                            //      PID
```



PID

PID

X2=ON A/D

PID

D/A

1 ***D***

0 LD SM0 MOV 0 D****

2 PID ***S3*** 20

3 TS 1 1ms

1 TS PID

PID

4 PID

PID

5 ***S3*** ***15*** ***S3*** ***18***

PID

6 ***S3*** ***1*** BIT2 BIT5 ON

BIT2 BIT5 OFF

7 PID ***S3*** ***S3*** ***6***

PID

8 1

PID

9 PID

PID

PID

6.11.2 RAMP

RAMP (S1) (S2) (D1) (S3) (D2)															
		S1	***S2***	***D1***	***S3***	***D2***									
S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
D1	INT								D				V		R
S3	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
D2	BOOL			Y	M	S	LM				C	T			

S1

S2

D1

S3 ***S3*** 0

D2 0

1

2

3 S1=S2 D1=S2 D2=ON

4 RAMP HACKLE TRIANGLE

100

5. RAMP HACKLE TRIANGLE

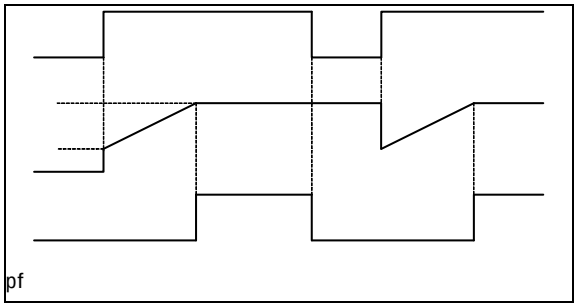
ON

S2 ***D1***

ON ***D2*** OFF

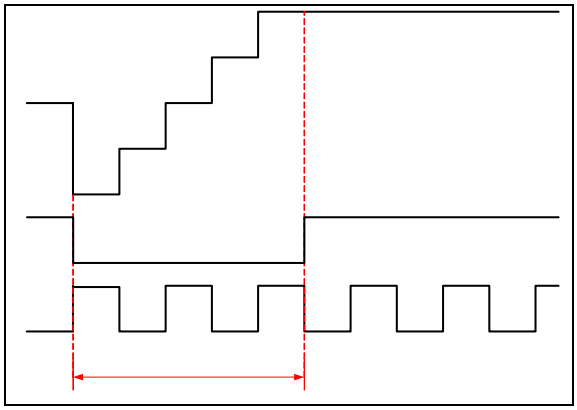
D1

D1 ***S1***



pf

S3=5



//

LD SM1

MOV 0 D0

MOV 2000 D1

//X0=ON

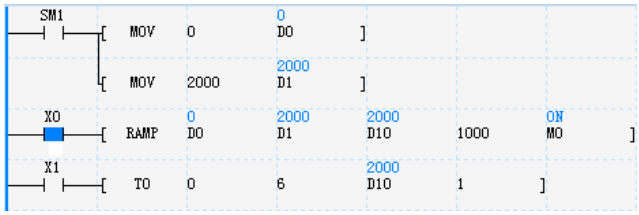
LD X0

RAMP D0 D1 D10 1000 M0

//X1=ON DA

LD X1

TO 0 6 D10 1



1 X0=ON D10

D10=D0=0 2 2000/1000 D10=D1=2000

D10 M0=ON

D2 OFF

D1

D10=D0

2

6.11.3 HACKLE

		S1	***S2***	***D1***	***S3***	***D2***										
S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D1	INT								D				V		R	
S3	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D2	BOOL			Y	M	S	LM				C	T				

S1

S2

D1

S3 ***S3*** 0

D2

1

2 ***S1***=***S2*** ***D1***=***S2*** ***D2***=ON

3 RAMP HACKLE TRIANGLE

100

D1 ***S2***

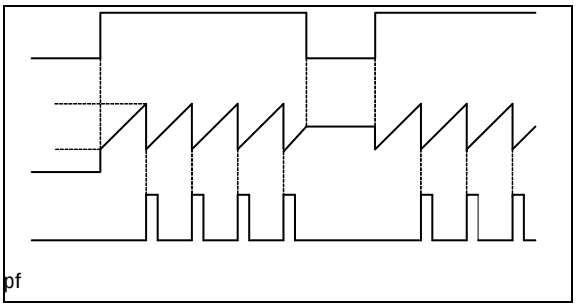
S1 ***D2*** ON

ON ***D2*** OFF

D2 OFF ***D1***

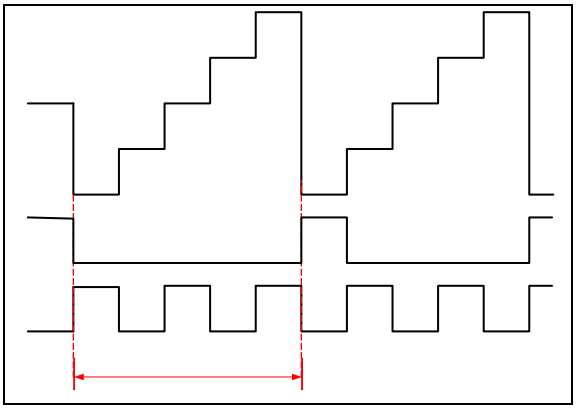
D1

S1



pf

S3=5



//

LD SM1

MOV 0 D0

MOV 2000 D1

//X0=ON

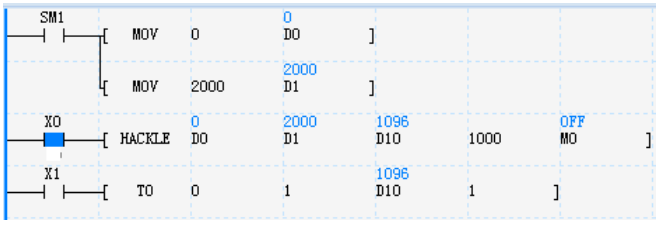
LD X0

HACKLE D0 D1 D10 1000 M0

//X1=ON DA

LD X1

TO 0 1 D10 1



1 X0=ON D10

D10=D0=0 2 2000/1000 D10=D1=2000

M0=ON X0 ON

D10=D0=0 M0=OFF

D2

OFF ***D1***

D1 ***S1***

2

6.11.4 TRIANGLE

TRIANGLE (S1) (S2) (D1) (S3) (D2)															
S1 ***S2*** ***D1*** ***S3*** ***D2***															
S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
D1	INT								D				V		R
S3	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
D2	BOOL			Y	M	S	LM				C	T			

S1

S2

D1

S3 S3 0

D2

1

2

3 ***S1***=***S2*** ***D1***=***S2*** ***D2***=ON

4 = ***S3*** 1 2

5 RAMP HACKLE TRIANGLE

100

D1 ***S2***

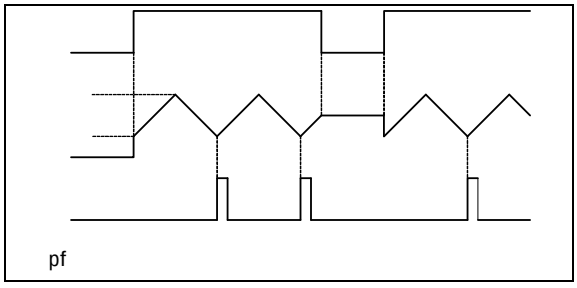
D1 ***S1***

D2 ON

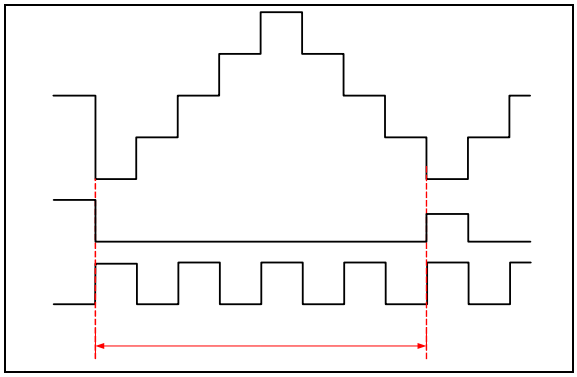
ON ***D2*** OFF

D2 OFF ***D1***

D1 ***S1***

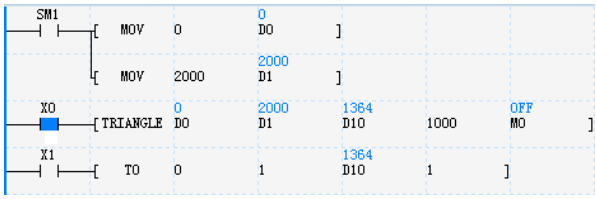


S3=5



```
//
LD      SM1
MOV     0 D0
MOV     2000 D1
//X0=ON
LD      X0
TRIANGLE D0 D1 D10 1000 M0
//X1=ON                          DA

LD      X1
TO      0 1 D10 1
```



1 X0=ON D10

D10=D0=0 2 2000/1000 D10=D1=2000

D10 2

D10=D0=0 M0=ON

X0 ON M0=OFF

D2 OFF ***D1***

D1 ***S1***

2

6.11.5 ABSD

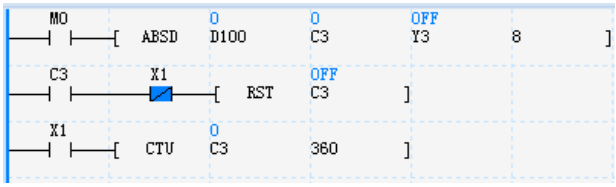
ABSD															
(S1) (S2) (D) (S3)															
S1	INT		KnX	KnY	KnM	KnS			D		C	T		R	
S2	INT										C				
D	BOOL			Y	M	S									
S3	WORD														

S1 0 360 ON/OFF(1 1
n 4)

S2

D

S3 1 ***S3*** 64



M0 X1

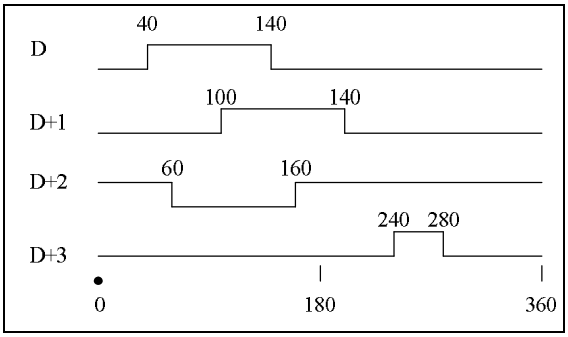
1 ***S1*** n (n 2)
S2 n ***D*** ON/OFF

2 / ***S1*** ***S1*** n 2

3 S1 S1 2n 1

S1	40	***S1***+1	140	***D***
S1+2	100	***S1***+3	200	***D***+1
S1+4	160	***S1***+5	60	***D***+2
S1+6	240	***S1***+7	280	***D***+3
é ***S1***+2n	é	é ***S1***+2n+1	é	é ***D***+n-1

4 ON ***D*** n
D+1 140 200

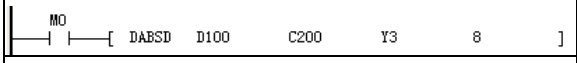


1 ***S1*** k 4

2 ***S2*** S2 C0 C199

3

6.11.6 DABSD



(S1) (S2) (D) (S3)

S1	DINT		KnX	KnY	KnM	KnS			D		C	T		R	
S2	DINT										C				
D	BOOL			Y	M	S									
S3	WORD														

S1

k=8

S2

C200 C255

D

S3 1 ***S3*** 64

1 ***S1*** n (n 4)
S2 n D ON/OFF

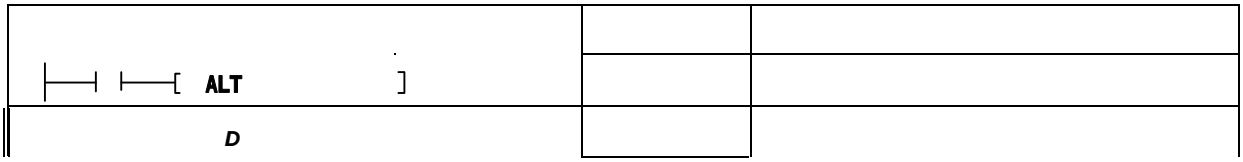
2 / [***S1***+1 ***S1***] [***S1***+(n
2)+3 ***S1***+(n 2)+2]
[***S1*** ***S1***+1] [***S1*** ***S1***+1]+4n+3

	40	[***S1***+3 ***S1***+2]	140	***D***
]	100	[***S1***+7 ***S1***+6]	200	***D***+1
8]	160	[***S1***+11 ***S1***+10]	60	***D***+2
1+12]	240	[***S1***+15 ***S1***+14]	280 & Ő S	

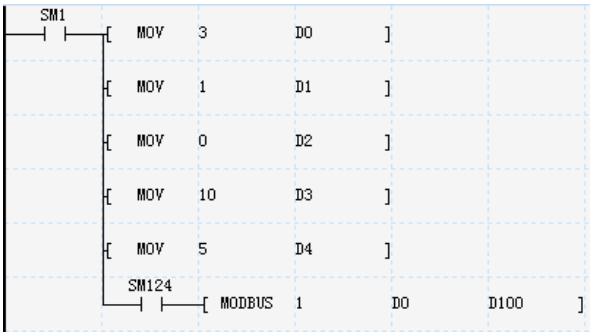
MC

+14]

6.11.7 ALT



4



LD SM1
MOV 3 D0
MOV 1 D1
MOV 0 D2
MOV 10 D3
MOV 5 D4
AND SM124
Modbus 1 D0 D100

1 Modbus D0

2 D100

3 Modbus CRC
SM136
SD139

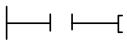
4 SM114 SM124

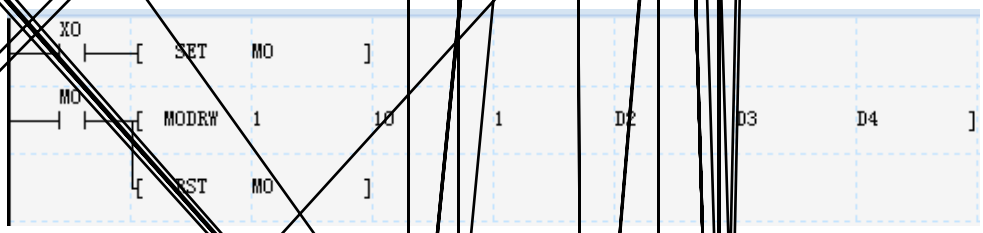
MODBUS MODBUS

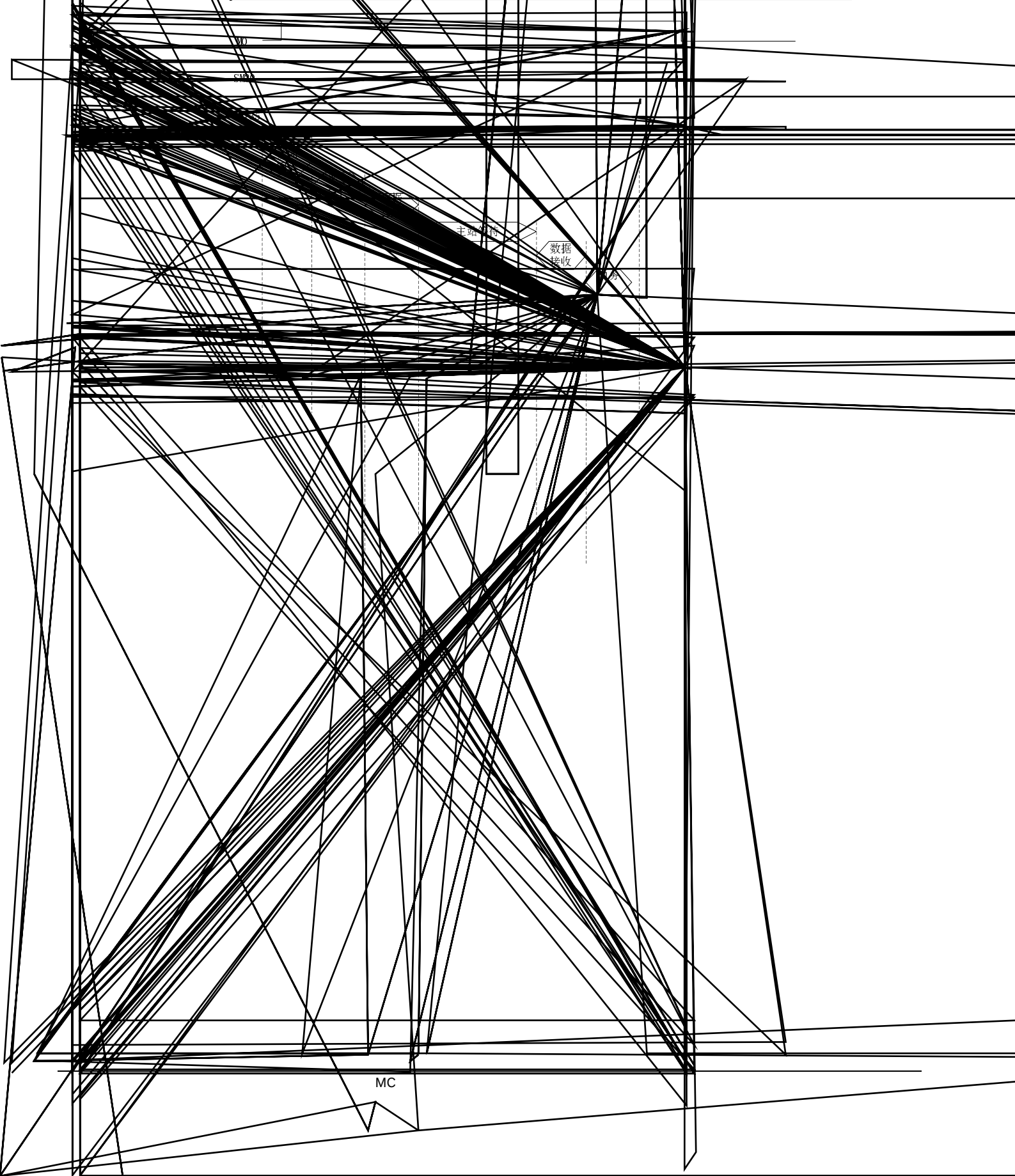
Modbus

0x01	
0x02	
0x03	
0x10	
0x11	
0x12	/
0x13	

6.12.2 MODRW MODBUS




X0
SET M0
M0
MODRW 1 10 1 D2 D3 D4
RST M0


X0
SM8
主站等待
数据接收
MC

T_7 $\frac{20\ \ 10}{19200}$ 1000 1 11.4*ms*

T_4 T_8 T_9 1*ms*

T_6 35*ms*

T_3 1 6.2 35 11.4 1 1 55.6*ms*

10ms

T_2 $(INT(\frac{55.6}{15})$ 1))15 60*ms*

T_{10} 6.2 15 1 11.4 33.6*ms*

* MC100 PLC

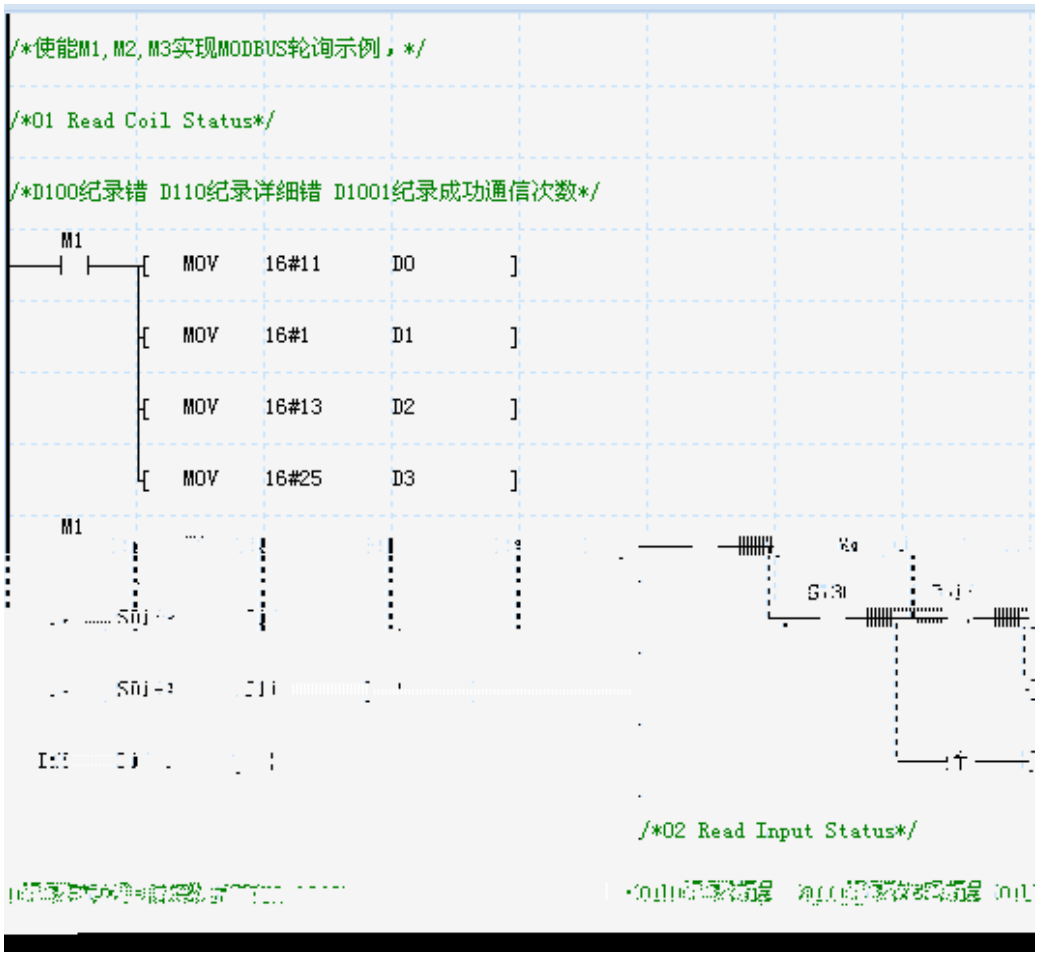
M1 M2 M3 MODRW

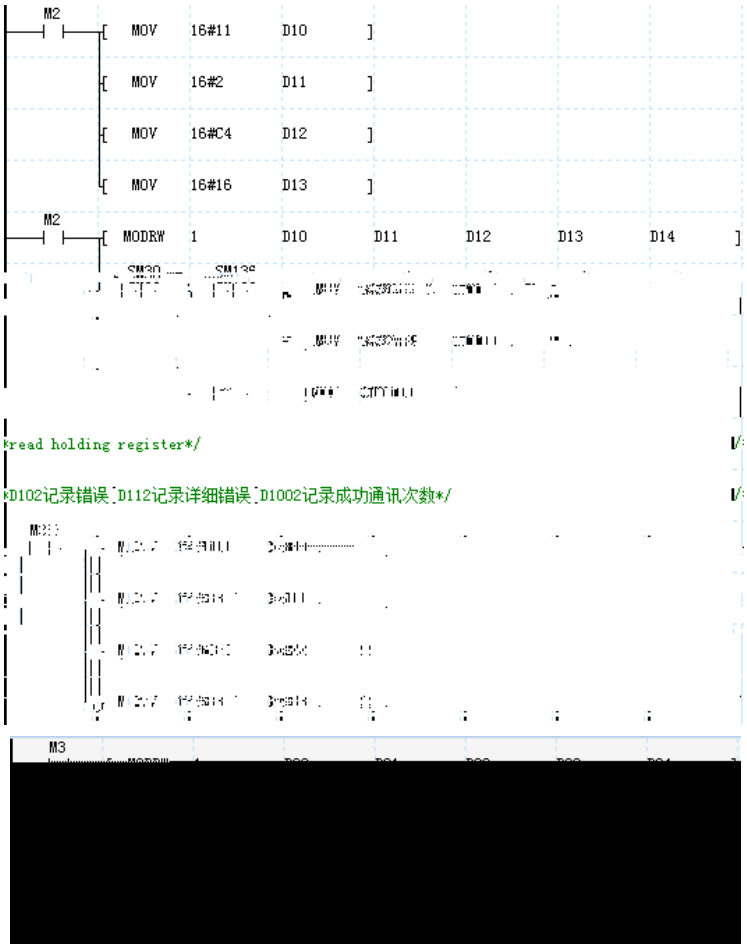
M MODRW MODRW

M2 M1 M3 MODRW

MODRW

M2 MODRW





SM30 MODRW MODRW SM136 SD139 MODRW SM30 MODRW SD194 SM136 SD139 SD194 SM30 2 MODRW SM30 SM135 MODRW MODRW SM30 MODRW MODRW SM30 MODRW

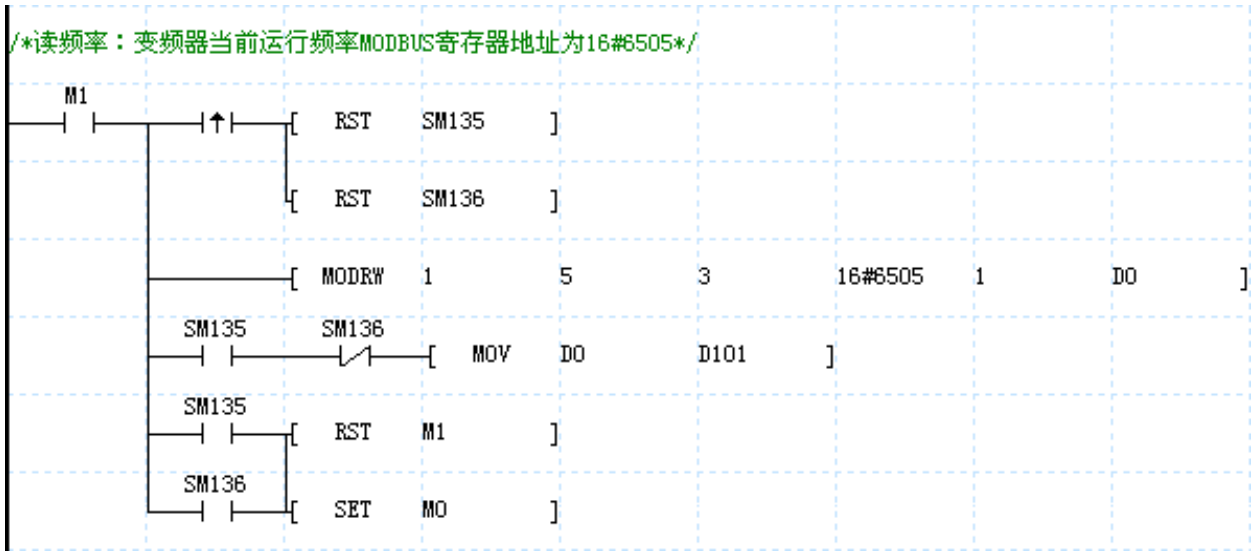
SM30

2 MC100 MV600 T0

MC100 MV600 SM135

T0 SM136




/*读频率：变频器当前运行频率MODBUS寄存器地址为16#6505*/
M1
RST SM135
RST SM136
MODRW 1 5 3 16#6505 1 D0
SM135
SM136
MOV D0 D101
SM135
RST M1
SM136
SET M0

6.12.3 Modlink MODBUS



		S1	***S2***	***S3***	***S4***	***S5***									
S1	INT														
S2	INT	D													
S3	INT	D													
S4	BOOL			M	S					C	T				
S5	BOOL			M	S					C	T				

1

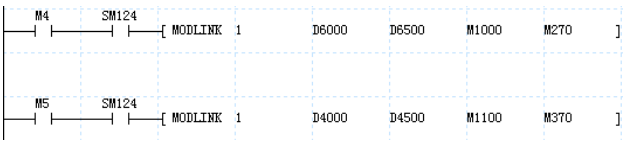
MODLINK MODBUS
MODLINK MODLINK
MODLINK
MODLINK MODBUS

MODLINK



D6000

S2		
S2+1	M	0
S2+2		
S2+3		
S2+4		
S2+5		
S2+6		
S2+7		
S2+8		1
S2+9		
S2+10		
S2+11		
S2+12		
S2+13		
S2+14		
é		
é		



SM124

			D
01		1~2000	S5 15 /16
02		1 2000	S5 15 /16
03		1~125	S5
04		1~125	S5
05		0(fixed)	1
06		0(fixed)	1
15		1~1968	S5 15 /16
16		1~123	S5

MODLINK

MODBUS

0 N

S3

S3	0
S3+1	1
S3+2	2
é	
é	
S3+N	N

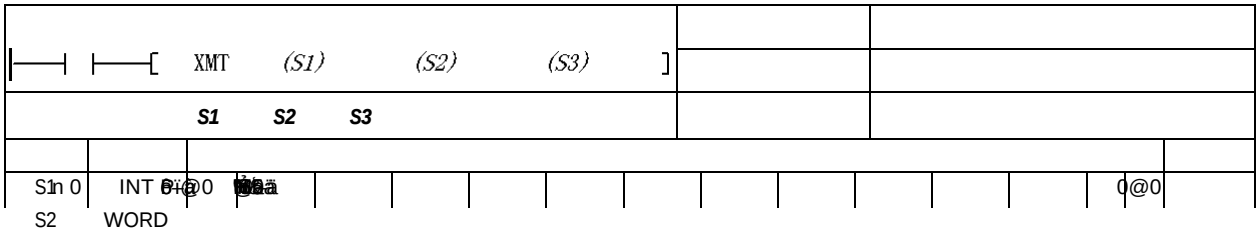
S3

Modbus

0x01	
0x02	
0x03	
0x10	
0x11	
0x12	/
0x13	

S4	0
S4+1	1
S4+2	2
é	
é	
S4+N	N

6.12.4 XMT



						R	
D	SD	C	T	V	Z	R	

M111 SM121 RCV

6.13

6.13.1 CCITT

⊣⊢ ⊣⊢[CCITT (S1) (S2) (D)]																
S1 **S2** **D**																
S1	WORD								D				V		R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	WORD								D				V		R	

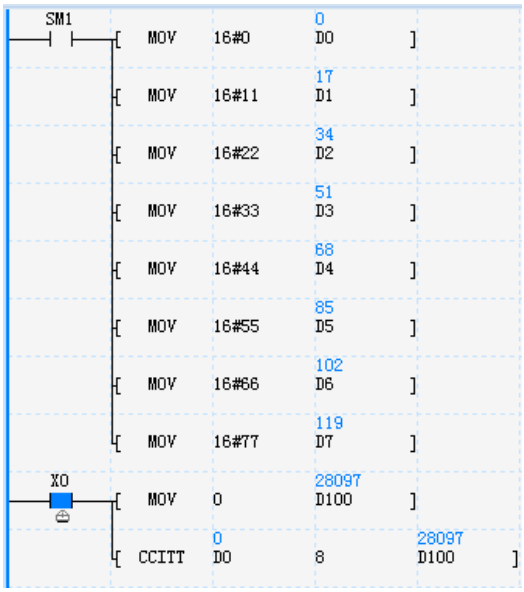
S1

S2 ***S2*** 0

D

1 ***S1*** ***S2***
CCITT ***D***
2 CCITT X^16
X^12 X^5 1

1
D
D




```
LD    SM1
MOV   16#00 D0
MOV   16#11 D1
MOV   16#22 D2
MOV   16#33 D3
MOV   16#44 D4
MOV   16#55 D5
MOV   16#66 D6
MOV   16#77 D7
LD    X0
MOV   0   D100
CCITT D0 8 D100
```

X0=ON D0 8 CCITT
D100

6.13.2 CRC16

CRC16 (S1) (S2) (D)																
S1 ***S2*** ***D***																
S1	WORD								D				V		R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	WORD								D				V		R	

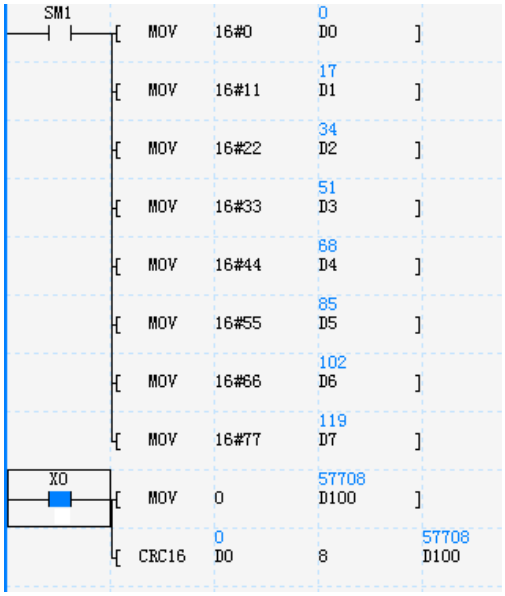
S1

S2 ***S2*** 0

D

1 ***S1*** ***S2***
CRC16 ***D***
2 CRC16 X^16 X^15
X^2 1

1 ***D***
D
2 Modbus CRC
D 16#FFFF
8 8




```
LD      SM1
MOV     16#00   D0
MOV     16#11   D1
MOV     16#22   D2
MOV     16#33   D3
MOV     16#44   D4
MOV     16#55   D5
MOV     16#66   D6
MOV     16#77   D7
LD      X0
MOV     0       D100
CRC16 D0 8 D100
```

X0=ON D0 8 CRC16
D100

6.13.3 LRC

LRC (S1) (S2) (D)		
S1 **S2** **D**		

S1	WORD								D				V		R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	WORD								D				V		R	

S1

S2 ***S2*** 0

D

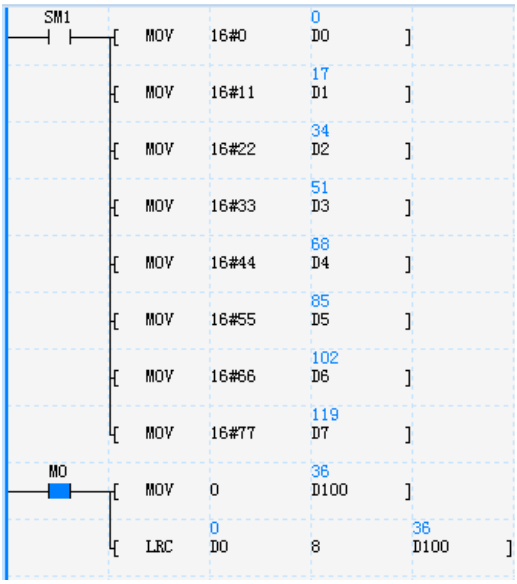
S1 ***S2***

LRC ***D***

1 ***D***

D

2




```
LD    SM1
MOV   16#00  D0
MOV   16#11  D1
MOV   16#22  D2
MOV   16#33  D3
MOV   16#44  D4
MOV   16#55  D5
MOV   16#66  D6
MOV   16#77  D7
LD    M0
MOV   0      D100
LRC   D0   8 D100
```

X0=ON D0 8 LRC D100

6.14

6.14.1 ZRST

ZRST (D) (S)		
D ***S***		

D	BOOL			Y	M	S	LM				C	T				
S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	

D 1 C C

S 2 T T

D ***S***




```
LD    SM0
ZRST  M10  10
```

SM0=ON M10 M10 M11 M12 M19 10

6.14.2 ZSET

ZSET (D) (S)		
D **S**		

D	BOOL			Y	M	S	LM				C	T				√
S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	√

D

S




```
LD    SM0
ZSET  M10  10
```

SM0=ON M10 M10 M11 M12 M19 10

1

D ***S***

1

6.14.3 DMCO

DECO (S) (D)		
S **D**		

S	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	INT			KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	

S 0 15

D 15 0

D

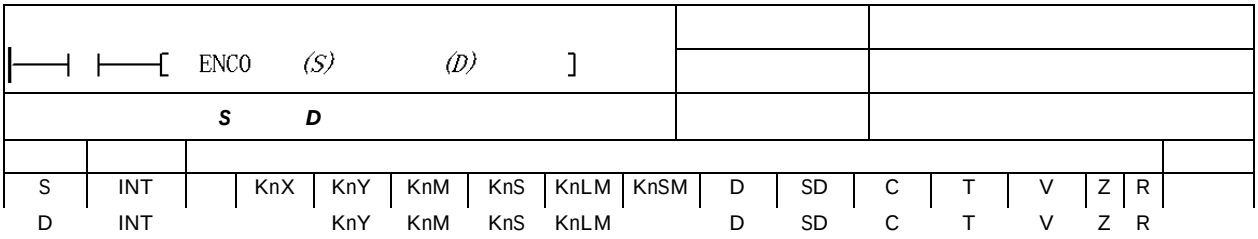
S 1 0




```
LD    SM0
DMCO  2  D9
```

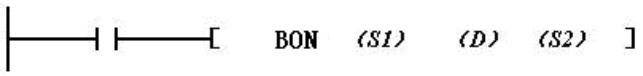
D9 2 1

6.14.4 ENCO



S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	INT			KnY	KnM	KnS	KnLM		D	SD	C	T	V	Z	R	

6.14.7 BON ON



S1 ***D*** ***S2***

S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		
D	BOOL		Y	M	S										
S2	INT								D				V		R

S ***D***



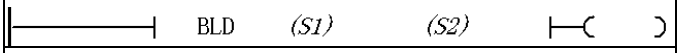
BON ***S1*** D0 5 (ON) D (Y0)

S1 S2

D

6.15

6.15.1 BLD LD

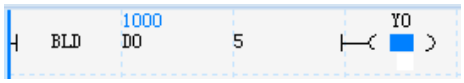


S1 ***S2***

S1	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R

S1

S2 0 ***S2*** 15



D0 1000 2#0000001111101000 BIT5 ON

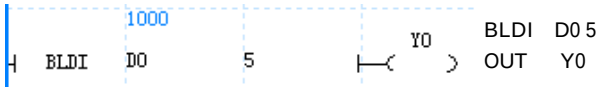
S1 ***S2*** Y0

6.15.2 BLDI LDI

BLDI (S1) (S2)															
S1 ***S2***															
S1	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R

S1

S2 0 ***S2*** 15



D0 1000 2#0000001111101000 BIT5 ON

OFF Y0

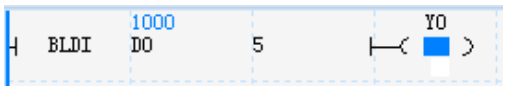
S1 ***S2***

6.15.3 BAND AND

BLD (S1) (S2) BAND BLD															
S1 ***S2***															
S1	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R

S1

S2 0 ***S2*** 15



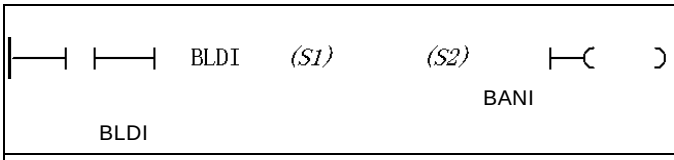
LD X0
BAND D0 5
OUT Y0

1000 2#0000001111101000 BIT5 ON X0=ON

Y0

S1 ***S2***

6.15.4 BANI ANI

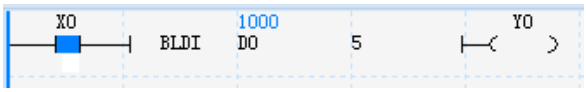


S1 ***S2***

S1	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	

S1

S2 0 ***S2*** 15



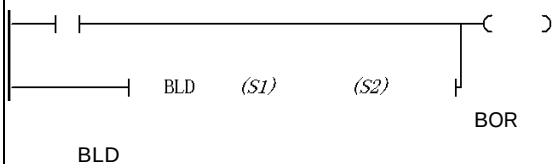

```
LD    X0
BANI  D0  5
OUT   Y0
```

D0 1000 2#0000001111101000 BIT5 ON OFF

X0=ON Y0

S1 ***S2***

6.15.5 BOR OR

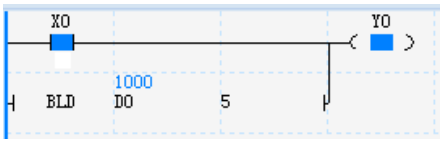


S1 ***S2***

S1	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	

S1

S2 0 ***S2*** 15



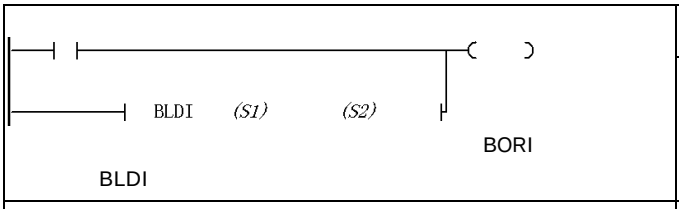

```
LD    X0
BOR   D0  5
OUT   Y0
```

D0 1000 2#0000001111101000 BIT5 ON

X0=ON Y0

S1 ***S2***

6.15.6 BORI ORI



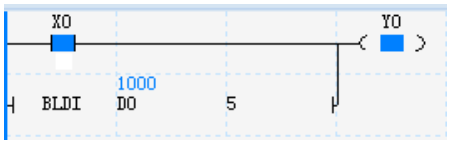
S1 ***S2***

S1	WORD		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R

S1

S2 0 ***S2*** 15

KIB

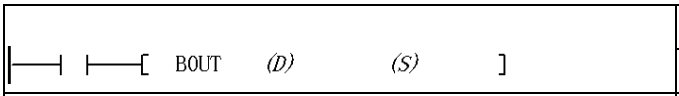



```
LD    X0
BORI  D0  5
OUT   Y0
```

D0 1000 2#0000001111101000 BIT5 ON OFF

S1 ***S2*** X0=ON Y0

6.15.7 BOUT



D ***S***

D	WORD			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R
S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R

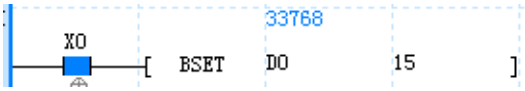


6.15.8 BSET

⊣⊢[BSET (D) (S)]																
D ***S***																
D	WORD			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R	
S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	

D

S2 0 ***S2*** 15




```
LD    X0
BSET  D0  8
```

D0 1000 2#0000001111101000 BIT15

D0=33768 2#1000001111101000

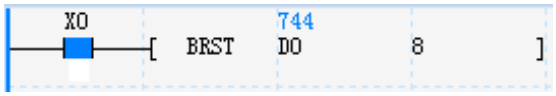
D ***S***

6.15.9 BRST

⊣⊢[BRST (D) (S)]																
D ***S***																
D	WORD			KnY	KnM	KnS	KnLM		D		C	T	V	Z	R	
S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	

D

S2 0 ***S2*** 15




```
LD    X0
BRST  D0  8
```

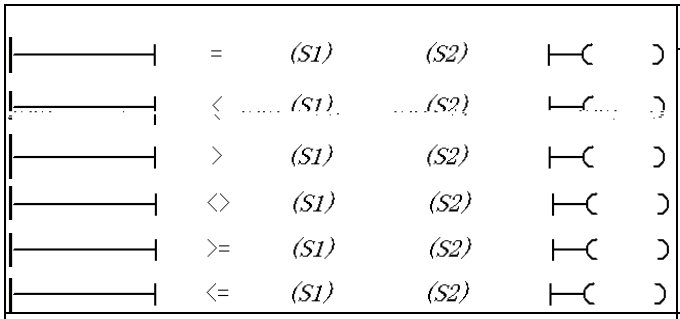
D0 1000 2#0000001111101000 BIT8

D0=744 2#0000001011101000

D ***S***

6.16

6.16.1 LD = < > <> >= <= LD

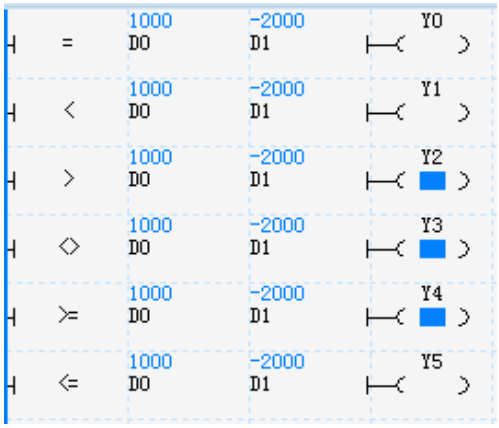


S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R

S1 1

S2 2

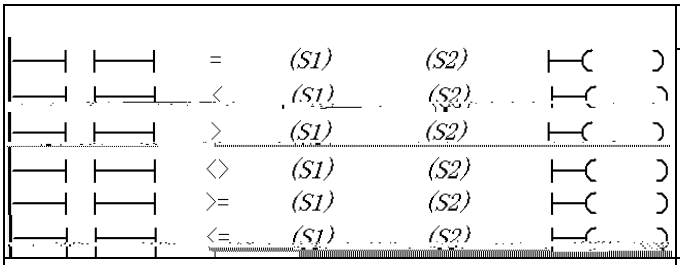
S1 ***S2*** BIN



D0 D1 BIN

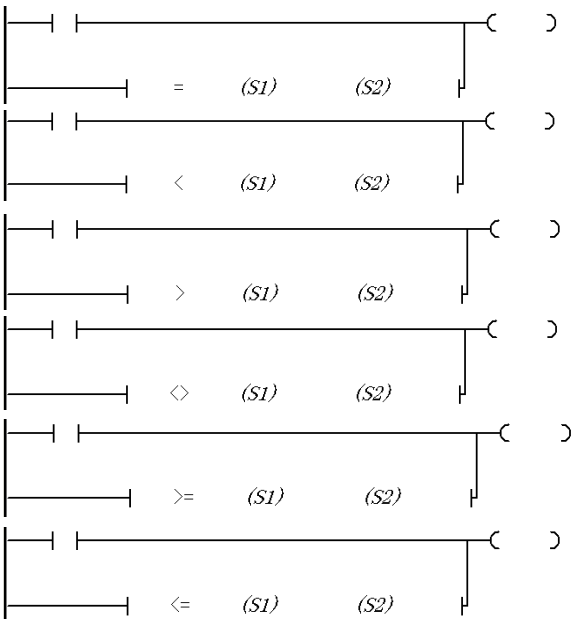
```
LD=    D0 D1
OUT    Y0
LD<    D0 D1
OUT    Y1
LD>    D0 D1
OUT    2
LD<>   D0 D1
OUT    Y3
LD>=   D0 D1
OUT    Y4
LD<=   D0 D1
OUT    Y5
```

6.16.2 AND = < > <> >= <= AND

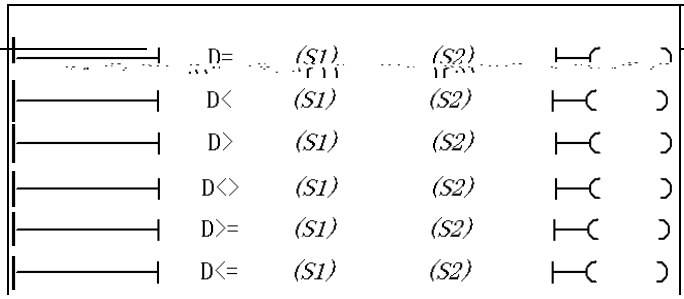


S1	INT		KnX	KnY	KnM	KnS

6.16.3 OR = < > <> >= <= OR



6.16.4 LDD = < > <> >= <= LDD



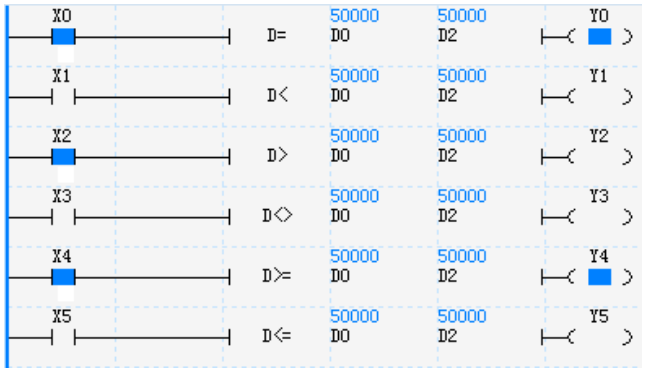
6.16.5 ANDD = < > <> >= <= ANDD

S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	

S1 1

S2 2

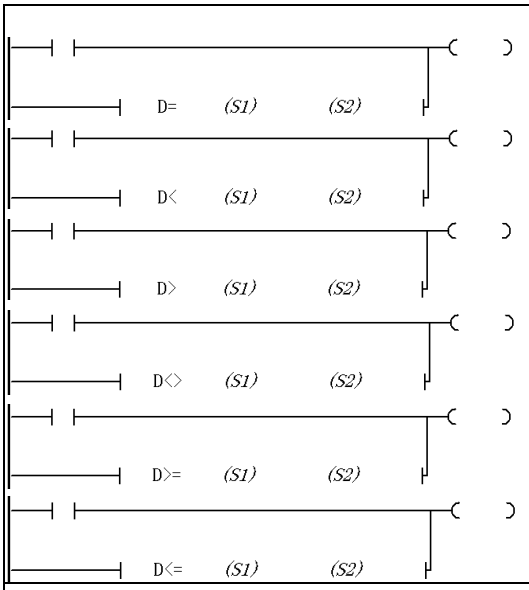
S1 ***S2***




```
LD      X0
LDD=    D0 D2
OUT     Y0
LD      X1
LDD<    D0 D2
OUT     Y1
LD      X2
LDD<>   D0 D2
OUT     Y2
LD      X3
LDD<>   D0 D2
OUT     Y3
LD      X4
LDD>=   D0 D2
OUT     Y4
LD      X5
LDD<=   D0 D2
OUT     Y5
```

D0,D1 D2,D3

6.16.6 ORD = < > <> >= <= ORD

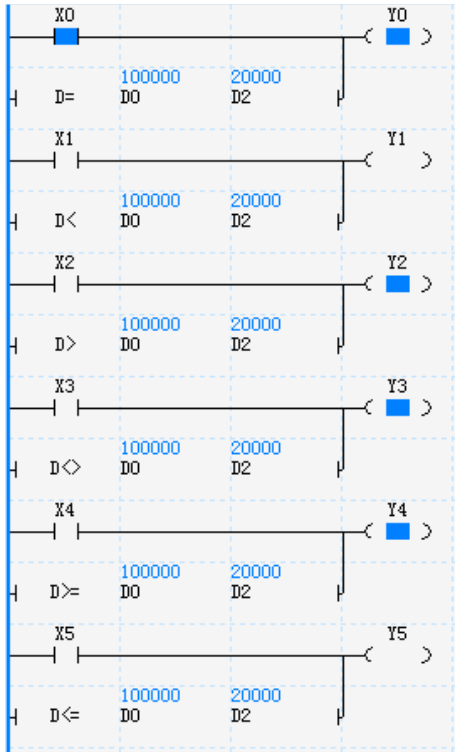


S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	

S1 1

S2 2

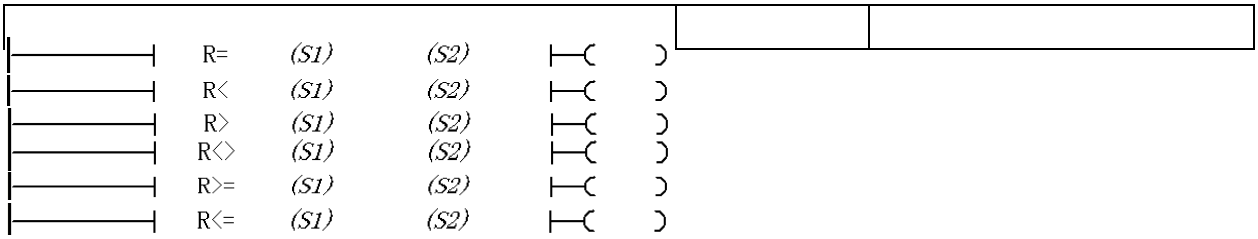
S1 ***S2***



D0,D1 D2,D3

```
LD      X0
ORD=    D0 D2
OUT     Y0
LD      X1
ORD<    D0 D2
OUT     Y1
LD      X2
ORD<>   D0 D2
OUT     Y2
LD      X3
ORD>=   D0 D2
OUT     Y3
LD      X4
ORD>=   D0 D2
OUT     Y4
LD      X5
ORD<=   D0 D2
OUT     Y5
```

6.16.7 LDR



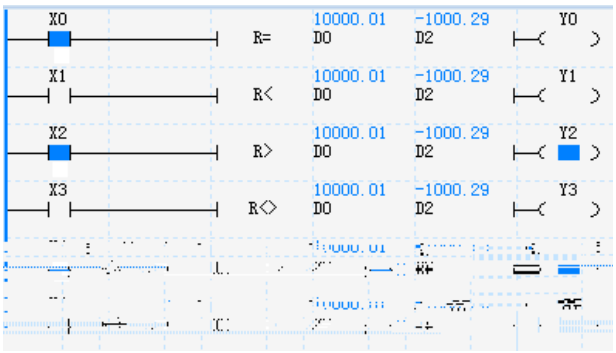
6.16.8 ANDR

S1	REAL								D				V		R	
S2	REAL								D				V		R	

S1 1

S2 2

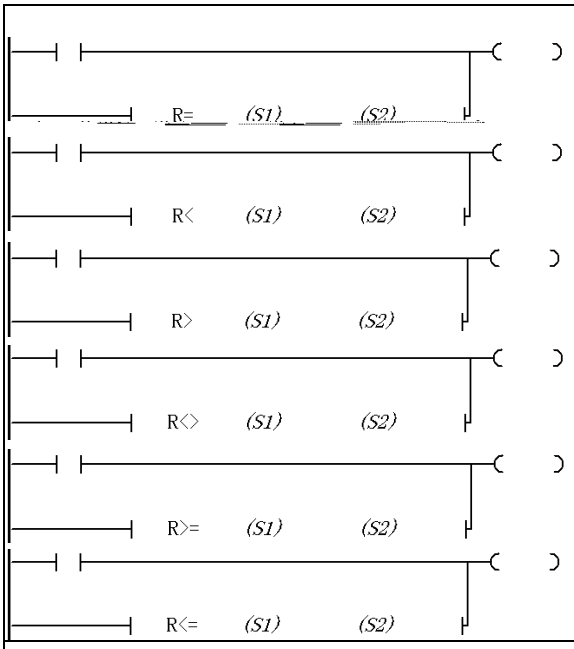
S1 ***S2***




```
LD      X0
ANDR=   D0 D2
OUT     Y0
LD      X1
ANDR<   D0 D2
OUT     Y1
LD      X2
ANDR<>  D0 D2
OUT     Y2
LD
ANDR<>  Y3
LD      X4
ANDR>=  D0 D2
OUT     Y4
LD      X5
ANDR<=  D0 D2
OUT     Y5
```

D0,D1 D2,D3

6.16.9 ORR

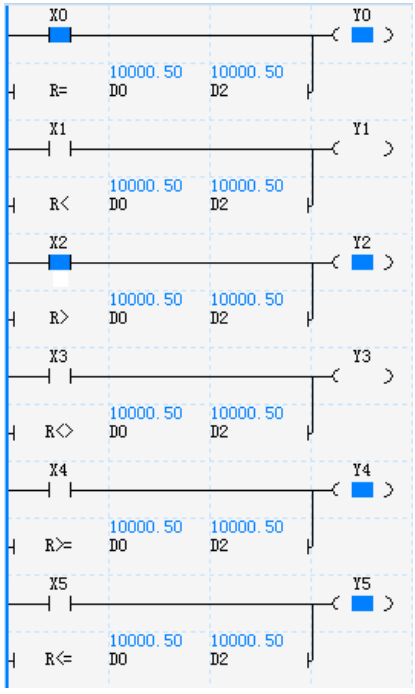


S1	REAL								D				V		R
S2	REAL								D				V		R

S1 1

S2 2

S1 ***S2***



D0,D1 D2,D3

```
LD      X0
ORR=    D0 D2
OUT     Y0
LD      X1
ORR<    D0 D2
OUT     Y1
LD      X2
ORR>    D0 D2
OUT     Y2
LD      X3
ORR<>   D0 D2
OUT     Y3
LD      X4
ORR>=   D0 D2
OUT     Y4
LD      X5
ORR<=   D0 D2
OUT     Y5
```

6.16.10 CMP

CMP]																
S1 *S2* *D*																
S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	Z	R	
D	BOOL			Y	M	S										

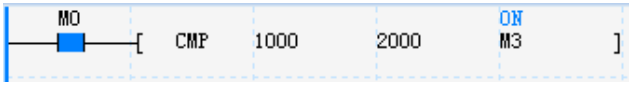
S1 ***S2***

D ***D***+1 ***D***+2 ON

S1

S2

D



6.16.11 LCMP

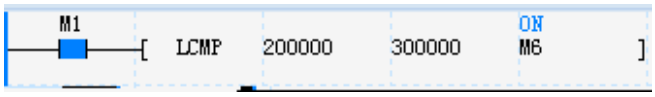
]																
S1 *S2* *D*																
S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V	Z	R	
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V	Z	R	
D	BOOL			Y	M	S										

D ***D***+1 ***D***+2 ON

S1 1

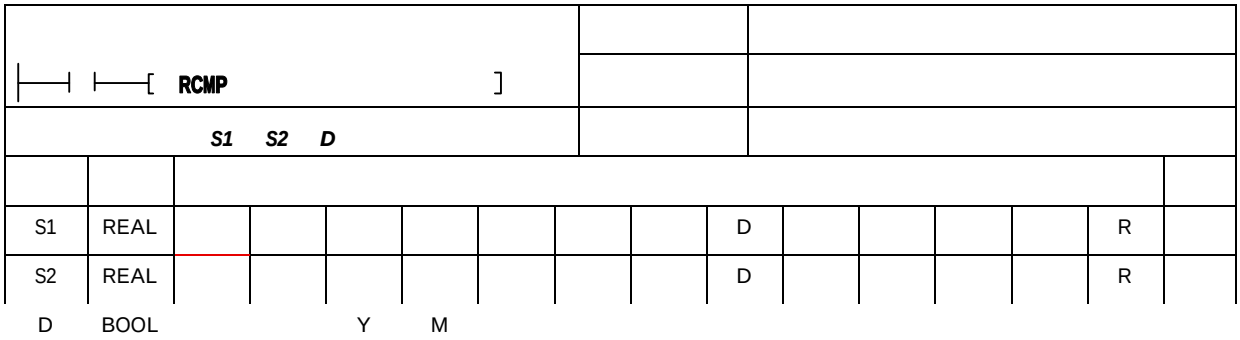
S2 2

D



S1 ***S2***

6.16.12 RCMP



S1	REAL								D					R	
S2	REAL								D					R	
D	BOOL			Y	M										

6.17.2 BKSUB

BKSUB (S1) (S2) (D) (S3)		
BKSUB (S1) (S2) (D) (S3)		

S1	INT								D	SD	C	T	V	R	
S2	INT								D	SD	C	T	V	R	
D	INT								D	SD	C	T	V	R	
S3	INT								D				V	R	

S1

S2

D

S3:

1

2



LD M1

BKSUB D10 D100 D1000 5

M1=ON D10 5 D100 5

D1000 5 D1000=D10-D100

D1001=D11-D101 D1004=D14-D104

6.17.3 BKCMP=,>,<,<>,<=,>=

BKCMP= (S1) (S2) (D) (S3) BKCMP< (S1) (S2) (D) (S3) BKCMP> (S1) (S2) (D) (S3) BKCMP<= (S1) (S2) (D) (S3) BKCMP>= (S1) (S2) (D) (S3) BKCMP>= (S1) (S2) (D) (S3)		
BKCMP	***(S1) (S2) (D) (S3)***	

S1	INT								D	SD	C	T	V	R	
S2	INT								D	SD	C	T	V	R	
D	BOOL		Y	M	S	LM	SM								
S3	INT								D				V	R	

S1

S2

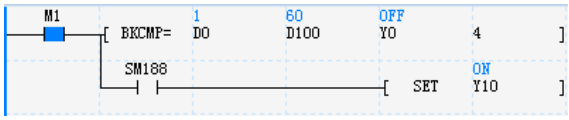
D

S3:

1

2 S1 16 ,S1
S1 S2 s3 16
D S3

3 D S3 ON
SM188



LD M1
BKCMP= D10 D100 Y0 4
LD SM188
SET Y10

M1=ON D10 4 D100
4 Y0
4 ON Y10
ON

6.18

6.18.1 LIMIT

LIMIT (S1) (S2) (S3) (D)															
(S1) (S2) (S3) (D)															
S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
S3	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
D	INT			KnY	KnM	KnS	KnLM		D	SD	C	T	V	R	

S1

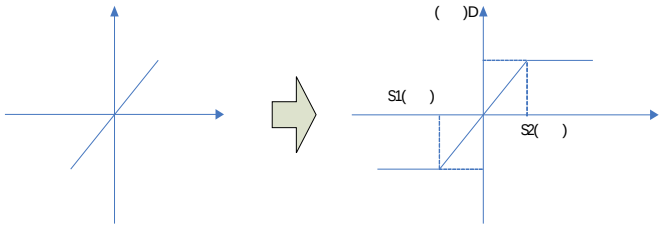
S2

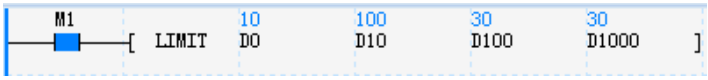
S3

D:

S3<S1 D=S1 S3>S2,D=S2;

S1<=S3<=S2,D=S2.





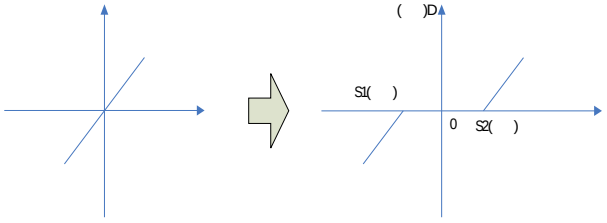
LD M1

LIMIT D0 D10 D100 D1000

6.18.2 DBAND

DBAND (S1) (S2) (S3) (D)]		
(S1) (S2) (S3) (D)		

S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
S3	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
D	INT			KnY	KnM	KnS	KnLM		D	SD	C	T	V	R	



S1

S2

S3

D:



LD M1

DBAND D0 D10 D100 D1000

S3<S1 D=S3-S1

S3>S2,D=S3-S2; S1<=S3<=S2,D=0.

6.18.3 ZONE

ZONE (S1) (S2) (S3) (D)]		
(S1) (S2) (S3) (D)		

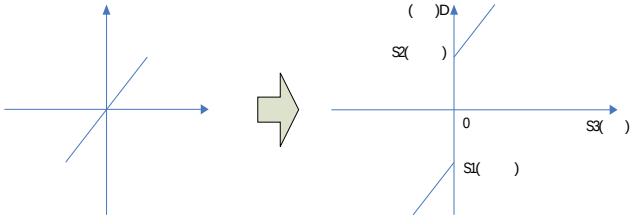
S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
S3	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
D	INT			KnY	KnM	KnS	KnLM		D	SD	C	T	V	R	

S1

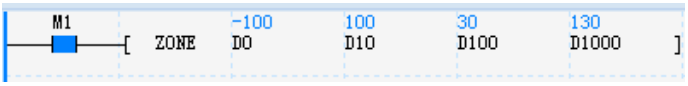
S2

S3

D:



ZONE D0 D10 D100 D1000



LD M1

6.18.4 SCL

SCL (S1) (S2) (D)															
(S1) (S2) (S3) (D)															
S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
S2	INT								D				V	R	
D	INT			KnY	KnM	KnS	KnLM		D	SD	C	T	V	R	

S1

S2

D:

1 S1

D

2 S2

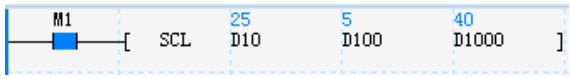
1

3

		S2
1	X	S2+1
	Y	S2+2
2	X	S2+3
	Y	S2+4
é	é	é
n ( )	X	S2+2n-1
	y	S2+2n

1 X

2 S1



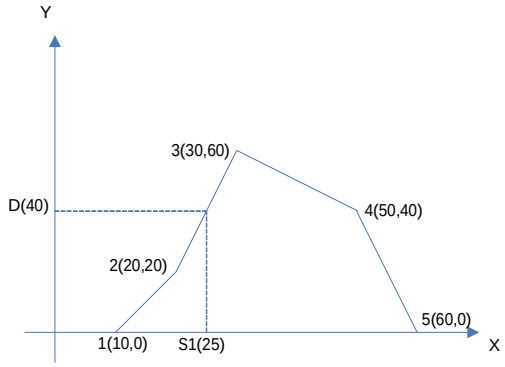
LD M1

SCL D10 D100 D1000

M1=ON D10

D1000

		D100	5
1	X	D101	10
	Y	D102	0
2	X	D103	20
	Y	D104	20
3	X	D105	30
	y	D106	60
4	X	D107	50
	y	D108	40
5	X	D109	60
	y	D110	0



6.18.5 SER

SER (S1) (S2) (D) (S3)		
(S1) (S2) (S3) (D)		

S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
D	INT			KnY	KnM	KnS	KnLM		D	SD	C	T	V	R	
S3	INT								D				V	R	

S1

1. S1 S3 , S2

S2

,

D

S3: 1 ***S3***

256

6.19

6.19.1 STRADD

[STRADD (S1) (D) (S2)]		
(S1) S2 D		

S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
D	INT			KnY	KnM	KnS	KnLM		D	SD	C	T	V	R	

S1

S2

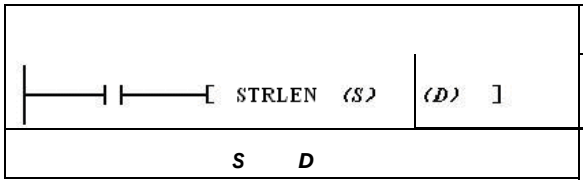
D:

1 S1 S2

D

2

6.19.2 STRLEN



6.19.3 STRRIGHT

[redacted]		
S1 ***D*** ***S2***		

S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
D	INT			KnY	KnM	KnS	KnLM		D	SD	C	T	V	R	
S2	INT								D				V	R	

S1

D

S2

1 S1 00H

2 S2 0

3 S2 S1

1 S1 00H

S2 D

2 S2 D 00H

3 00H

0000H

4

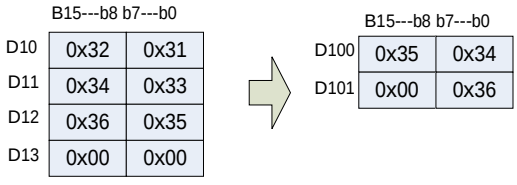
00H



LD M1

STRRIGHT D10 D100 3

M1=ON D10 3 D100



6.19.4 STRLEFT



S1 ***D*** ***S2***

S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
D	INT			KnY	KnM	KnS	KnLM		D	SD	C	T	V	R	
S2	INT								D				V	R	

S1

D

S2

1

6.19.5 STRMIDR



S1 ***D*** ***S2***

S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
D	INT			KnY	KnM	KnS	KnLM		D	SD	C	T	V	R	

6.19.6 STRMIDW

STRMIDW (S1) (D) (S2)															
S1 ***D*** ***S2***															
S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
D	INT			KnY	KnM	KnS	KnLM		D	SD	C	T	V	R	
S2	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	

S1

D

S2

S2+1 n

1 S1 n
D S2
n

2

00H

3 n 0

4 n -1 S1
D

1 S2 S1

2 n -2

3 S2 1

4 D

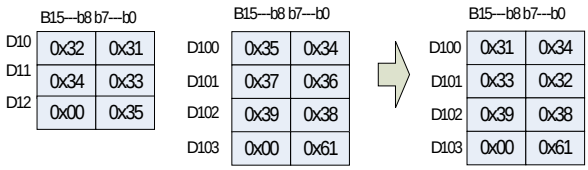
5 S1,D 00H



LD M1

STRMIDW D10 D100 D0

M1=ON D10 D1 D1=3
D100 D0 D0=2
D1 D1=3



6.19.7 STRINSTR

[STRINSTR (S1) (S2) (D) (S3)]															
S1 ***S2*** ***D*** ***S3***															
S1	INT								D	SD	C	T	V	R	
S2	INT								D	SD	C	T	V	R	
D	INT								D	SD	C	T	V	R	
S3	INT								D				V	R	

S1

S2

D

S3:

1 S2 S3
S1
D

2 D 0

3 S3 0

4
00H

1 S1 S2
00H

2 S3 S2

3 S1 32 ,

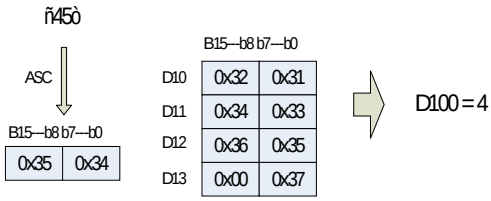
4 S1 00H S2
00H S2
00H



LD M1

STRINSTR “45” D10 D100 2

M1=ON D10 2
45 D100



6.19.8 STRMOV

STRMOV (S) (D)															
(S) (D)															
S	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T	V	R	
D	INT			KnY	KnM	KnS	KnLM		D	SD	C	T	V	R	

S

D:

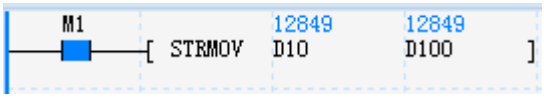
1 S 00H
D ;

2
00H

1 S
00H

2 S 00H
D
00H

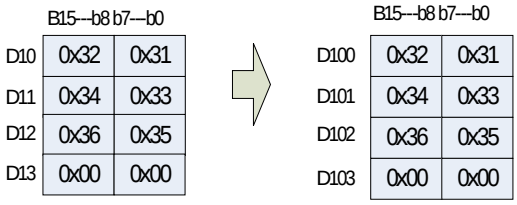
3 S1 32 ,



LD M1

STRMOV D10 D100

M1=ON D10 D100



6.20

6.20.1 ZRN



S1 ***S2*** ***S3*** ***D***

S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S3	BOOL		X	Y	M	S										
D1	BOOL			Y												

S1

32 MC100 MC200 10 100000 Hz
MC280 10 200000 Hz

S2 DOG ON

S3 X
X
PLC

D MC100 MC200,
Y0 Y1 MC280, Y0 Y1
Y2 Y3 Y4 Y5 Y6 Y7

SM85 Y0
Y1 Y2 Y3 SM85
Y2 Y3

4 MC200 MC280 SD MC100
,

5 ZRN

2

F_{min_acc} $\sqrt{\frac{F_{max}\ 500}{T}}$

F_{max} SD85 SD86
T SD87

F_{min_acc}

4
SD84 SD87
SD85
SD84
0 0
0

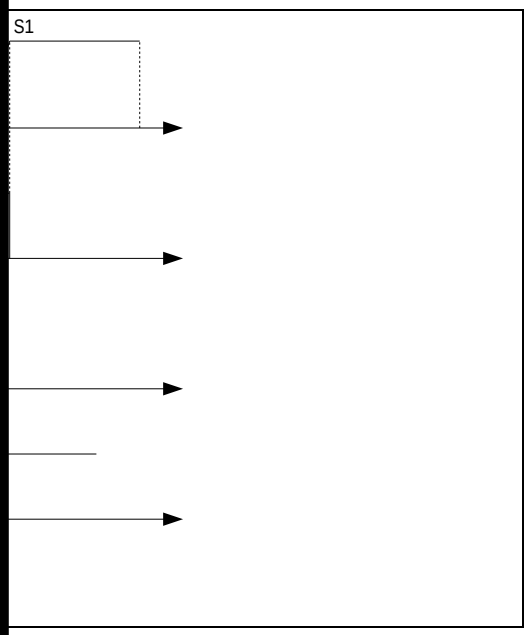
SD84 PLC
SD84 100

5
SD80/SD82
SD80/SD82
SD80/SD82
SM82/SM83 SD80/SD82
Y0/Y1

6 SD50/SD52 PLC
SD50/SD52

SD80/SD82

7 SD MC100 MC200/MC280
SD MC100



SM D SD C V R

6.20.3 DRVI

├─┤ ├─[DRVI (S1) (S2) (D1) (D2)]																
S1 S2 D1 D2																
S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D1	BOOL			Y												
D2	BOOL			Y	M	S										

S1

32 999999 999999

S2 Hz

32 MC100 MC200 10 100000 Hz MC280 10 200000 Hz

D1 MC100 MC200, Y0 Y1 MC280, Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7

D2 ***S1***

- ***S1*** D2 ON
- ***S1*** D2 OFF

1 ***S1***

- Y0 SD80 SD81 32
- Y1 SD82 SD83 32

2

3 ***S1***

4

5 OFF SM

6 OFF SM80,SM81 ON

7. SM440 SM441 SM443 Y0/Y1 Y2/Y3 Y6/Y7 AB ON AB OFF OFF

MC200 MC280 SD MC100 ,

F_{min_acc} $\sqrt{\frac{F_{max}\ 500}{T}}$

F_{max} SD85 SD86

T SD87

F_{min_acc}

4

SD84 SD87 SD85

SD84 0 0 0

SD84 PLC SD84 100

5 SD80/SD82

SD80/SD82 SD80/SD82 SM82/SM83 SD80/SD82 Y0/Y1

6 SD50/SD52 PLC SD50/SD52

SD80/SD82

7 SD MC100 MC200/MC280 SD MC100

6.20.4 DRVA

⊣⊢ ⊢[DRVA (S1) (S2) (D1) (D2)]																
S1 ***S2*** ***D1*** ***D2***																
S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		R	
D1	BOOL			Y												
D2	BOOL			Y	M	S										

S1

32 999999 999999

S2 Hz

32 MC100 MC200 10 100000 Hz MC280 10 200000 Hz

D1 MC100 MC200, Y0 Y1 MC280, Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 PLC

D2

D2 ON ***D2*** OFF

1 ***S1***

- Y0 SD80 SD81 32
- Y1 SD82 SD83 32

2

3 ***S1***

4

5 OFF SM

6 OFF SM80 SM81 ON

7. SM440 SM441 SM443 Y0/Y1 Y2/Y3 Y6/Y7 AB ON AB OFF OFF

MC200 MC280 SD MC100 ,

F_{min_acc} $\sqrt{\frac{F_{max}\ 500}{T}}$

F_{max} SD85 SD86

T SD87

F_{min_acc}

4

SD84 SD87 SD85

SD84 0 0 0

SD84 PLC SD84 100

5 SD80/SD82

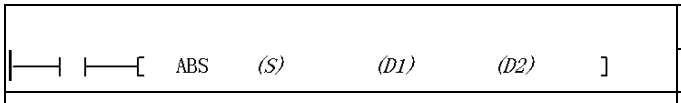
SD80/SD82 SD80/SD82 SM82/SM83 SD80/SD82 Y0/Y1

6 SD50/SD52 PLC SD50/SD52

SD80/SD82

7 SD MC100 MC200/MC280 SD MC100

6.20.5 ABS



S ***D1*** ***D2***

S	BOOL	X	Y	M	S											
D1	BOOL		Y	M	S											
D2	DINT		KnY	KnM	KnS					D	SD	C			R	

S

S,S 1,S 2 3 X

D1

D1 D1 1 D1 2 3 Y

D2 32

D2 D2 1 2

ABS

SD80 SD82 32

SD80 SD82

1 PLC

PLC

2 ABS D2

SD80

SD82

3 ABS ABS

ABS

ON OFF

4 SM82 SM83 Y0 Y1

5. MC200 MC280 SD MC100 ,

5 ABS ON ABS

6 ABS

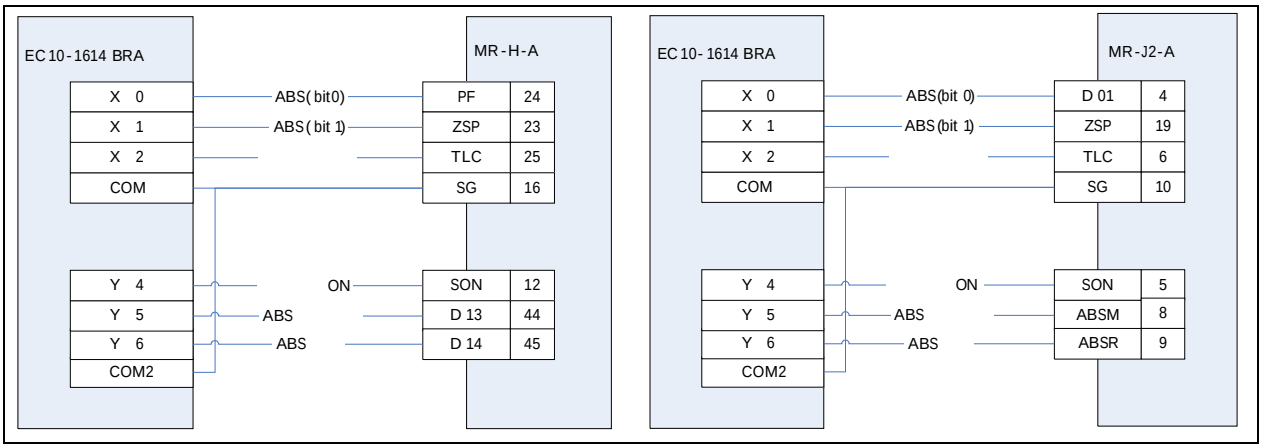
32 6

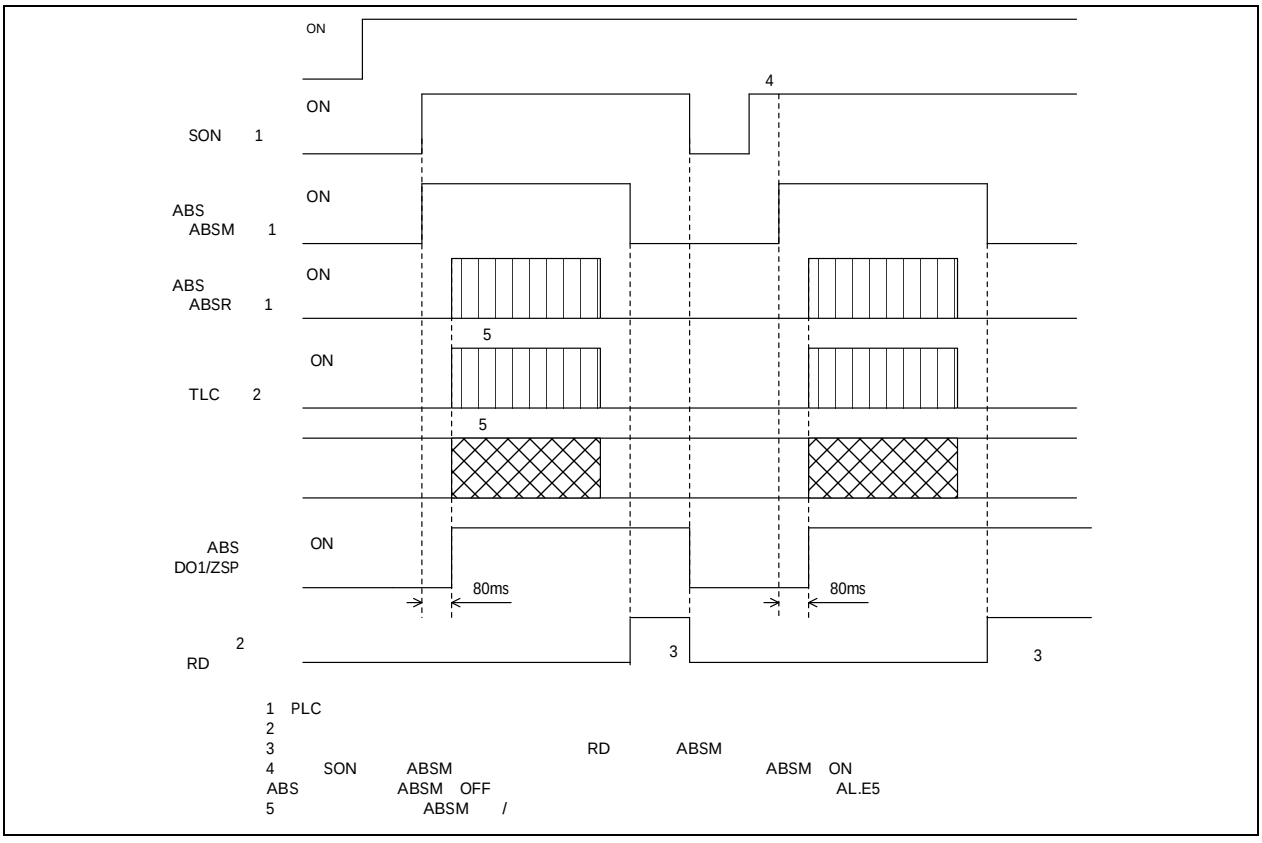
7 ABS bit0 bit1 2

8 79

80

ABS





ABS MR J2 MR J2S ABS

32

ABS ABS

6.20.6 DSZR DOG

[DSZR]		
(S1) (S2) (D1) (D2)		

S1	BOOL		X	Y	M	S									
S2	BOOL		X												
D1	BOOL			Y											
D2	BOOL			Y	M	S									

S1 DOG

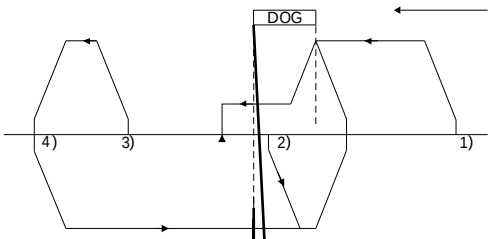
S2 X0 X7

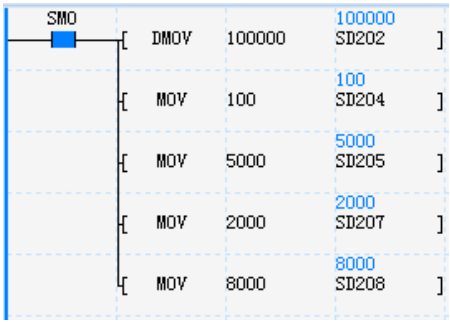
D1 MC100 MC200,

Y0 Y1 MC280, Y0 Y1

Y2 Y3 Y4 Y5 Y6 Y7

D2





DOG



6.20.7 STOPDV

STOPDV															
S1 *S2* *S3* *D*															
S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		
S3	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		
D	BOOL			Y											

S1

S2

S3

D Y0

Y1 Y2 Y3 Y4 Y5 Y6 Y7

1

2 ON

0

0

3

4

ON/OFF

1

2

sqrt 2

3 ***S2***

4

5 ***D*** Y0 Y1

Y2 Y3 Y4 Y5 Y6 Y7 Y1 Y3

Y0 Y2

6

LIN CW

CCW

PLSY Y0

M0



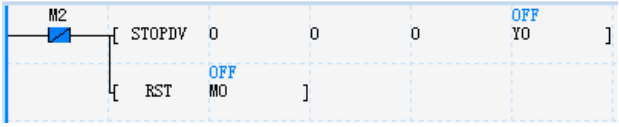
X6 ON Y0

X6 ON Y0 30000

INT_1 STOPDV

1 0



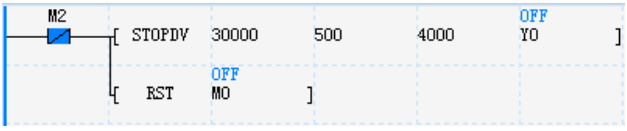


X6 Y0

STOPDV

Y0

Y0



6.20.8 LIN

LIN															
		S	***D1***	***D2***	***D3***	***D4***									
S	DINT								D						
D1	BOOL			Y											
D2	BOOL			Y											
D3	BOOL			Y											
D4	BOOL			Y											

D	

10

00		ON/ OFF
01		+

S+1

10

S

D1

D2

D3

D4

1

2

D	
S	

1

D1 ***D3***

Y0 Y2 Y1 Y3 Y0 Y2

D1 D3 Y4,Y5,Y6,Y7 2

2 Y0 Y2 +

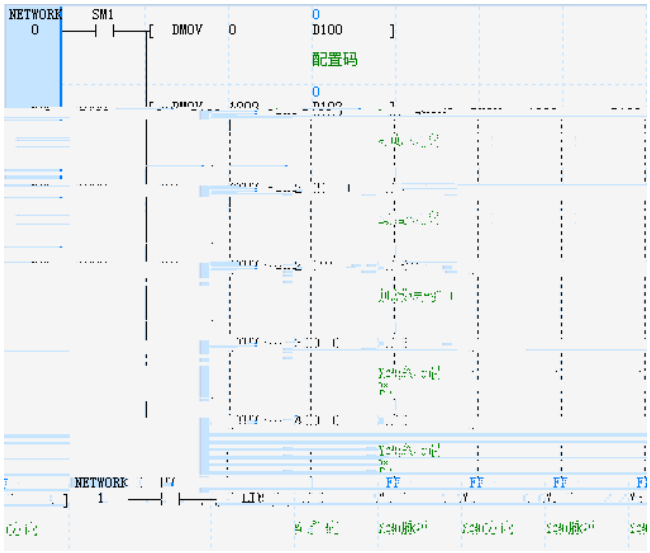
+ 100k Y4 Y5

Y6 Y7 +

20k

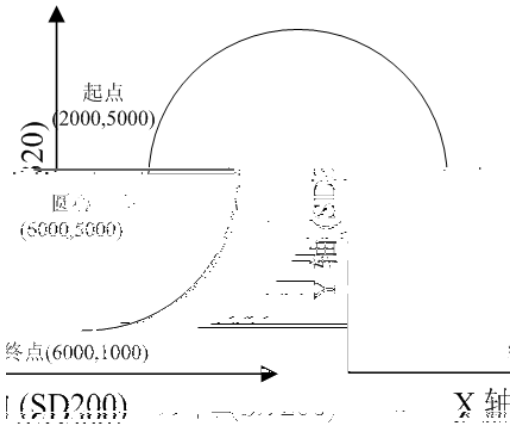
3 16,777,215

4



6.20.9 CW

| | | |





6.20.10 CCW

CCW		
S ***D1*** ***D2*** ***D3*** ***D4***		

S	DINT								D						
D1	BOOL			Y											
D2	BOOL			Y											
D3	BOOL			Y											
D4	BOOL			Y											

S

D1

D2

D3

D4

D			
S+1	10		
	00		ON/ OFF
	01		+
	10		ON/ OFF
	11		+
S+2			
S+3			
S+4			
S+5			
S+6			
S+7			
S+8	X		
S+9	X		
S+10	Y		
S+11	Y		
S+12	X	/	X
S+13	X	/	X
S+14	Y	/	Y
S+15	Y	/	Y

1

2

D	
S	
	0
	1

1

X Y

2

X Y

1 SD 6000 1000

D1 ***D3***

Y0 Y2 Y1 Y3 Y0 Y2

D1 D3 Y4,Y5,Y6,Y7 2

2 Y0 Y2 +

\+ 100k Y4 Y5

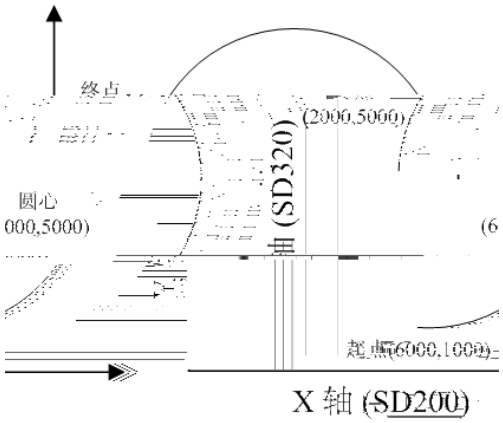
Y6 Y7 +

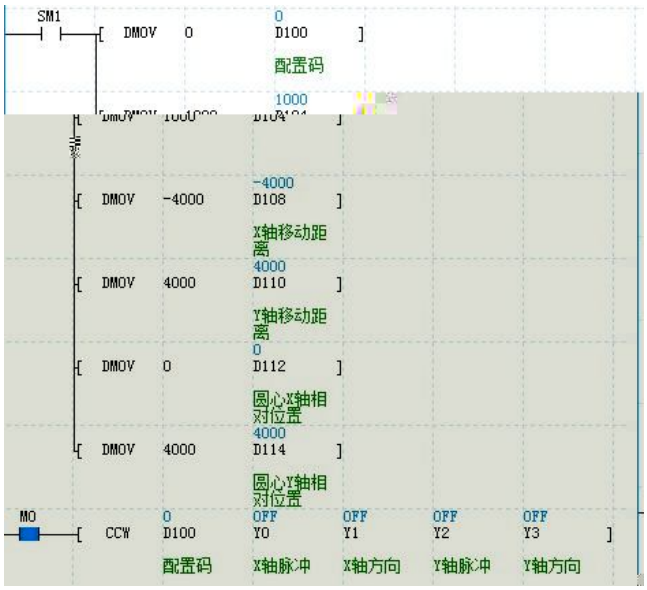
20k

3 16,777,215

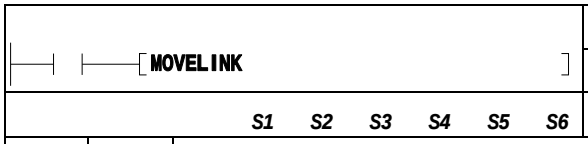
4

5





6.20.11 MOVELINK



S1	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		
S2	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		
S3	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		
S4	DINT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C		V		
S5	BOOL			Y											
S6	BOOL			Y							C				

6.20.12 GEARBOX

GEARBOX		
D1 *S1* *D2* *S2*		

S1	!	T							+	&	ű					
	m OL			Y												
S2	!	T							+	&	ű					

S1 ***S2***

S2 ***S1***

S1/S2 1/10000 10000

1

GEARBOX Y 1

Y ‘ 3 Y 10k

GEARBOX Y 30k

2 GEARBOX

S2/S1 1

3 1 1000 1000 1

1M Hz

1

2

3 ***D*** Y Y Y Y

Y Y Y Y Y Y Y Y2

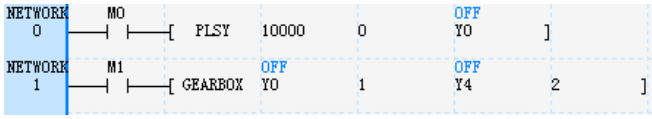
4.

gearbox gearbox

gearbox

5. GearBox S 3

S2



6.20.13 DRVC

DRVC (S1) (D1) (S2) (D2)															
S1	BOOL										C				
D1	DINT								D						
S2	BOOL			Y											
D2	DINT								D						

S1

D1

(D1+2

(D1+4

S2

D2

1. Y

X

2. Drvi

1. SD205 SD205 SD202(32

) SD204 16 f

t = SD205*(f-sd204)/(SD202-SD204)

2. s (t/1000) *(f+SD204)

3. Y0 SM80

Y SM

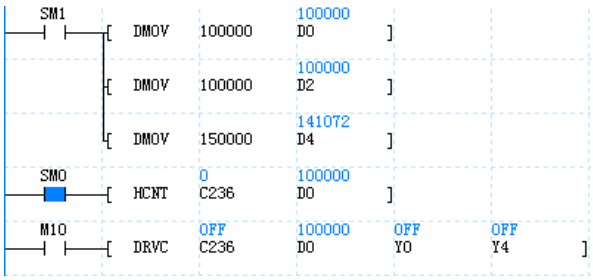
4.

5.

6. Y0 SM82 ON

OFF

7. Y0~Y7



6.20.14 CAMTABLE

├──[CAMTABLE (S1) (S2) (S3) (S4) (S5)]		

S1	INT								D	SD	C		V		
S2	DINT								D	SD	C		V		
S3	INT								D	SD	C		V		
S4	INT								D	SD	C		V		
S5	INT								D	SD	C		V		

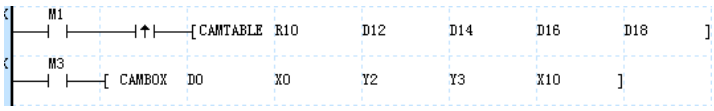
S1:

S2:

S3:

S4:

S5:



6.20.15 CAMBOX

├──[CAMBOX (S1) (D1) (D2) (D3) (D4)]		

S1	INT			Y					D	SD	C		V		
D1	BOOL	X	Y								C				
D2	BOOL		Y												
D3	BOOL		Y	M											
D4	BOOL		X												

S1 CAMTABLE 1

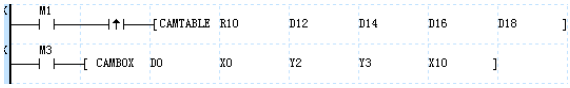
D1 X0~X7 Y0~Y7 2 C hcnt

C236~C307

D2 Y0~Y7

D3 Y0~Y7

D4 X0~X7



1.

Table0

6.21

6.21.1 MEAN

MEAN (S1) (D) (S2)		MC280

S1	INT		KnX	KnY	KnM	KnS	KnLM	KnSM	D	SD	C	T		R	
D	INT			KnY	KnM	KnS	KnLM		D	SD	C			R	
S2	INT								D					R	

S1 1

S2 2

D

1



LD M1

MEAN D0 D10 4

M1=ON D0 4 ,

D10 D0=32 D1=10 D2=15 D3=-14

D10=10

6.21.2 WTOB

WTOB (S1) (D) (S2)		MC280
		7

S1	INT								D	SD	C	T		R	
S2	INT								D	SD	C	T		R	
D	INT								D					R	

S1 1

S2 2

D

1

00H
00H
00H
00H

Õ ù - ╔ ┐ e

6.21.3 BTOW

BTOW (S1) (D) (S2)		

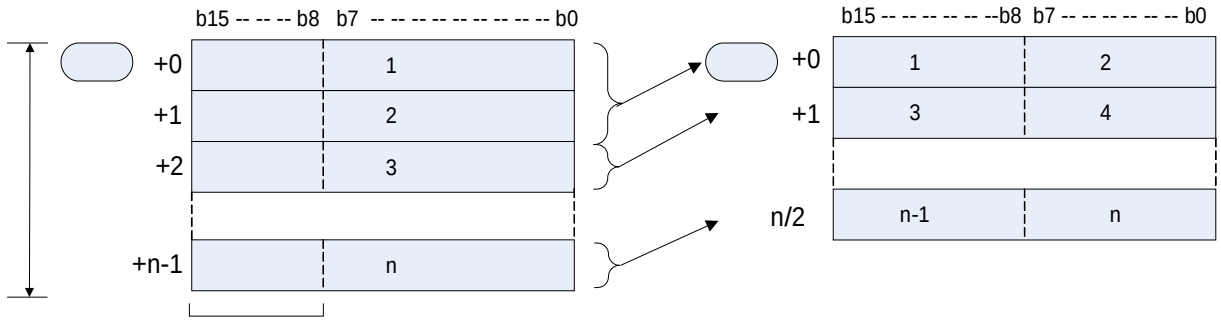
S1	INT								D	SD	C	T		R	
S2	INT								D	SD	C	T		R	
D	INT								D					R	

S1 1

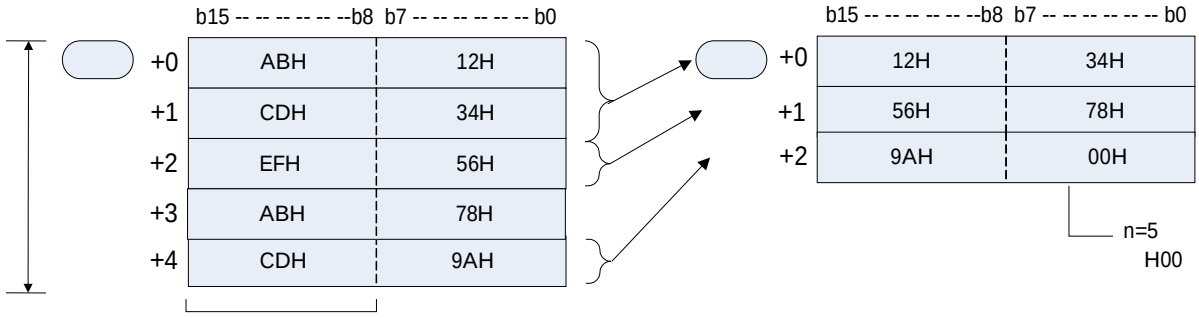
S2 2

D

1

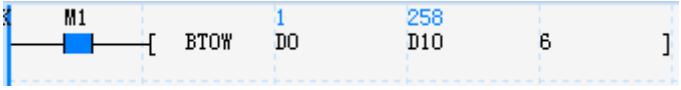


2



3

4

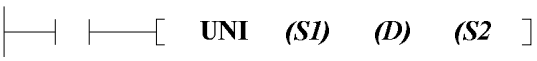


LD M1

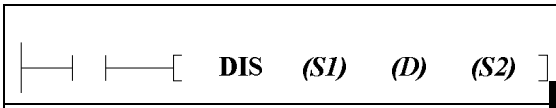
BTOW D0 D10 6

M1=ON D0 6 3 D10 3 D0=0x01, D1=0x02, D2=0x03, D3=0x04, D4=0x05, D5=0x06 D10=0x102, D11=0x304, D12=0x506

6.21.4 UNI



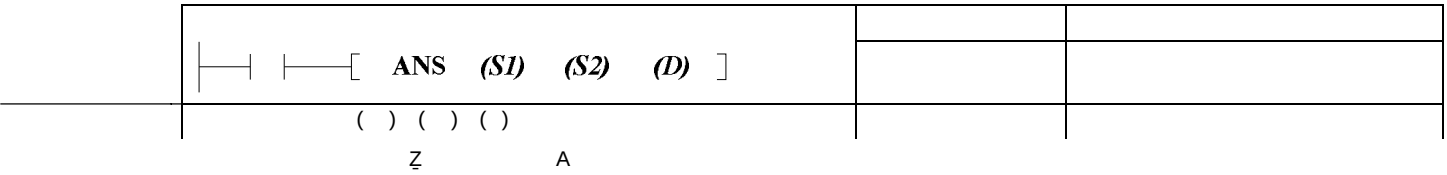
6.21.5 DIS

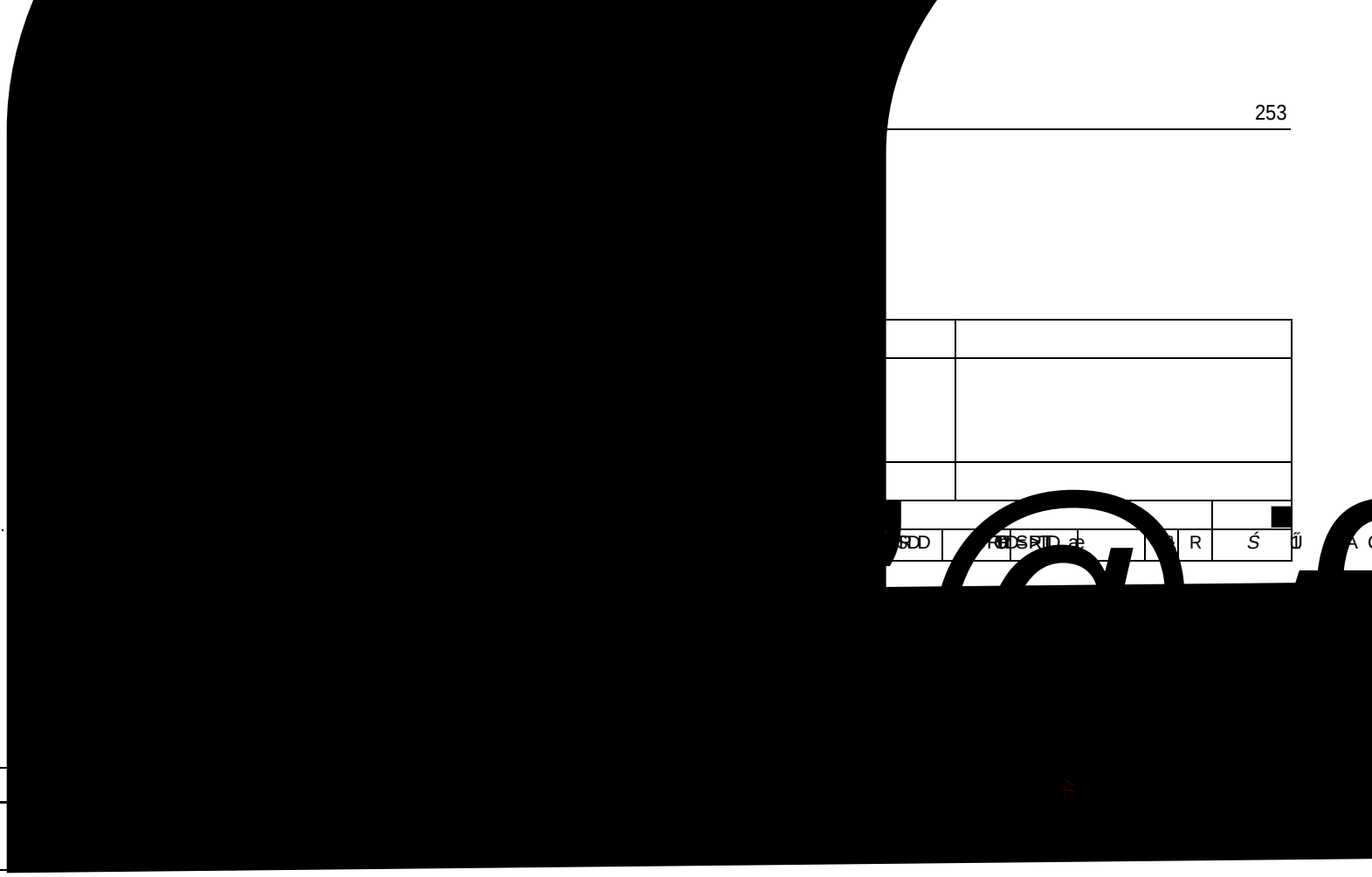


S1	INT					
S2	INT					
D	INT					

D R

6.21.6 ANS

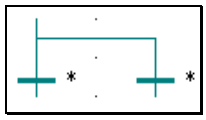
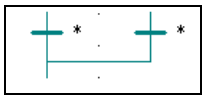
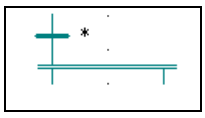
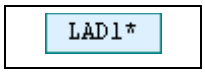


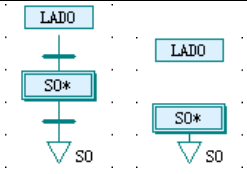
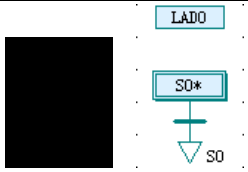


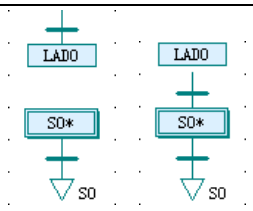
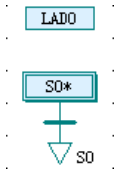
DUTY (S1) (S2) (D)	

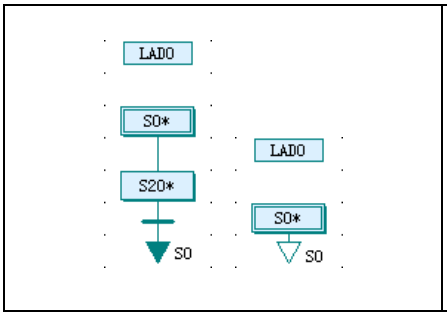
S1 ***S2*** ***D***

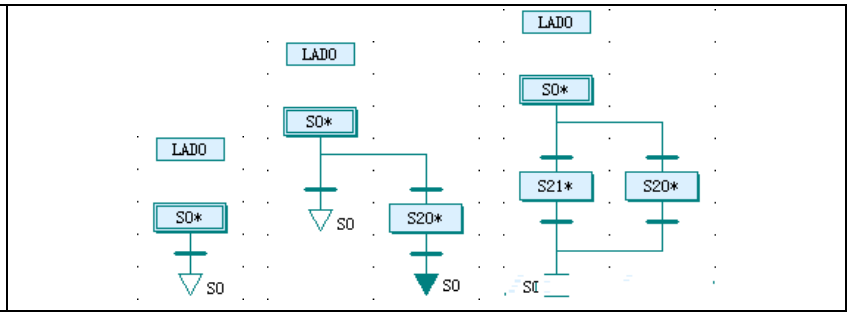
7.1 255
7.1.1 255
7.1.2 MC PLC ..... %.. ..... ≠255 ≠
7.1.3 ..... 8.j.... +

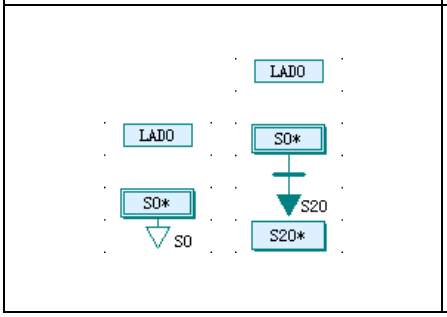
		S
	S0	S ON
	S0	S OFF
		
		
		
		
	LAD1*	

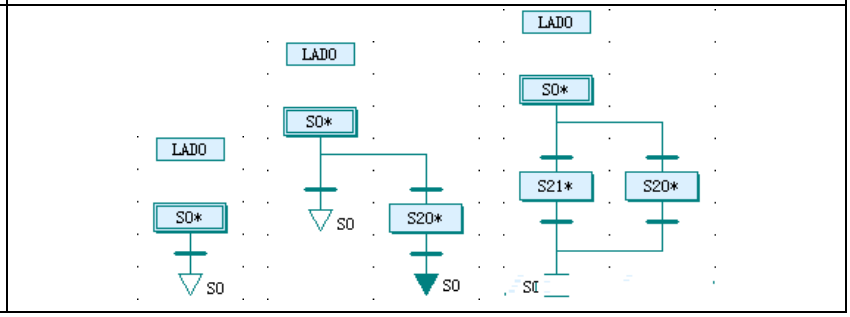
LAD0 S0* S0 LAD0 S0* S0	LAD0 S0* S0

LAD0 S0* S0 LAD0 S0* S0	LAD0 S0* S0



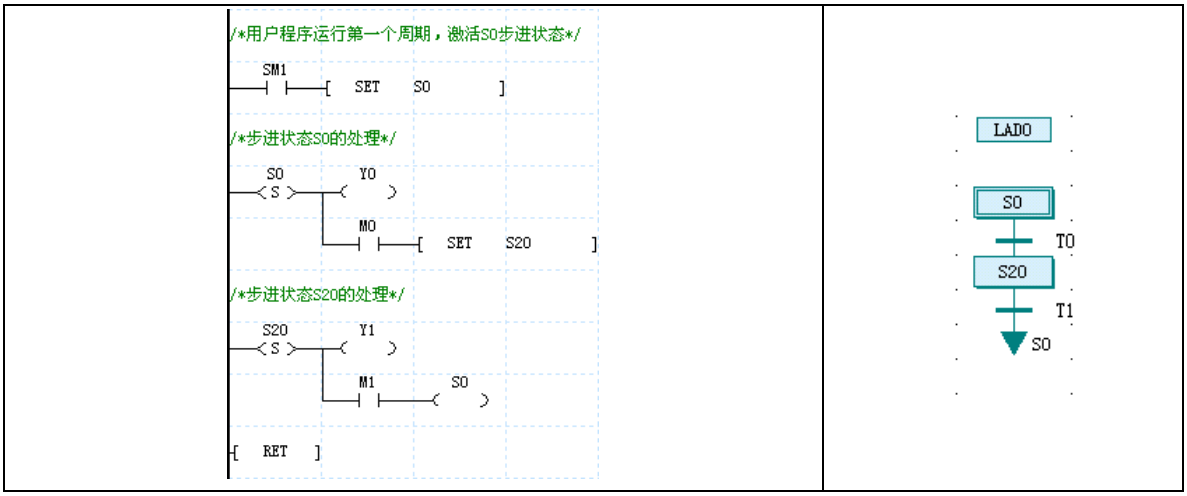






7.1.5

SFC



1.

S ON

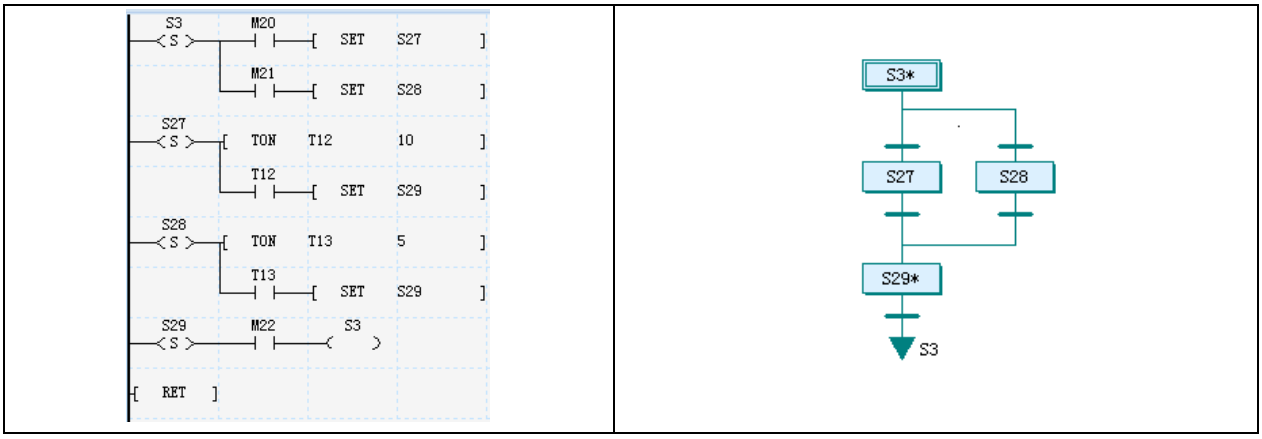
2.

S 0 19

3.

S 20 991 MC200 20 1023 MC100

4.



1.

N0 S27 S28

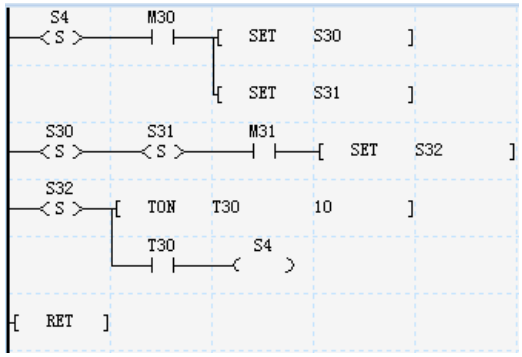
M20 M21 M20 M21 S27 S28

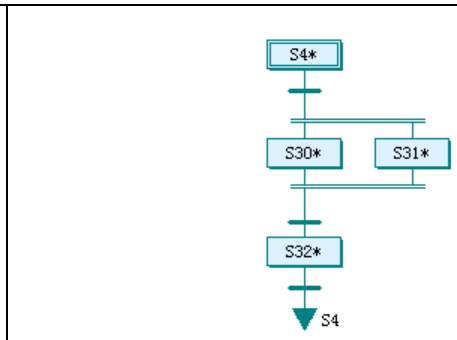
2.

N1 S27

T12 N2 S28 T13

S29





3.

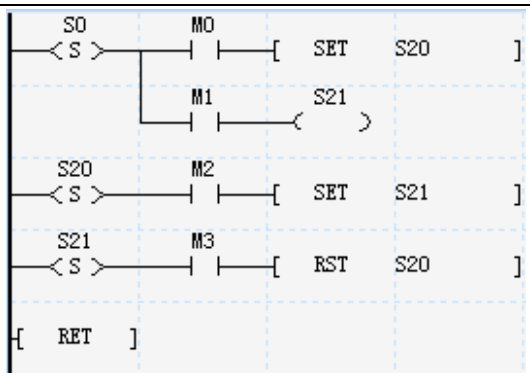
N0 M30 M30 S30 S31

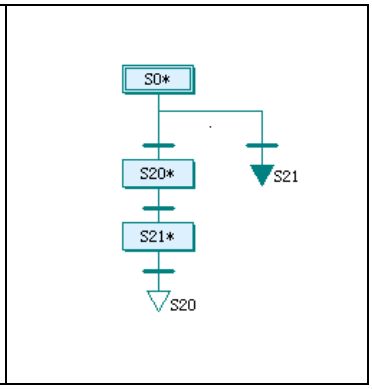
4.

N6

S30 S31 M31 S32 S30 S31

1.



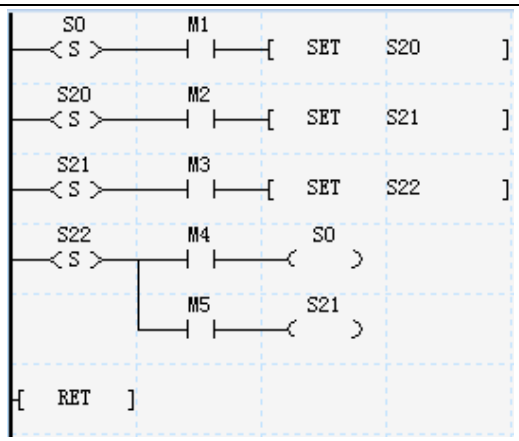


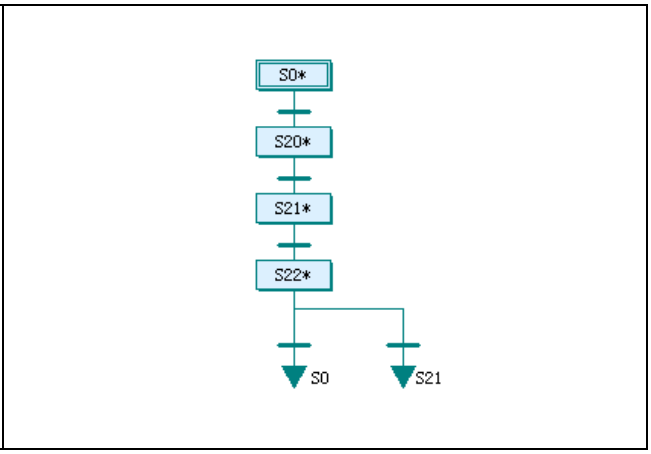
S21 S20

N0 OUT SET

S0 M1 ON S21

2.





S22 S21 S21

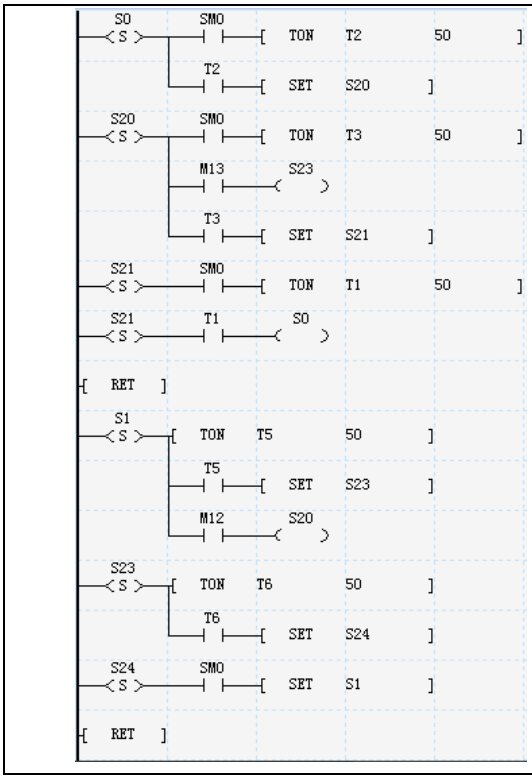
S0

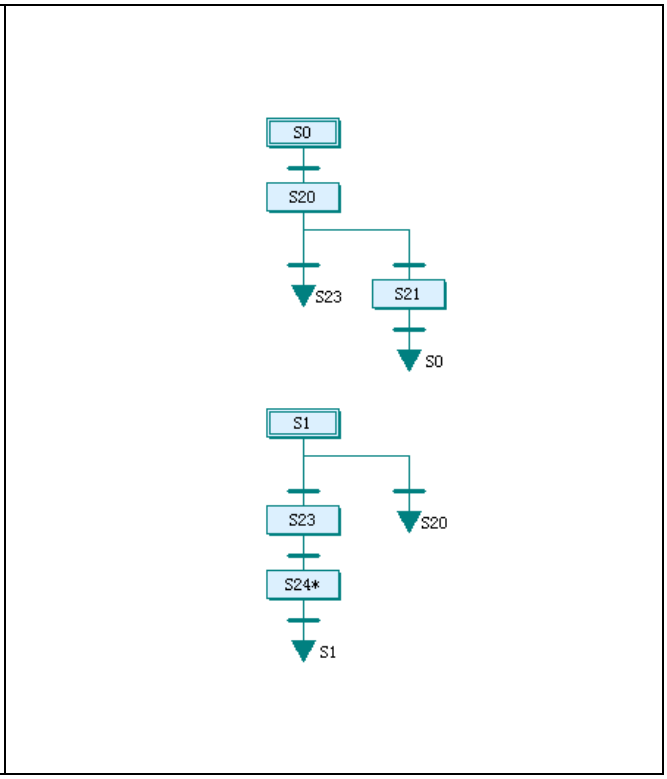
N3 OUT

3.

MC PLC

PLC





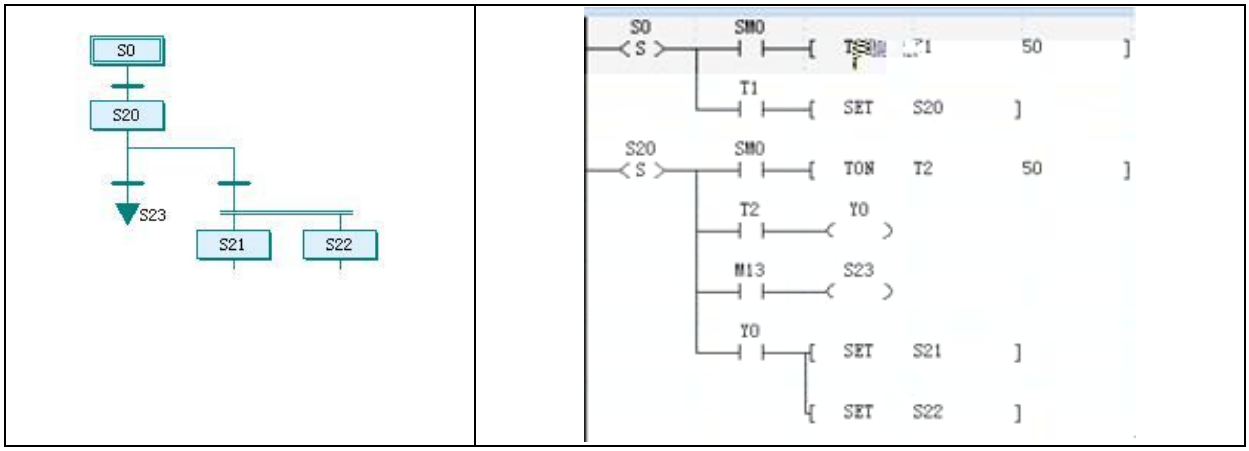
S20 S23 S1

S20

S20 S23 S20
OFF S0 S20 S21 OFF

7.1.6

S20 T2
T2 S21 S22 M13 OFF S23



S ON/OFF S
ON OFF *5.3.1 STL SFC*

MC PLC
S PLC
S
7.4

7.2

SFC SFC
SFC SFC

7.2.1 STL

STL S
SFC



S2 STL TON S2

S

STL *5.3.1 STL SFC* ON OFF

OUT TON TOF PWM HCNT PLSY PLSR DHSCS SPD DHSCI DHSCR DHSZ DHST DHSP BOUT

PLC

ON OFF *7.4.1*

7.2.2 SFC

SFC

SET

SFC

7.2.3 RET SFC

SFC S2 2 S2 SFC

RET

RET

7.2.4 SFC

S2 N3 OUT

S26 N3 RST S26

7.2.5 SFC

7.1.5

7.1.5

7.3

1.

SFC

2.

3. SFC
X_Builder SFC SFC PLC

4.

5.
SFC SFC

6.

SFC

7.4

STL PLC SFC

7.4.1

1
2 S0-S19
3 RET
4 ON OFF
5
6
7
8
9
10
11

1.
PLC S

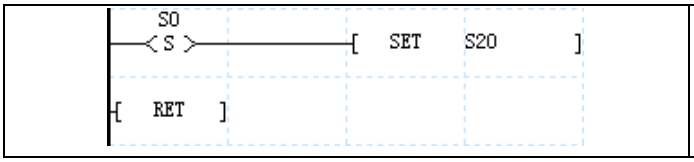
2. S0-S19
SFC S0-S19 , S20

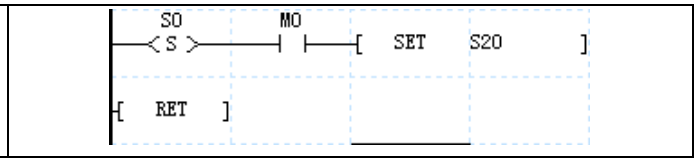
3. RET
SFC RET

4. ON OFF

ON OFF OUT TON TOF PWM HCNT PLSY PLSR DHSCS SPD DHSCI DHSCR DHSZ DHST DHSP BOUT

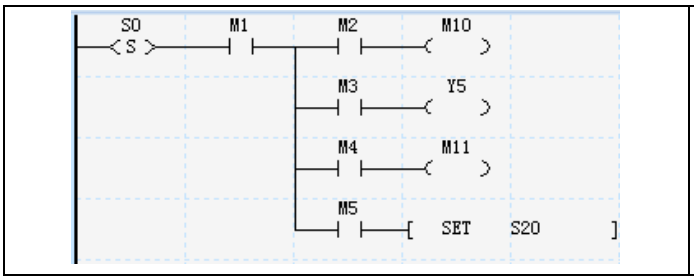
5.

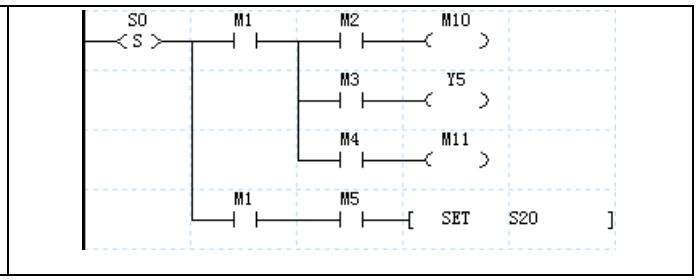




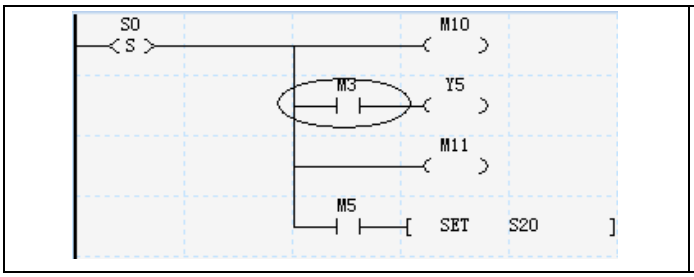
6.

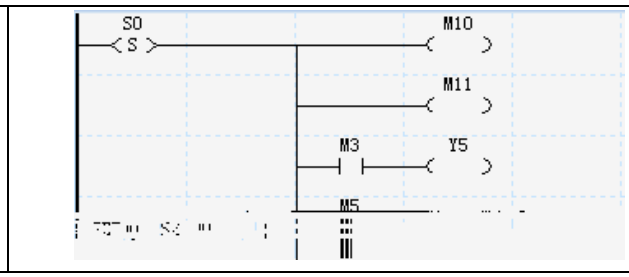
M1





7.





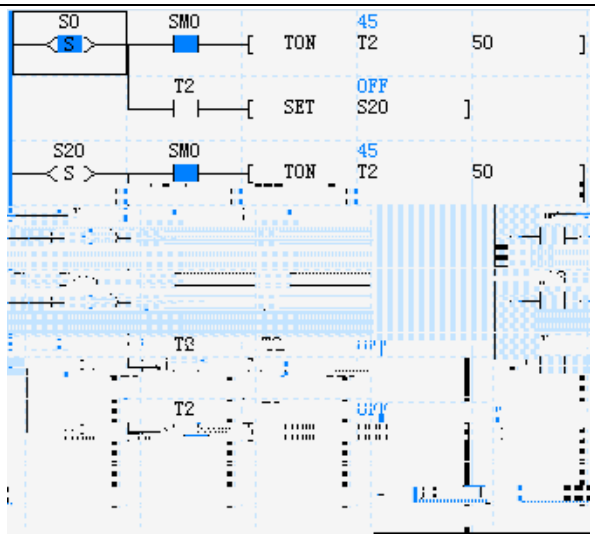
8.

PLC

STL ON OFF *5.3.1 STL SFC*

T2 S0 S20 T2

S20 S21 S22



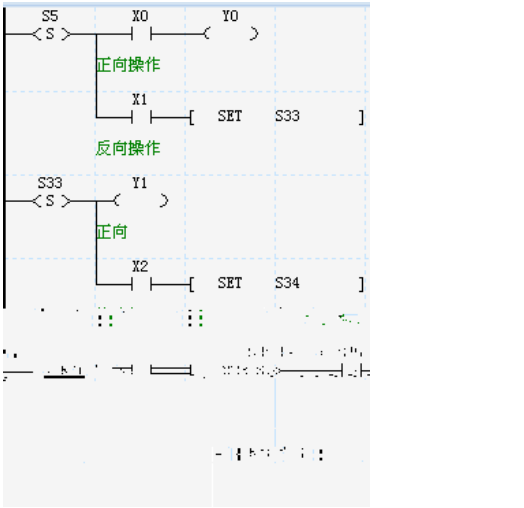
9.

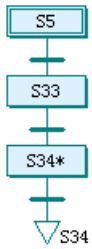
SFC

Y0 Y1 X0 X1

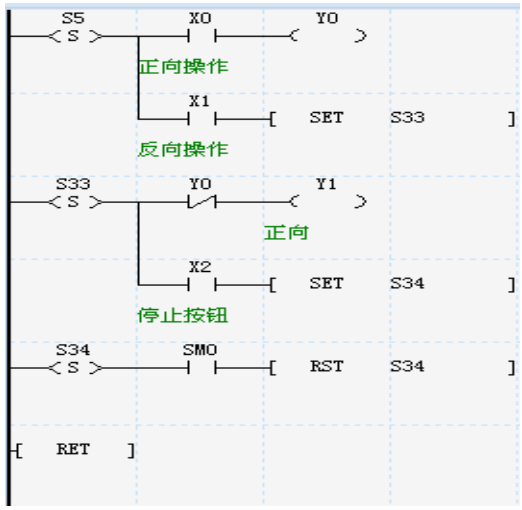
X2 Y0 Y1 ON X1 S5

S33 Y0 Y1 ON





Y1 Y0

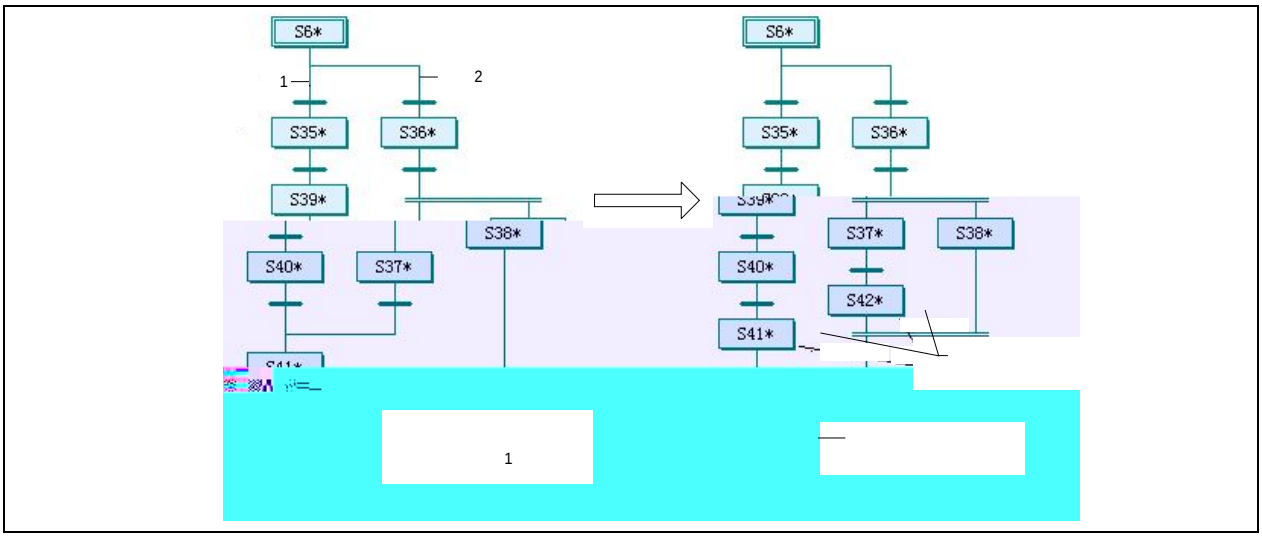


10.

OUT SET SET OUT

11.

1 S41 2

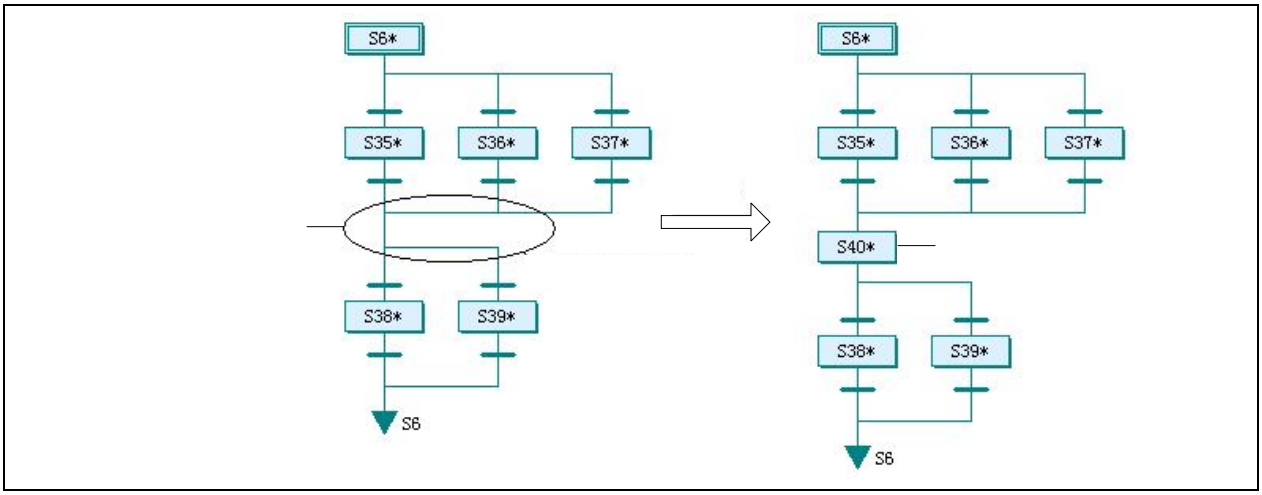


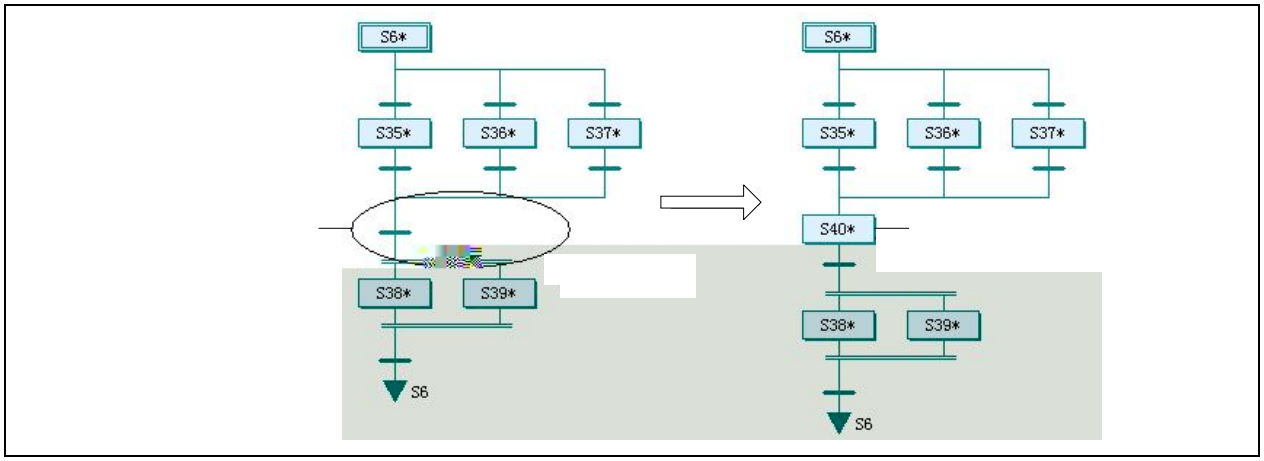
S42 S41 S43

S38 S41 S43 S41

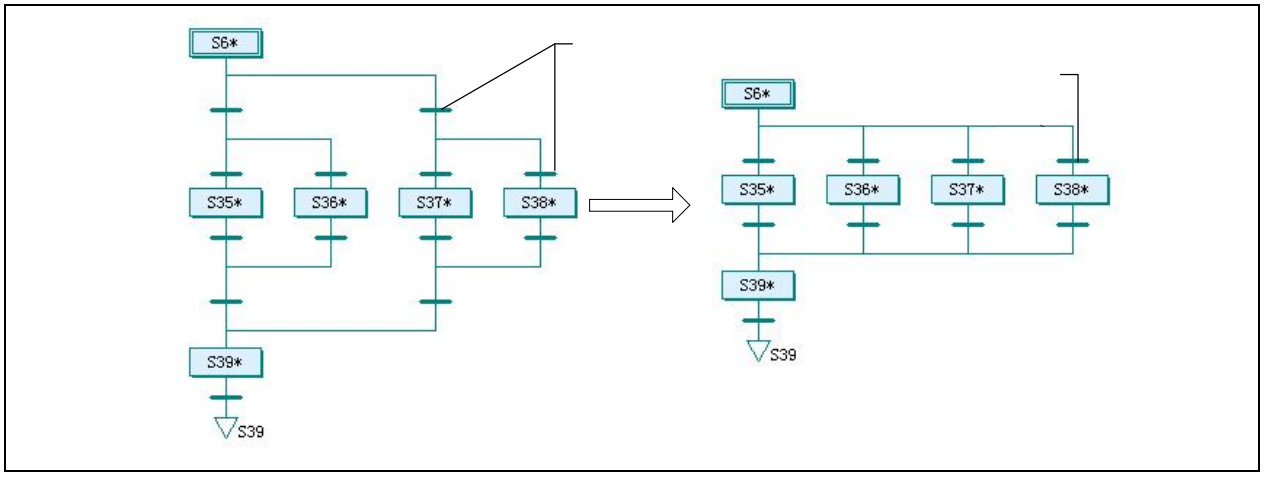
7.4.2

1.




S6*
S35*
S36*
S37*
S38*
S39*
S6
S6*
S35*
S36*
S37*
S40*
S38*
S39*
S6

2.

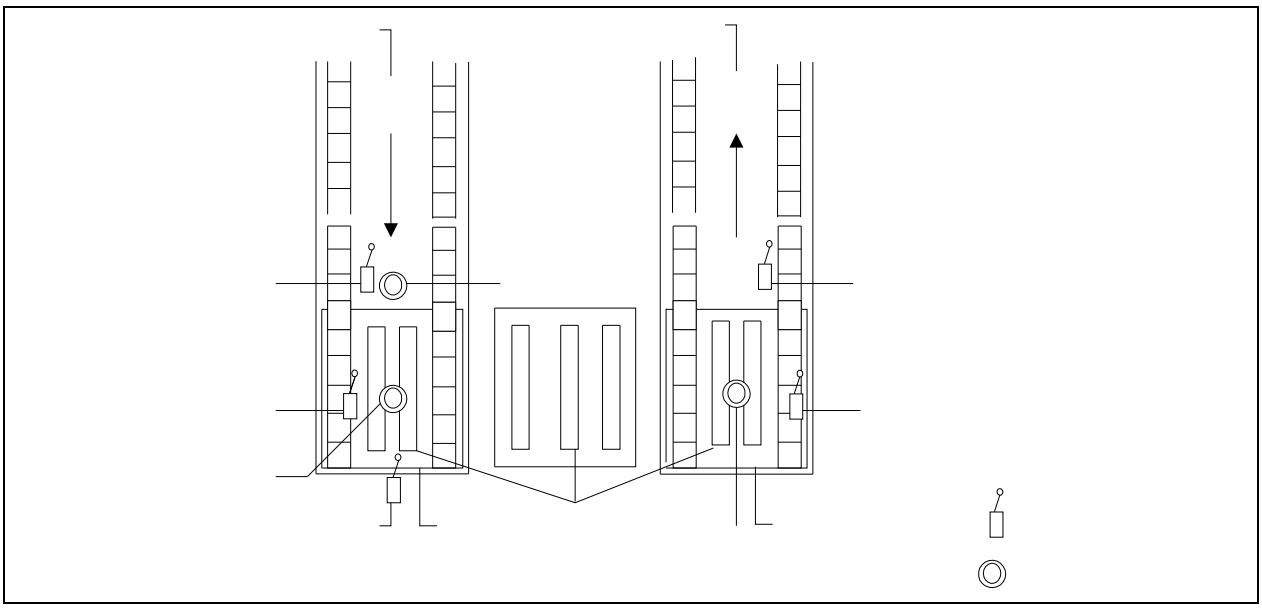

S6*
S35*
S36*
S37*
S38*
S39*
S39
S6*
S35*
S36*
S37*
S38*
S39*
S39

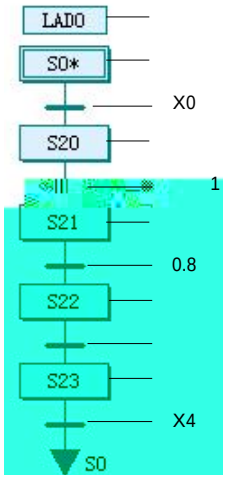
3.

S

7.5

7.5.1





S20-S23

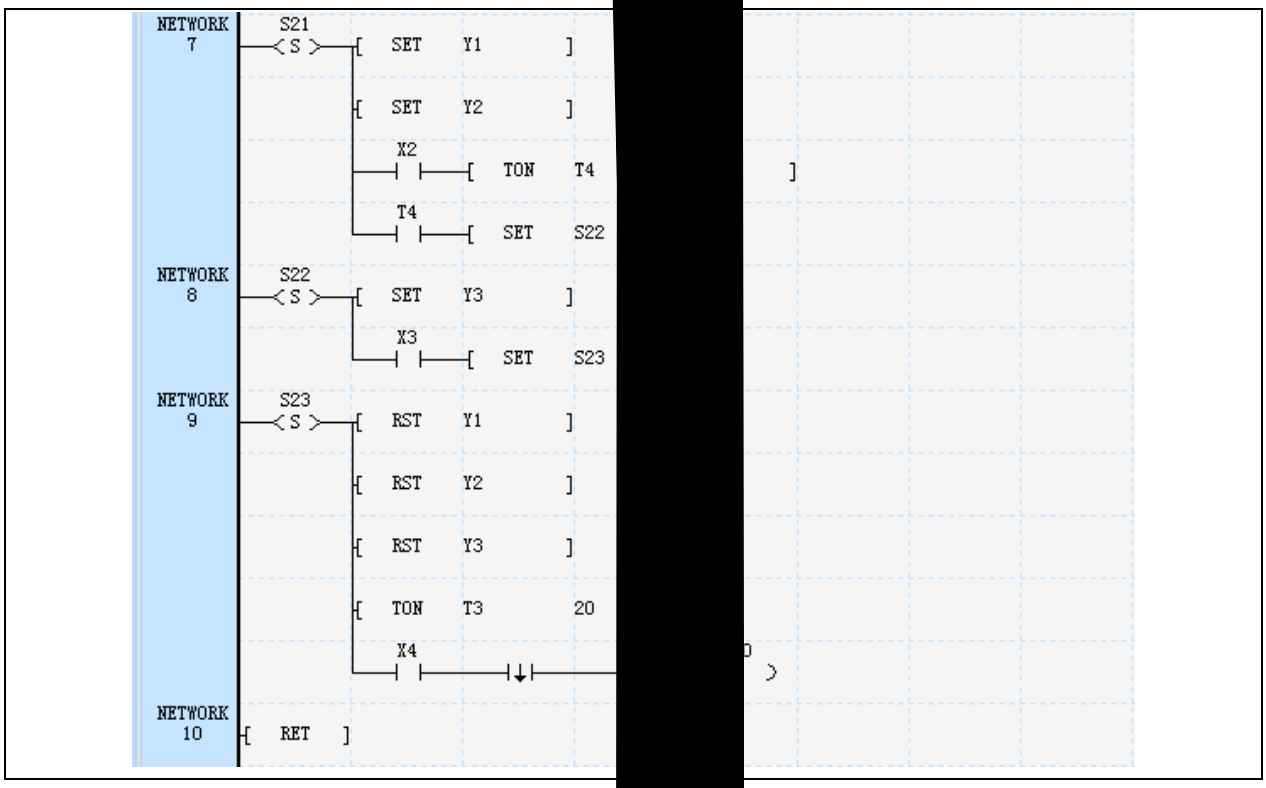
X1 1

Y1 Y2 X2 0.8

Y3

X3

```
/*启动停止控制程序段*/
NETWORK 0   X5   X6   M0
NETWORK 1   M0   RST  Y0
NETWORK 2   M0   TON  T0   10
NETWORK 3   T0   SET  S0
                 SET  Y4
                 SET  Y5
NETWORK 4   X6   ZRST Y0   6
            X5   RST  S0
                 ZRST S20  4
/*顺序功能图程序段*/
NETWORK 5   S0   X0   S20  S21  S22  S23  SET  S20
NETWORK 6   S20  TON  T2   5
            T2   Y0
            X1   TON  T1   10
            T1   SET  S21
```

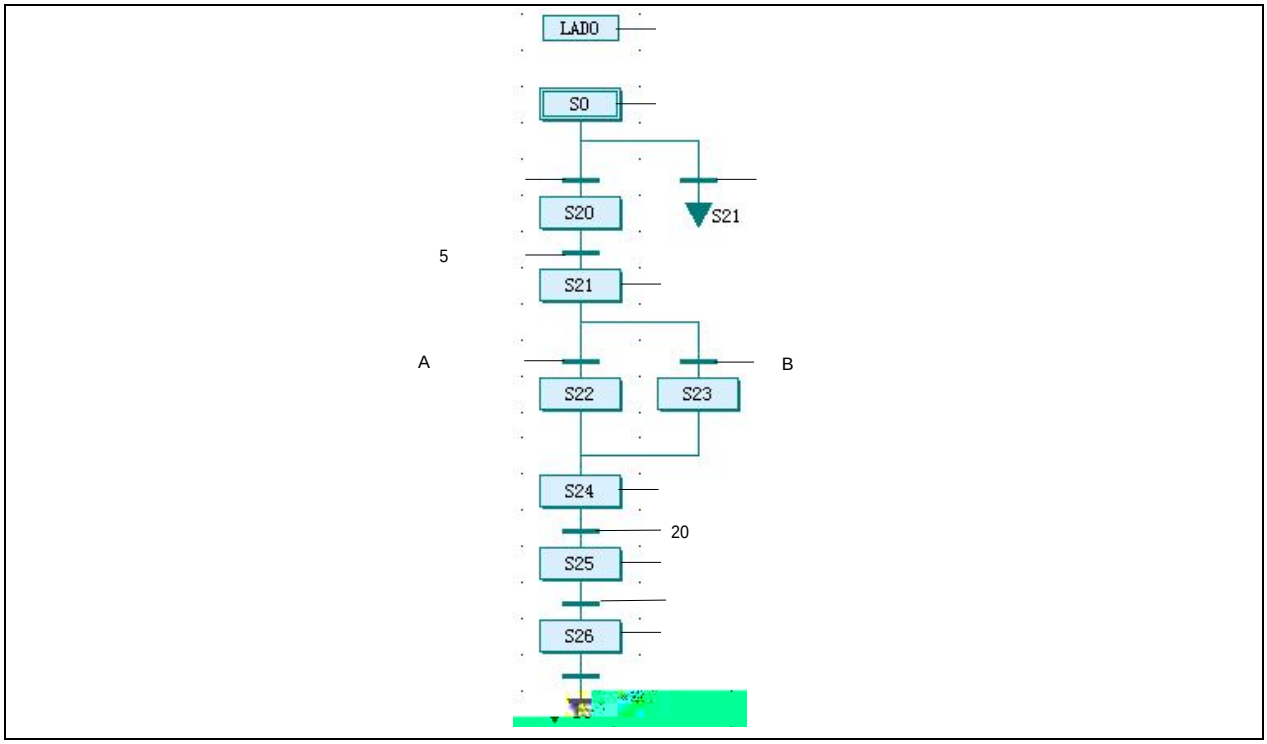

NETWORK 7
S21
S
SET Y1
SET Y2
X2
TON T4
T4
SET S22
NETWORK 8
S22
S
SET Y3
X3
SET S23
NETWORK 9
S23
S
RST Y1
RST Y2
RST Y3
TON T3 20
X4
NETWORK 10
RET

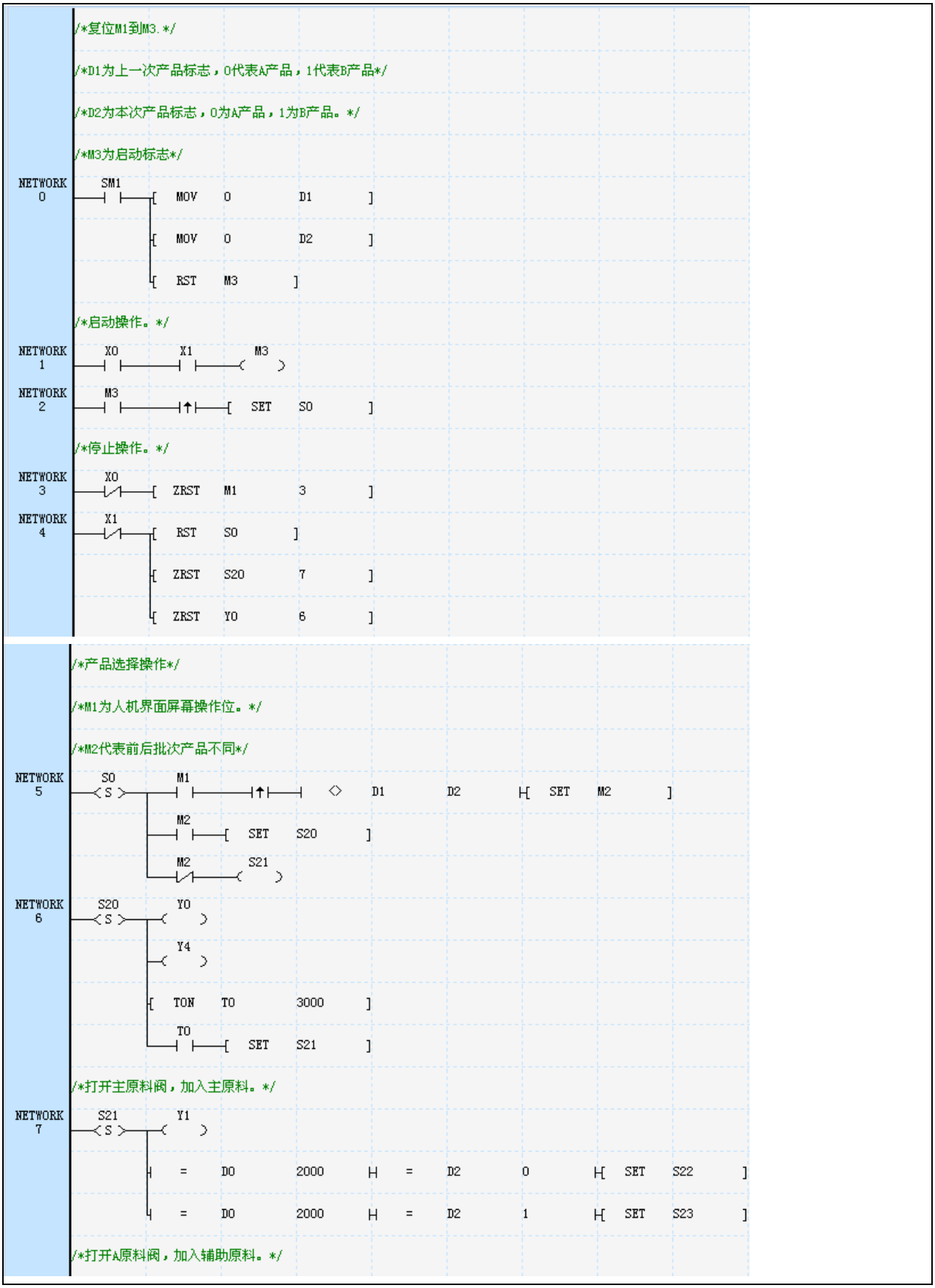
7.5.2

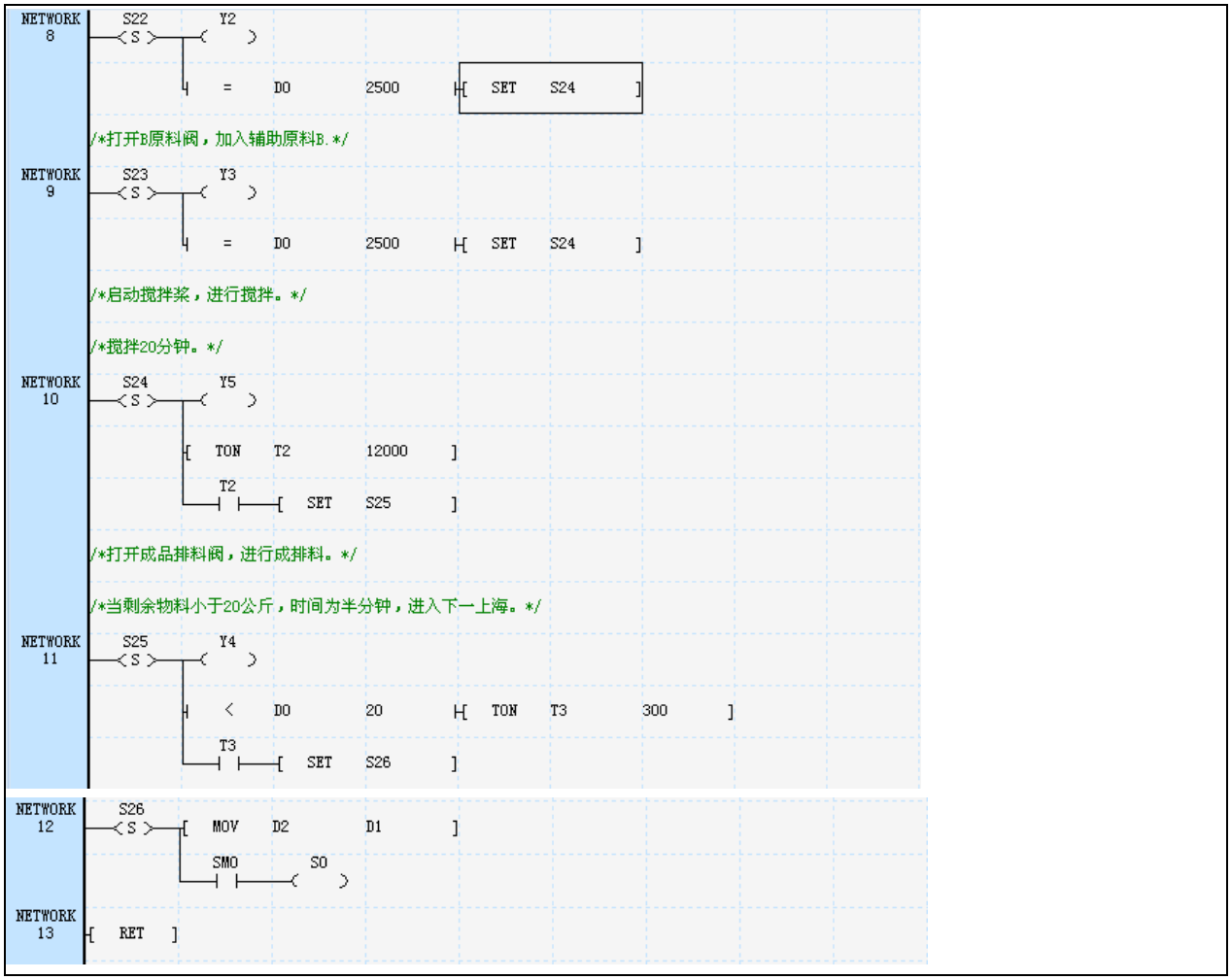
B

1	X0			10	X11	
2	X1			11	X12	
3	X2			12	Y0	
4	X3			13	Y1	
5	X4	A		14	Y2	A
6	X5	A		15	Y3	B
7	X6	B		16	Y4	
8	X7	B		17	Y5	
9	X10					

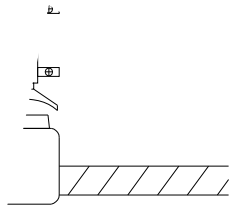
A B

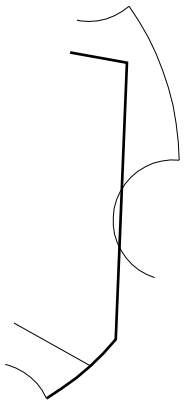



/*复位M1到M3.*/
/*D1为上一次产品标志，0代表A产品，1代表B产品*/
/*D2为本次产品标志，0为A产品，1为B产品。*/
/*M3为启动标志*/
NETWORK 0
SM1
MOV 0 D1
MOV 0 D2
RST M3
/*启动操作。*/
NETWORK 1
X0 X1 M3
NETWORK 2
M3
SET S0
/*停止操作。*/
NETWORK 3
X0
ZRST M1 3
NETWORK 4
X1
RST S0
ZRST S20 7
ZRST Y0 6
/*产品选择操作*/
/*M1为人机界面屏幕操作位。*/
/*M2代表前后批次产品不同*/
NETWORK 5
S0
M1
D1 D2
SET M2
M2
SET S20
M2
S21
NETWORK 6
S20
Y0
Y4
TON T0 3000
T0
SET S21
/*打开主原料阀，加入主原料。*/
NETWORK 7
S21
Y1
= D0 2000
= D2 0
SET S22
= D0 2000
= D2 1
SET S23
/*打开A原料阀，加入辅助原料。*/

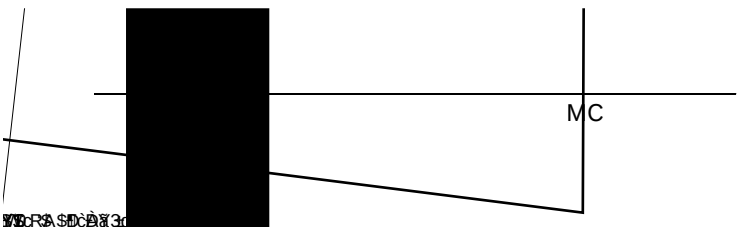

NETWORK 8
S22
Y2
S
=
D0
2500
SET
S24
/*打开B原料阀，加入辅助原料B.*/
NETWORK 9
S23
Y3
S
=
D0
2500
SET
S24
/*启动搅拌桨，进行搅拌。*/
/*搅拌20分钟。*/
NETWORK 10
S24
Y5
S
TON
T2
12000
T2
SET
S25
/*打开成品排料阀，进行成排料。*/
/*当剩余物料小于20公斤，时间为半分钟，进入下一上海。*/
NETWORK 11
S25
Y4
S
<
D0
20
TON
T3
300
T3
SET
S26
NETWORK 12
S26
S
MOV
D2
D1
SMO
S0
NETWORK 13
RET

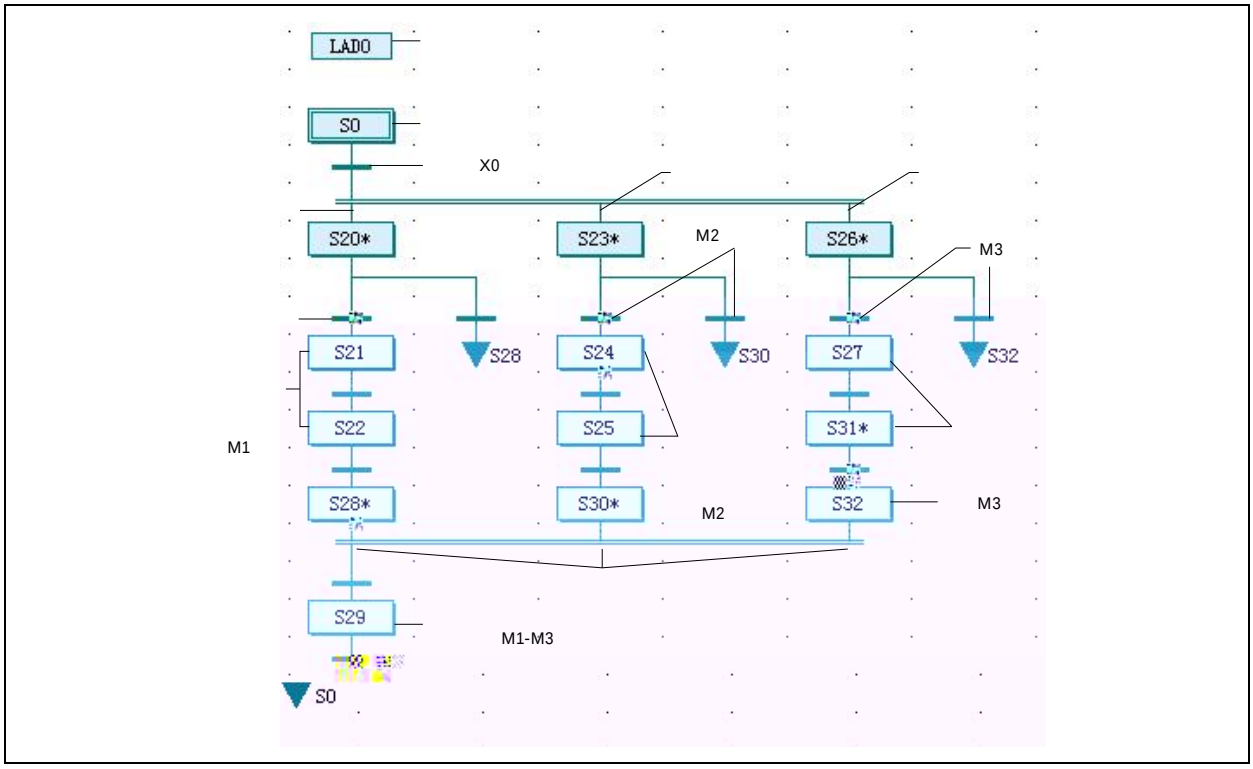
7.5.3

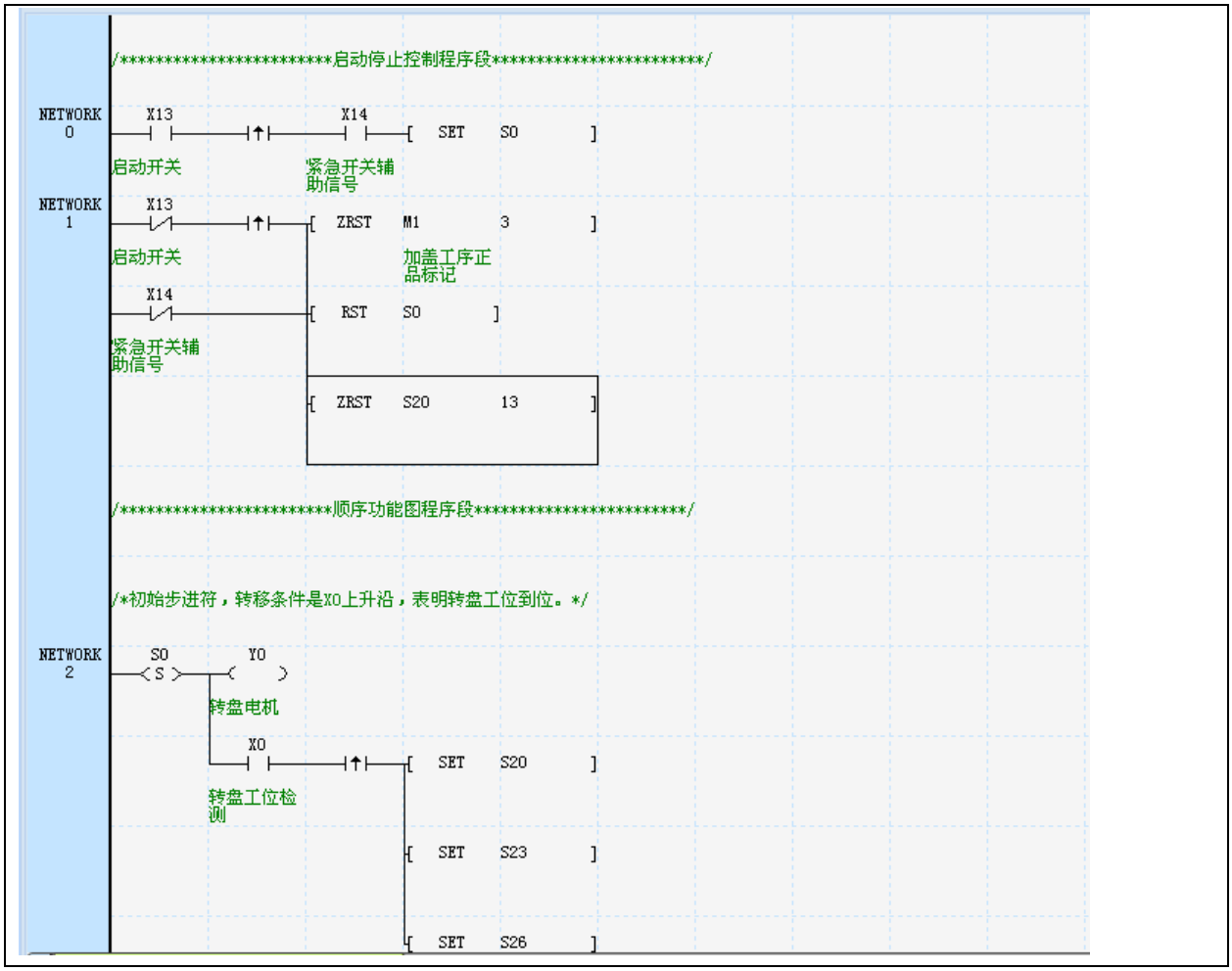


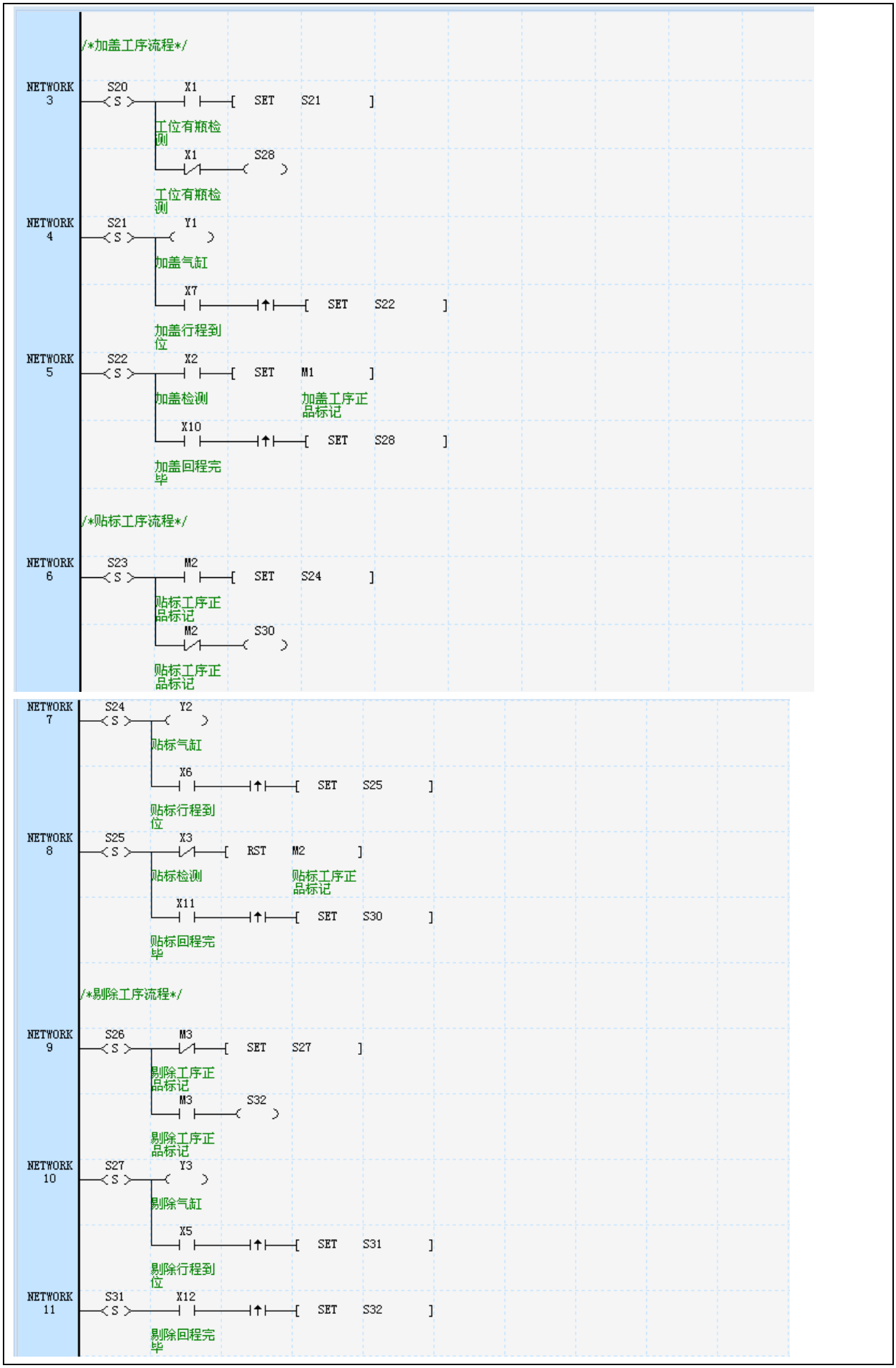


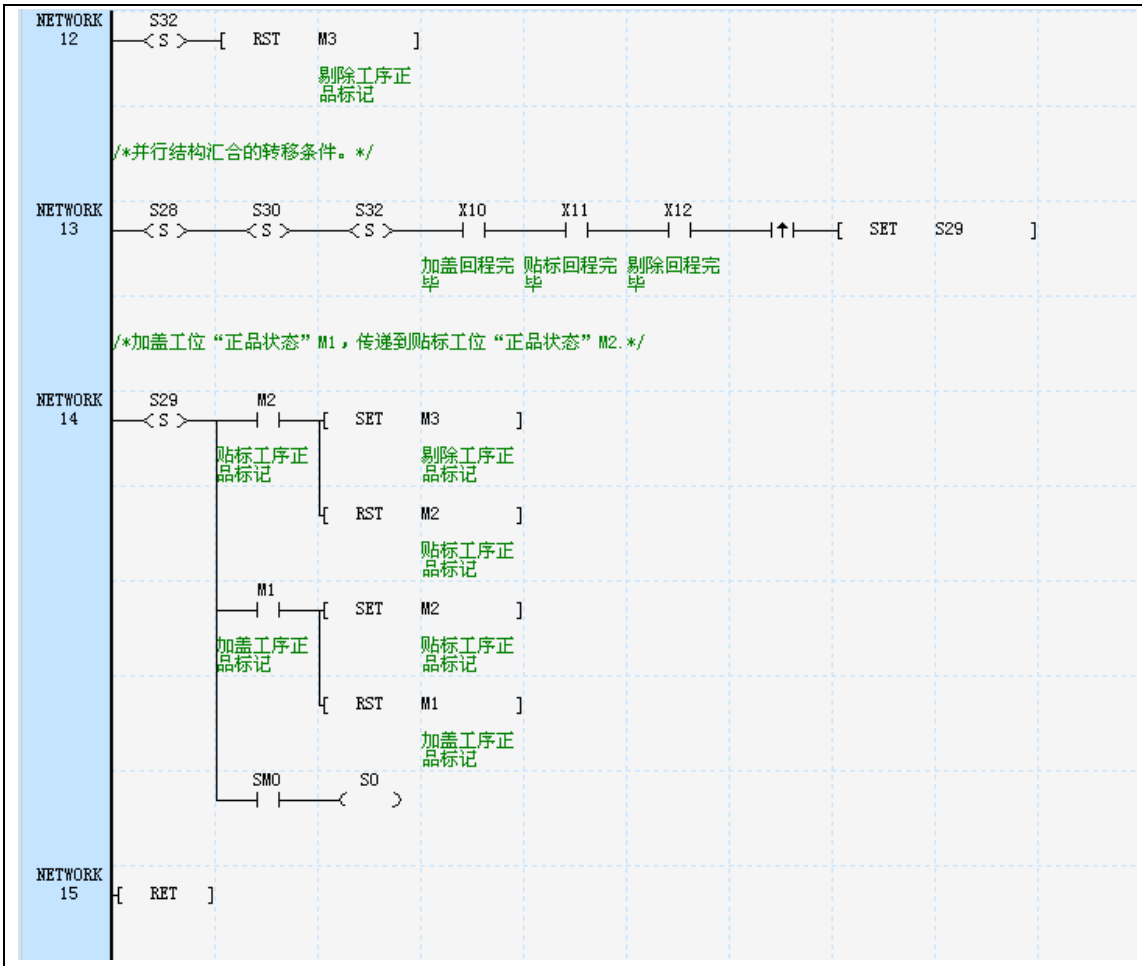



MC


LAD0
S0
X0
S20*
S23*
M2
S26*
M3
S21
S28
S24
S30
S27
S32
S22
S25
S31*
M1
S28*
S30*
M2
S32
M3
S29
M1-M3
S0


/*********************启动停止控制程序段*********************/
NETWORK 0
X13
X14
SET S0
启动开关
紧急开关辅助信号
NETWORK 1
X13
ZRST M1 3
启动开关
加盖工序正品标记
X14
RST S0
紧急开关辅助信号
ZRST S20 13
/*********************顺序功能图程序段*********************/
/*初始步进符，转移条件是X0上升沿，表明转盘工位到位。*/
NETWORK 2
S0
Y0
转盘电机
X0
SET S20
转盘工位检测
SET S23
SET S26


/*加盖工序流程*/
NETWORK 3
S20
X1
SET S21
工位有瓶检测
X1
S28
工位有瓶检测
NETWORK 4
S21
Y1
加盖气缸
X7
SET S22
加盖行程到位
NETWORK 5
S22
X2
SET M1
加盖检测
加盖工序正品标记
X10
SET S28
加盖回程完毕
/*贴标工序流程*/
NETWORK 6
S23
M2
SET S24
贴标工序正品标记
M2
S30
贴标工序正品标记
NETWORK 7
S24
Y2
贴标气缸
X6
SET S25
贴标行程到位
NETWORK 8
S25
X3
RST M2
贴标检测
贴标工序正品标记
X11
SET S30
贴标回程完毕
/*剔除工序流程*/
NETWORK 9
S26
M3
SET S27
剔除工序正品标记
M3
S32
剔除工序正品标记
NETWORK 10
S27
Y3
剔除气缸
X5
SET S31
剔除行程到位
NETWORK 11
S31
X12
SET S32
剔除回程完毕


NETWORK 12
S32
S
RST M3
剔除工序正品标记
/*并行结构汇合的转移条件。*/
NETWORK 13
S28
S30
S32
X10
X11
X12
SET S29
加盖回程完毕
贴标回程完毕
剔除回程完毕
/*加盖工位“正品状态”M1，传递到贴标工位“正品状态”M2.*/
NETWORK 14
S29
M2
SET M3
贴标工序正品标记
剔除工序正品标记
RST M2
贴标工序正品标记
M1
SET M2
加盖工序正品标记
贴标工序正品标记
RST M1
加盖工序正品标记
SM0
S0
NETWORK 15
RET

8.1 279
8.1.1 279
8.1.2 MC PLC 280
8.1.3 SM 280
8.1.4 282
8.1.5 MC200 MC100 285
8.2 285
8.3 286
8.4 286

8.1

8.1.1

MC PLC

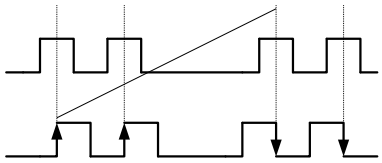
		X0	X1	X2	X3	X4	X5	X6	X7	kHz		
										MC280	MC200	MC100
	C236	/								100	50	
	C237		/									
	C238			/							10	
	C239				/							
	C240					/						
	C241						/					
	C301							/			/	
	C302								/			
	C242	/									10	
	C243				/							
	C244	/										
	C245				/							
	C246									100	50	
	C247										10	
	C303										/	
	C248										10	
	C249											
	C250											
	C251	A	B							50	30	
	C304			A	B						/	
	C305					A	B					
	C306							A	B			
	C252	A	B								5	
	C253				A	B						
	C254	A	B									
	C255				A	B						
	C256 (X10)	A	B								/	
	C257 (X11)			A	B							
	C258 (X12)					A	B					
	C259 (X13)							A	B			

PLC

32 / /

	SM236 SM245 SM301 SM302 ON/OFF C236 C245 C301 C302 /
	C246 C250 C303 / SM246 SM250 SM303 SM OFF ON

	SM100 SM104 OFF C251 C259 C304 C306 SM251 SM259 SM304 SM306 Ö ć / SM M304 ON



	C251	SM100
	C252	SM100
	C253	SM102
	C254	SM100
	C255	SM102
	C256	SM100
	C257	SM101
	C258	SM103
	C259	SM104
	C304	SM101
	C305	SM103
	C306	SM104

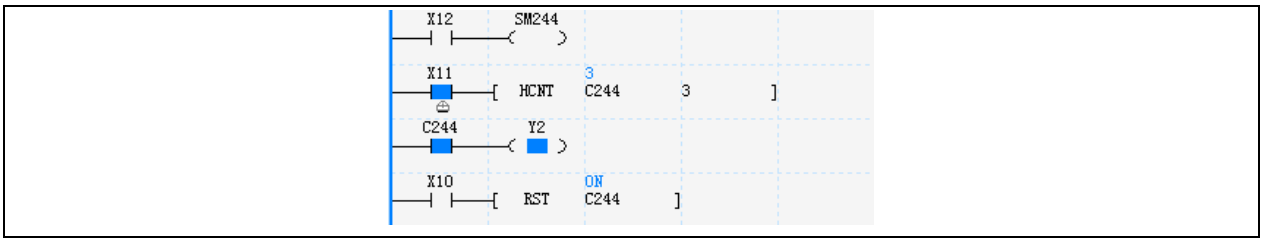
PLC

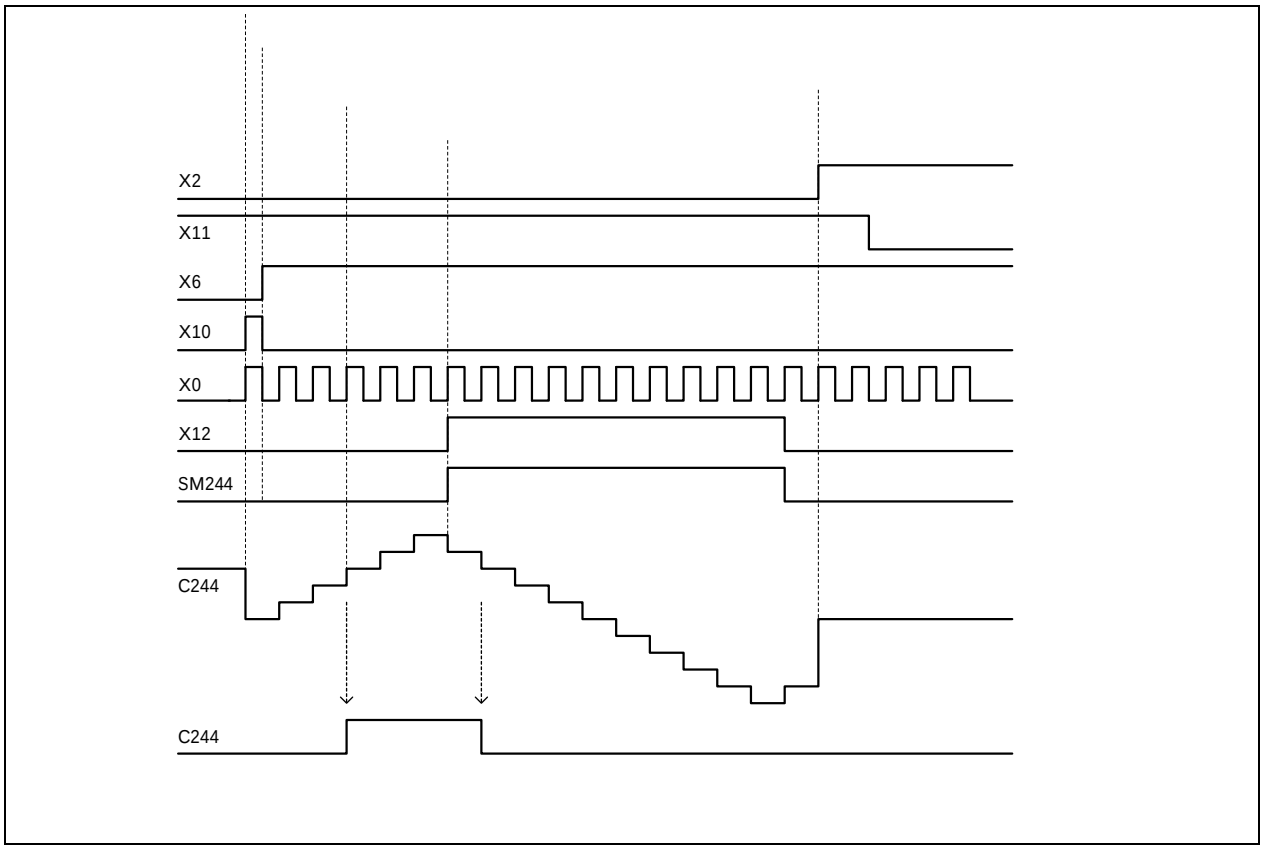
		R/W	MC200	MC100	MC280
SM100	X0 X1 AB 1 /4	R/W	√	√	√
SM101	X2 X3 AB 1 /4	R/W	√	√	√
SM102	X3 X4 AB 1 /4	R/W			√
SM103	X4 X5 AB 1 /4	R/W			√
SM104	X6 X7 AB 1 /4	R/W			√

		/
	C246	SM246
	C247	SM247
	C248	SM248
	C249	SM249
	C250	SM250
	C303	SM303
	C251	SM251
	C252	SM252
	C253	SM253
	C254	SM254
	C255	SM255
	C256	SM256
	C257	SM257
	C258	SM258
	C259	SM259
	C304	SM304
	C305	SM305
	C306	SM306

8.1.4

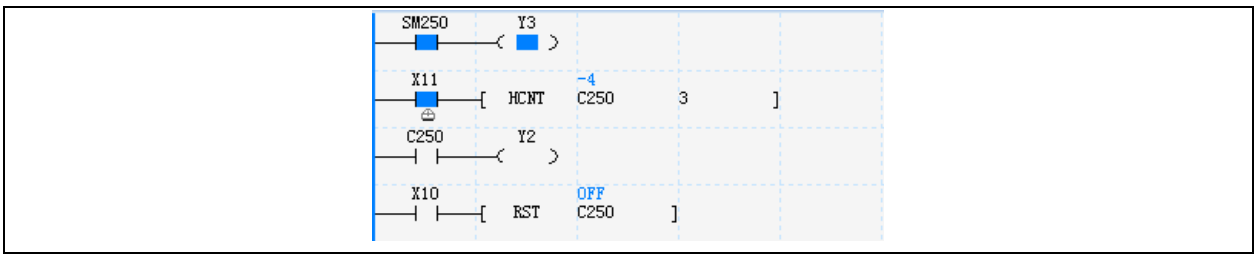
OFF ON SM

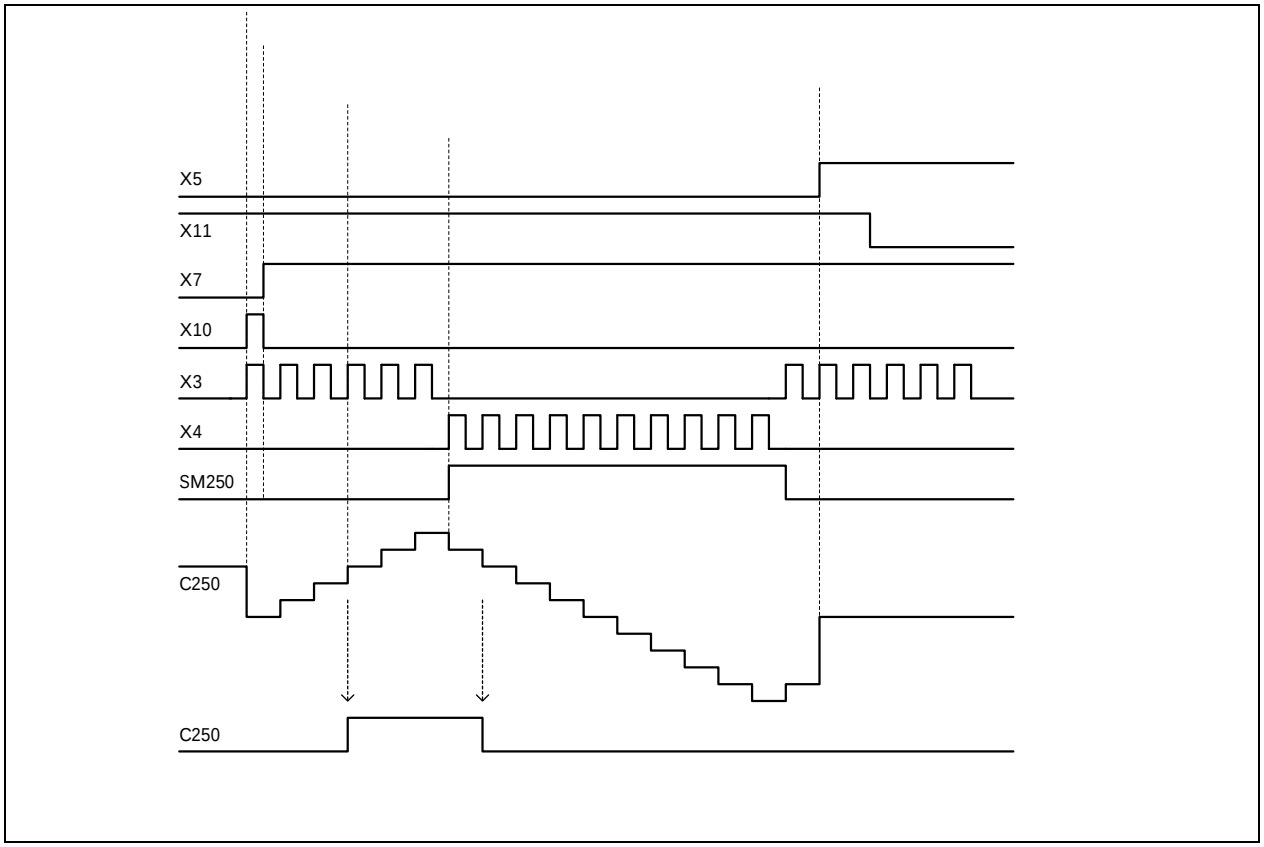




OFF ON

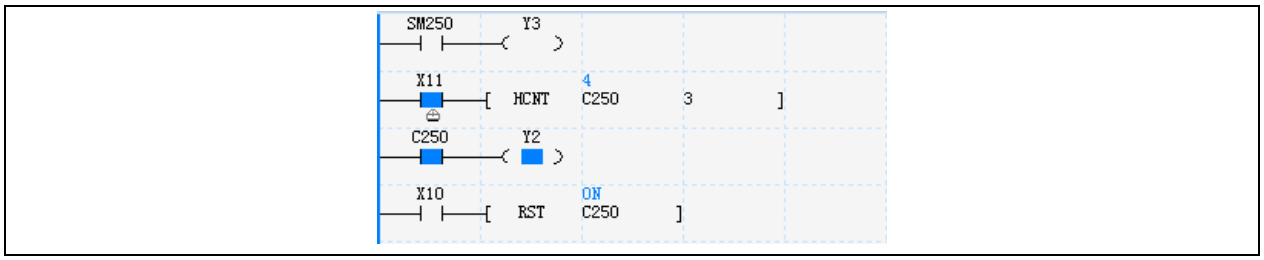
SM

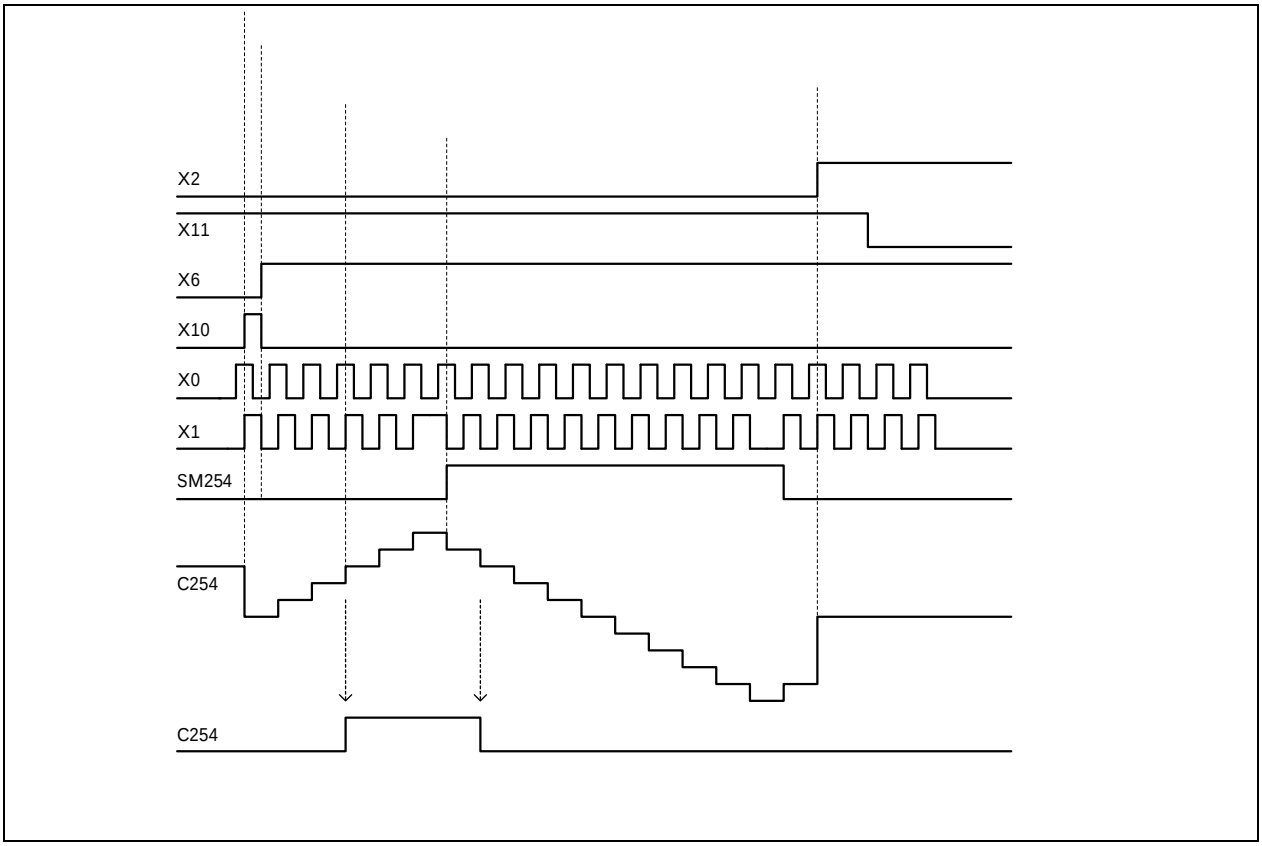



X5
X11
X7
X10
X3
X4
SM250
C250
C250

OFF ON

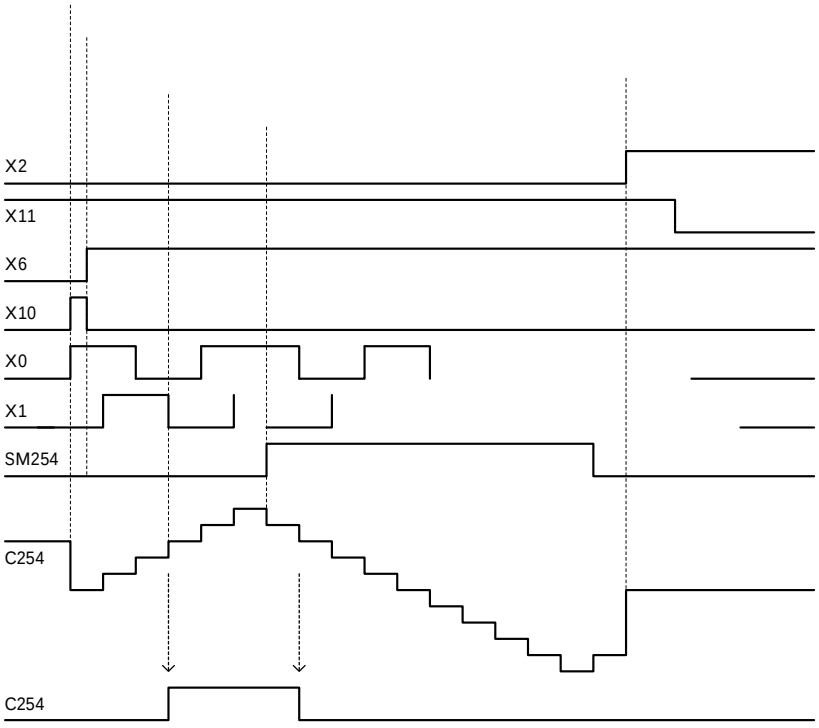
SM


SM250
Y3
X11
HCNT
C250
4
3
C250
Y2
X10
RST
C250
ON



OFF ON ON OFF

SM



8.1.5 MC200 MC100

C236 C237 C246 C251 /

SPD

80kHz(MC100 60kHz)

SPD

DHSCS DHSCR DHSCI DHSZ DHSP DHST	80kHz (MC100 60kHz)
DHSCS DHSCR DHSCI DHSP DHST	30kHz
DHSZ	20kHz

C236 C237 C246 C251

- C236 C237 C246 50kHz
- C251 30kHz

DHSCS DHSCR DHSCI DHSP DHST

10kHz 5kHz

DHSZ 5kHz 4kHz

8.2

X0 X7 SM

	SM
X0	SM90
X1	SM91
X2	SM92
X3	SM93
X4	SM94
X5	SM95
X6	SM96
X7	SM97

1 OFF→ON SM ON

2 SM90 SM97 HCNT SPD

3 PLC

4 HCNT SPD

5 X0~X7 SPD HCNT 80k

DHSCS DHACI DHSP DHST 30k

8.3

X0 X7 SPD

PLC

1 X0 X7

X0 X7 SPD

		X0	X1	X2	X3	X4	X5	X6	X7	kHz	
										MC280	MC200 MC100
	C236	/								100	50
	C237		/								
	C238			/							10
	C239				/						
	C240					/					
	C241						/				
	C301							/			/
	C302								/		
	C242	/									10
	C243				/						
	C244	/									
	C245				/						
	C246									100	50
	C247										10
	C303										/
	C248										10
	C249										
	C250										
	C251	A	B								30
	C304			A	B						
	C305					A					/

50

SM16		0.1ms 16	R/W	
SD16		0-20971 0.1ms ,16 SM16 0.1m 20971	R/W	0-20971

SD16

X0 X1 X0 X1

D200 0.1ms

```
/*使能X0上升沿中断和X1下降沿中断*/
    SM1
 ---| |---[  SET    SM40     ]
           [  SET    SM41     ]
           [  EI   ]
/*使能高速环计数器*/
    M11       SM16
 ---| |-------(    )
/*取高速环形计数器数值*/
    SM0       M0
 ---| |-------| |-------↑|---[  MOV    D0        D200     ]
```

X0

```
/*清高速环形计数器计数值*/
    M11
 ---| |-------------------[  MOV    0         SD16     ]
                         [  RST    M0       ]
```

X1

```
/*将当前值幅值给D0*/
    M11
 ---| |---[  MOV    SD16      D0       ]
           [  SET    M0       ]
```

9.1 288
9.2 289
9.3 289
9.4 291
9.5 292
9.6 PTO 294
9.7 294
9.8 295

PLC

	SM			SM

9.2

1

8

2

(1)

(2)

(3)

(4)

(5)

3

4 8

1

2

3 I/O REF REF I/O

4 /

SM SM ON

5

9.3

SD ms

4ms

SM ON/OFF / OFF

MC PLC 3

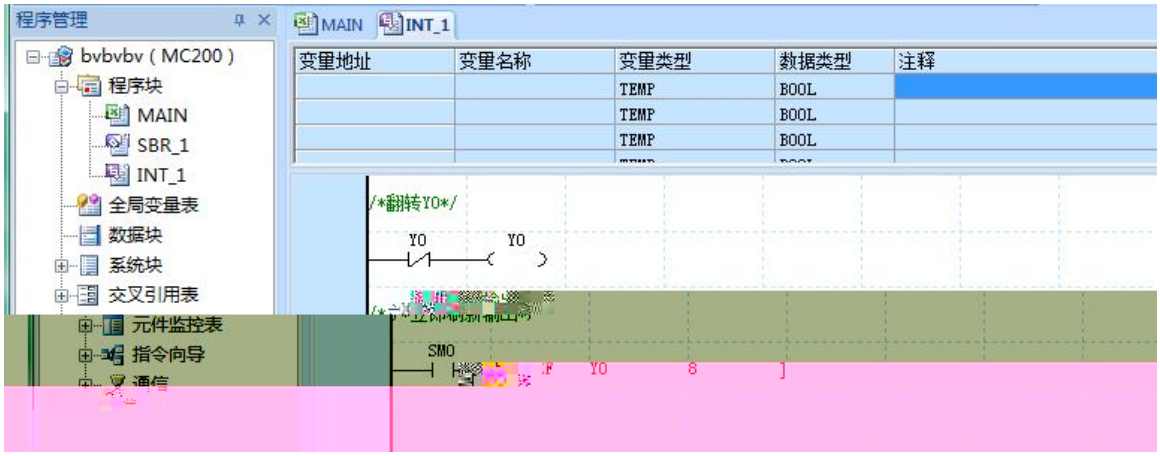
9-1

		SD	SM
0	26	SD66	SM66
1	27	SD67	SM67
2	28	SD68	SM68

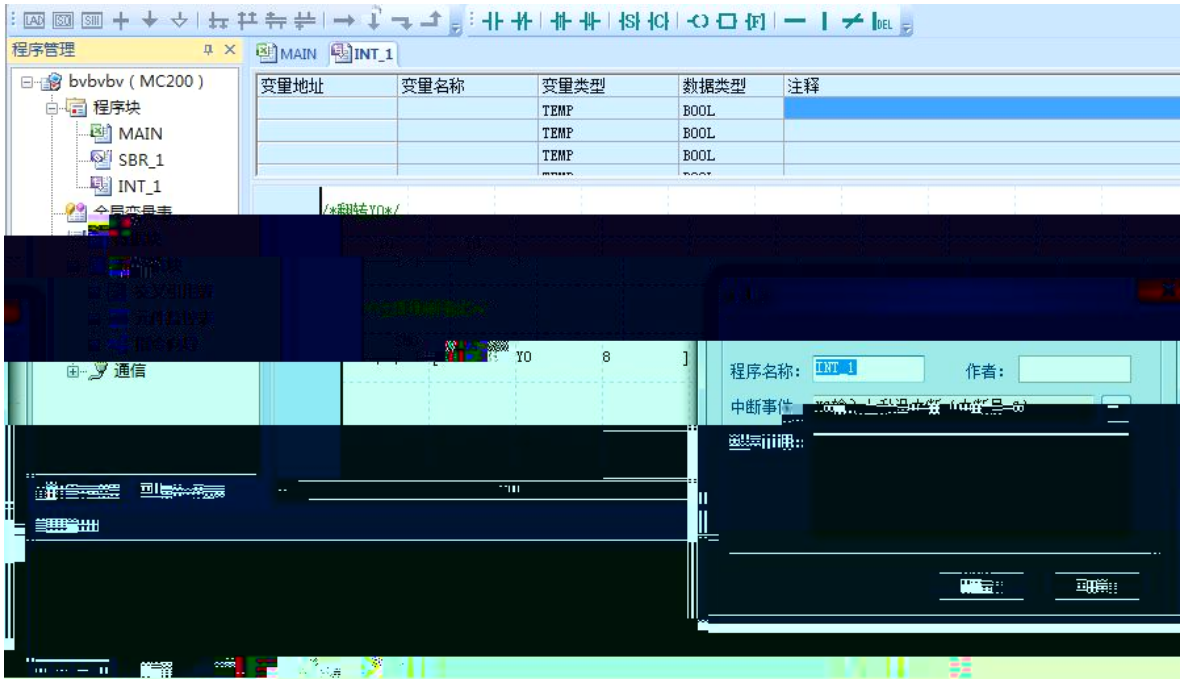
1

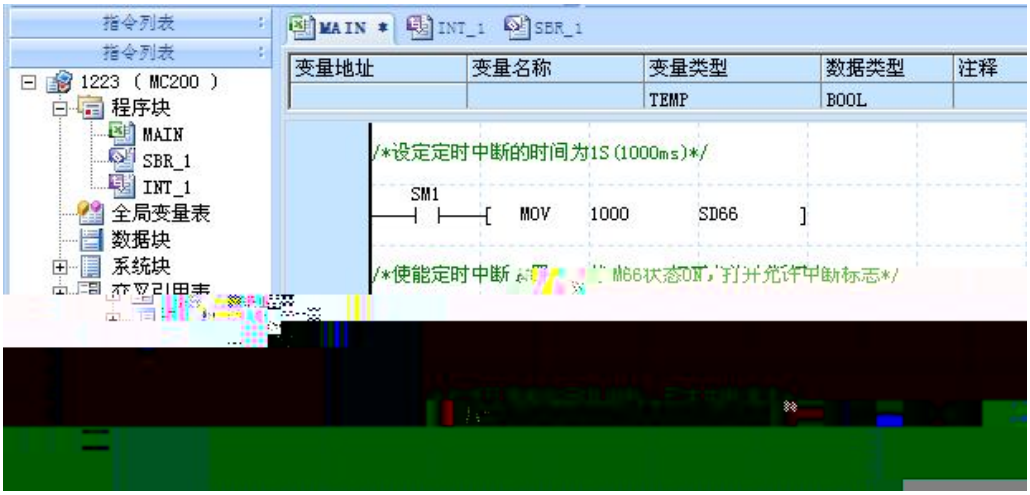
2

0 Y0 Y0


程序管理
bvbvbv (MC200)
程序块
MAIN
SBR_1
INT_1
全局变量表
数据块
系统块
交叉引用表
元件监控表
指令向导
通信
MAIN
INT_1
变量地址
变量名称
变量类型
数据类型
注释
TEMP
BOOL
/*翻转Y0*/
Y0
Y0
SM0
Y0
8

2


程序管理
bvbvbv (MC200)
程序块
MAIN
SBR_1
INT_1
通信
MAIN
INT_1
变量地址
变量名称
变量类型
数据类型
注释
TEMP
BOOL
/*翻转Y0*/
Y0
8
程序名称:
INT_1
作者:
中断事件



9-1

9.4

PLC

1k 1k

EI SM

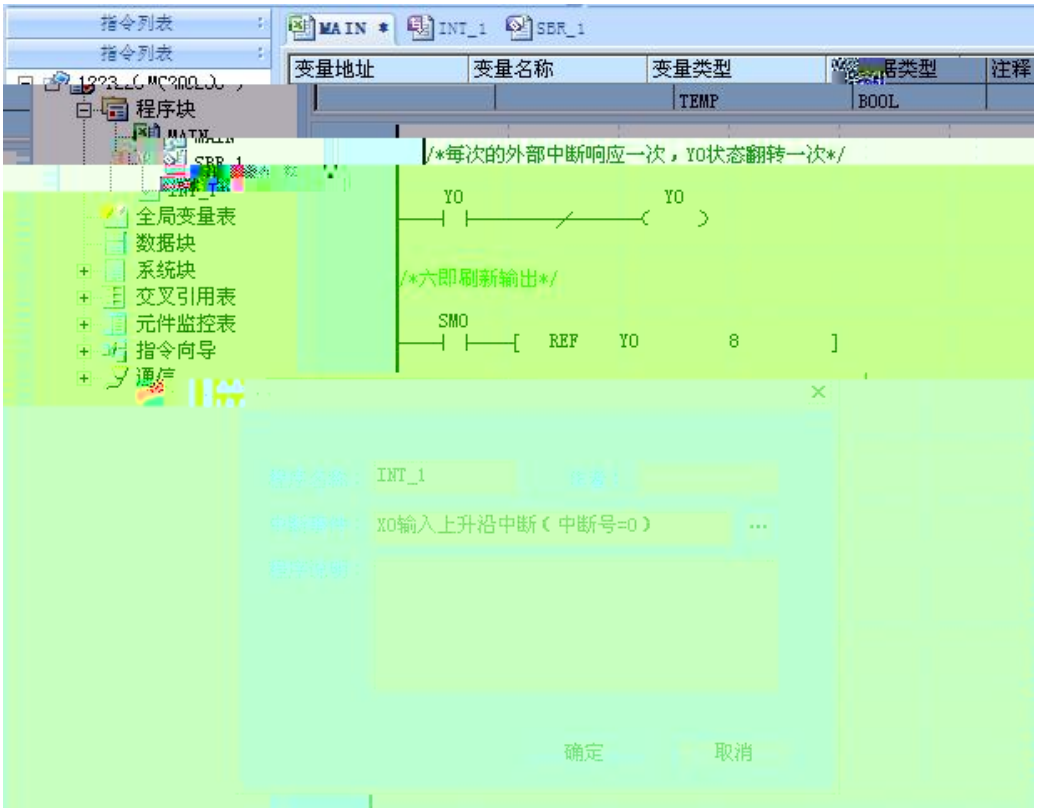
0 10	SM40		4 14	SM44
1 11	SM41		5 15	SM45
2 12	SM42		6 16	SM46
3 13	SM43		7 17	SM47

0	X0		9	
1	X1		10	X0
2	X2		11	X1
3	X3		12	X2
4	X4		13	X3
5	X5		14	X4
6	X6		15	X5
7	X7		16	X6
8			17	X7

X0 X7 <200Hz

X0 0 X0 Y0

1 Y0



2 EI X0 SM40



9.5

HCNT DHSCI

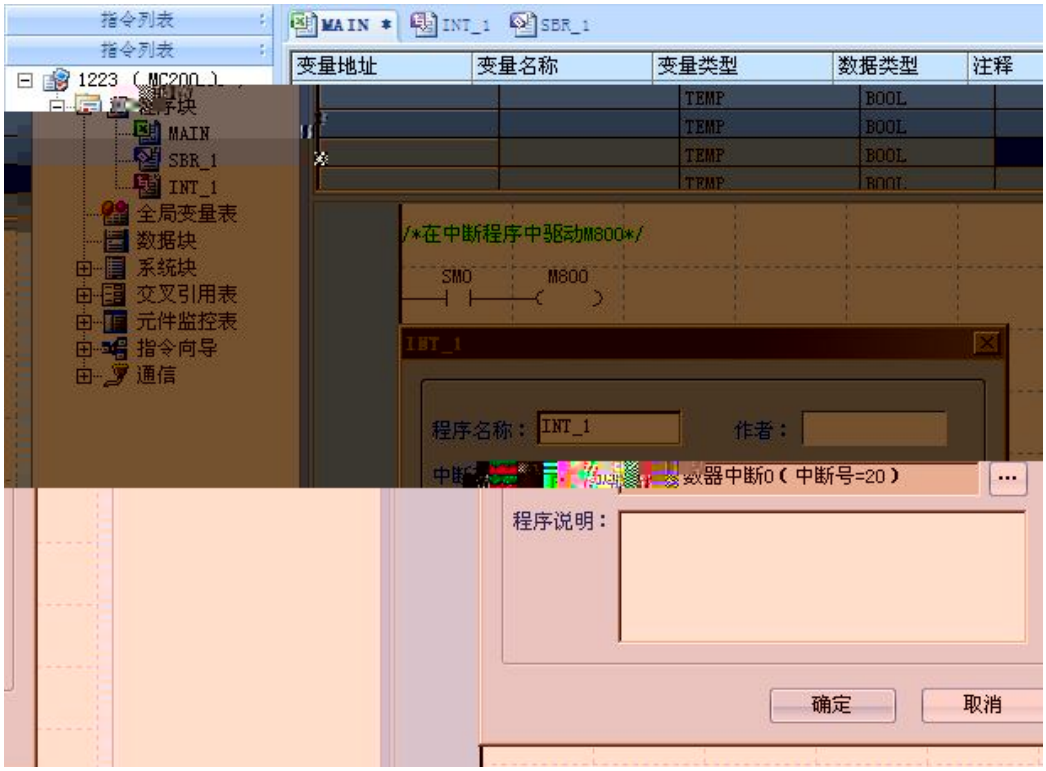
20 25

EI

X0 C236 DHSCI

20

1 INT_1



2 EI SM65 C236



9.6 PTO

PTO

SM63 SM64 Y0 Y1 PTO

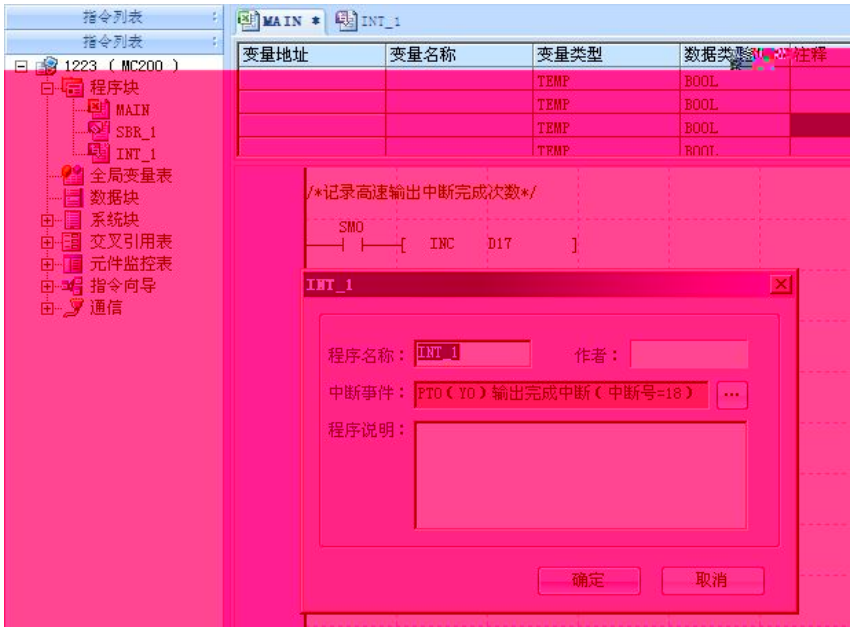
MC100

PTO

Y0 Y0 18

INT_1

INT_1



2 MAIN PTO SM63 PLS



9.7

SM56

MC100

5ms

9.8

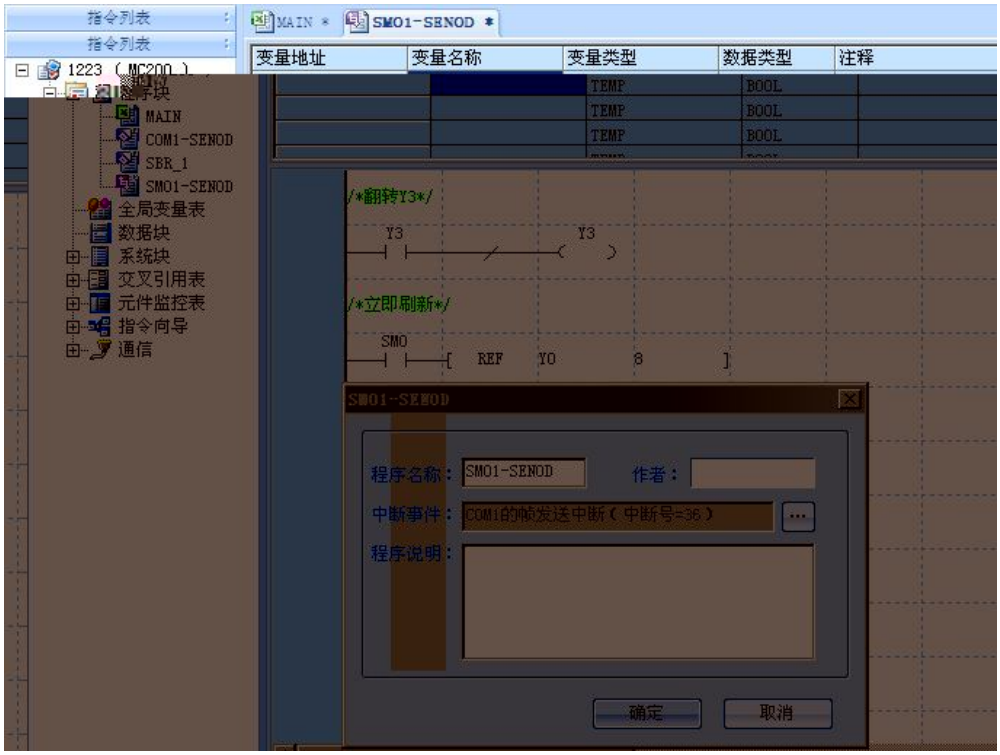
4

SM ON/OFF /

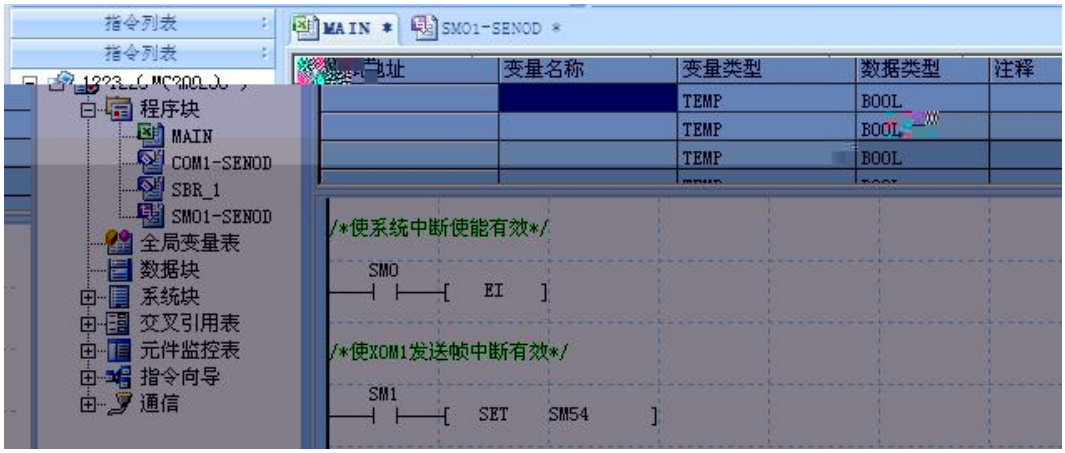
XMT

XMT RCV

		SM
30	0	SM48
31	0	SM49
32	0	SM50
33	0	SM51
34	1	SM52
35	1	SM53
36	1	SM54
37	1	SM55
8	2	SM59
9	2	SM60
38	2	SM57
39	2	SM58


指令列表
指令列表
MAIN
SMO1-SENOD
变量地址
变量名称
变量类型
数据类型
注释
TEMP
BOOL
1223 (MC200)
程序块
MAIN
COM1-SENOD
SBR_1
SMO1-SENOD
全局变量表
数据块
系统块
交叉引用表
元件监控表
指令向导
通信
/*翻转Y3*/
Y3
Y3
/*立即刷新*/
SMO
REF
Y0
8
SMO1-SENOD
程序名称：
SMO1-SENOD
作者：
中断事件：
COM1的帧发送中断（中断号=36）
程序说明：
确定
取消

3


指令列表
指令列表
MAIN
SMO1-SENOD
变量名称
变量类型
数据类型
注释
TEMP
BOOL
程序块
MAIN
COM1-SENOD
SBR_1
SMO1-SENOD
全局变量表
数据块
系统块
交叉引用表
元件监控表
指令向导
通信
/*使系统中断使能有效*/
SMO
EI
/*使XOM1发送帧中断有效*/
SM1
SET
SM54

MC PLC

10.1 299
10.2 299
10.3 299
10.3.1 299
10.3.2 299
10.3.3 300
10.3.4 302
10.3.5 302
10.3.6 RTU 302
10.3.7 ASCII 303
10.3.8 Modbus 303
10.3.9 PLC 303
10.3.10 Modbus 304
10.3.11 304
10.3.12 305
10.3.13 LONG INT 305
10.3.14 305
10.3.15 306
10.3.16 Modbus 306
10.3.17 Modbus 307
10.3.18 309
10.4 MCbus 312
10.4.1 MCbus 312
10.4.2 MCBUS 312
10.4.3 MCbus 312
10.4.4 MCbus 314
10.4.5 318
10.4.6 MCbus 319
10.5 320
10.5.1 320
10.5.2 320
10.5.3 M N 320
10.5.4 MCbus 320

10.1

MC PLC

Modbus	115200 57600 38400 19200 9600 4800 2400 1200
MCbus	115200 57600 38400 19200 9600 4800 2400 1200

MC PLC

MC200	0	RS232	Modbus MCbus
	1	RS232 RS485	Modbus MCbus
MC100	0	RS232	Modbus MCbus
	1	RS232 RS485	Modbus MCbus
MC280	0	RS232	Modbus MCbus
	1	RS485	Modbus MCbus
	2	RS485	Modbus MCbus

MC PLC RUN STOP TM 0

10.2

X_Builder

10.3

10.3.1

ASCII

PLC RUN

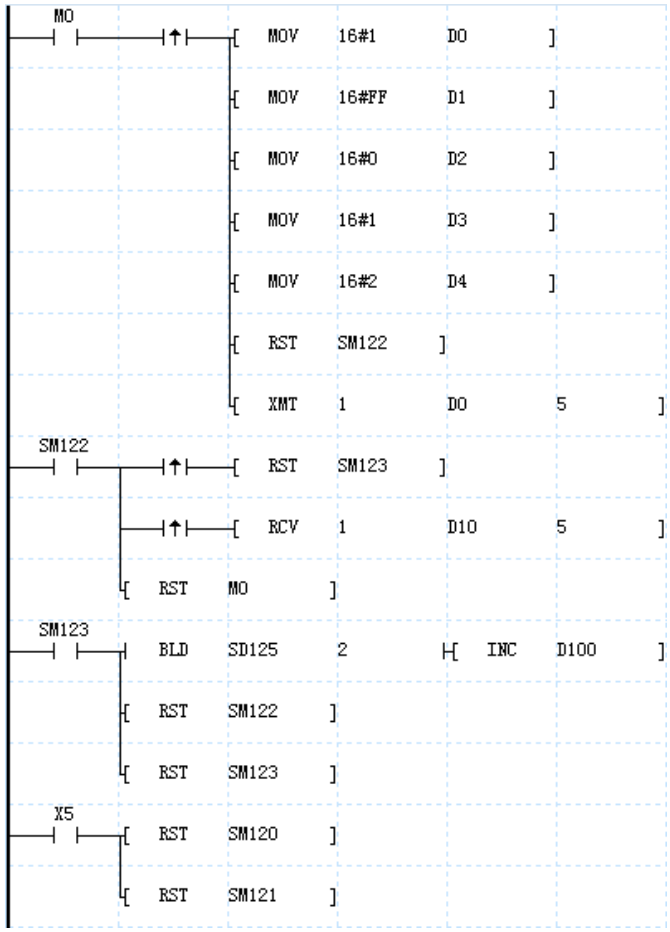
XMT RCV

10.3.2





	115200 57600 38400 19200 9600 4800 2400 1200 9600	
	7 8 8	
	1 2 1	
	0 255 00 FF	
	0 255 00 FF	
	0 65535ms	



1

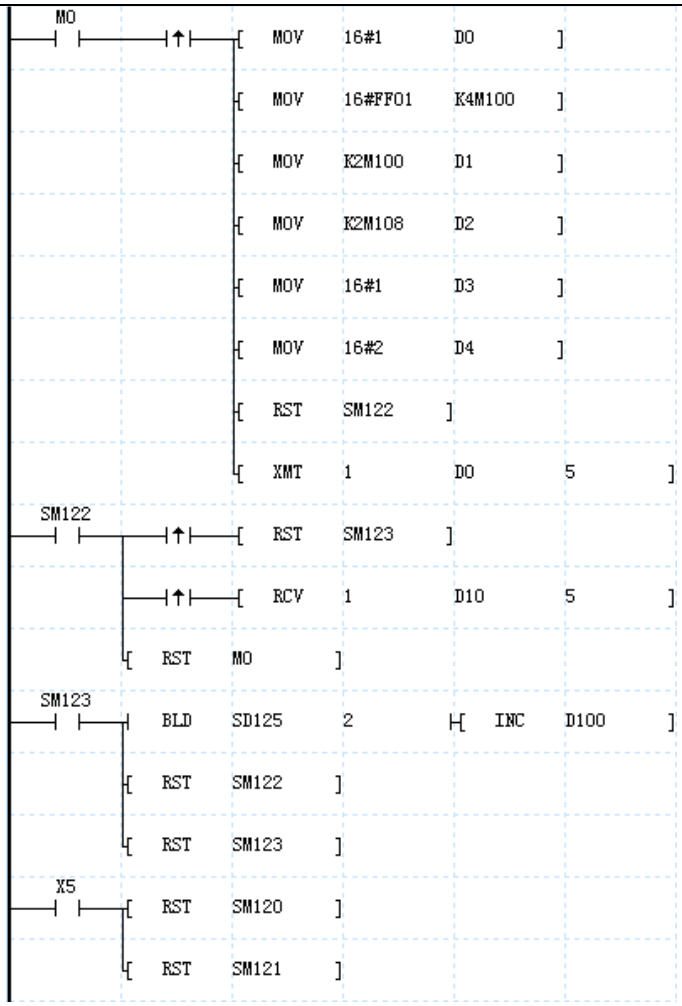
2 M0
D0 XMT
SM122
3 SM122

4 SM123
SD125
5 SM120 1 SM121
1 X5 1

6

1

D2
D3 D4 D3 D4
K4MX
K4M100 K2M100
K2M108



10.3.4

MC PLCModbus ASCII RTU MC100 RTU

10.3.5

1 RS232 RS485

2

(1) 7 ASCII 8 RTU

(2) 1200 2400 4800 9600 19200 38400

(3)

(4) 1 2

3 31 1 31

10.3.6 RTU

1

2 1.5

3 3.5

4 CRC16

5 RTU 256

				CRC
	1	1	0 252	2

6

19200 1.5 =1/19200 11 1.5 1000=0.86ms

3.5 =1/19200 11 3.5 1000=2ms

10.3.7 ASCII

1 ASCII

2 3A CRLF 0D 0A

3 1s

4 LRC

5 ASCII RTU ASCII HEX ASCII 2 252

RTU 252 ASCII 513

					LRC	
	1	2	2	0 2*252	2	2

10.3.8 Modbus

Modbus 01 02 03 04 05 06 15 16 41

41

10.3.9 PLC

		Modicon		
01		0 [1]:xxxx	Y X M SM S T C	
02		1 [2]:xxxx	X	
03		4 [3]:xxxx [4]	D SD Z T C	
05		0:xxxx	Y M SM S T C	
06		4:xxxx	D SD Z T C	
15		0:xxxx	Y M SM S T C	
16		4:xxxx	D SD Z T C	

1 0

2 1

3 4

4 xxxx 1 9999 1 9999 0

5 0 1 4

6 05 15 X X

2 PLC Modbus

Y		Y0 Y377 8 256	0000 0255	01 05 15	Y0 Y7 Y10 Y17
X		X0 X377 8 256	1200 01455		

X6 א 255

255

0000 01 01 257 Y

01 81 03 00 51

257 256 256 Y

3 01 01 00 64 00 A0 7D AD

00 64 100 00 A0 160

01 81 02 C1 91

100 Y 156 160

4 01 04 00 02 00 0A D1 CD

04

01 84 01 82 C0

MC200 04

1 X X SM SD

2 01 CRC

10.3.12

C C200 C255 C200 C255

03 16 C

08	00			08	12	
08	01			08	13	
08	04			08	14	
08	10			08	15	
08	11			08	18	

MC200/MC280

10.3.15

0x01	
0x02	
0x03	

(1)

(2) RTU 256

(3) RTU

(4)

(5) ASCII

10.3.16 Modbus

PORT0PORT0 PORT1 PORT0 Modbus PORT1 Modbus

Modbus

Modbus Modbus

	0 31
	115200 57600 38400 19200 9600 4800 2400 1200
	7 8 ASCII 7 RTU 8
	1 2 1 2
Modbus /	1 0
	RTU ASCII

10.3.17 Modbus

PLC Modbus Modbus Modbus Modbus

6.12.1 Modbus

PLC Modbus

Modbus MC200 MC200

300ms 300ms 350ms

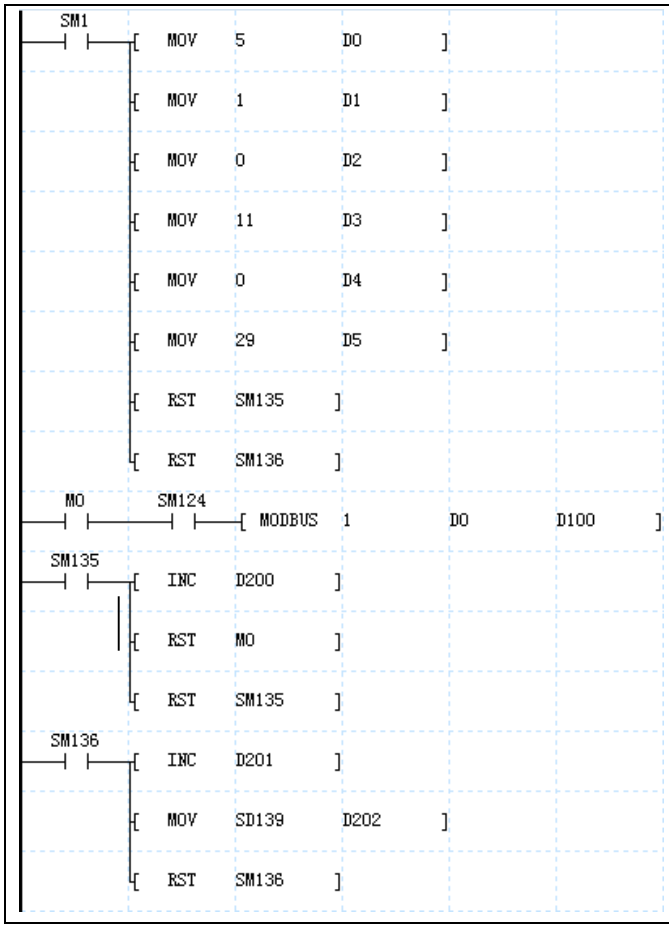
MC200 PLC Modbus MC200 PLC 5

11 39 D100 D100 D101

D102 D103

42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27
X	X	X	0	0	1	1	0	0	0	0	1	0	1	1	0
D106								D105							
26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11
1	1	0	0	0	1	1	0	1	1	1	0	0	0	0	1
D104								D103							

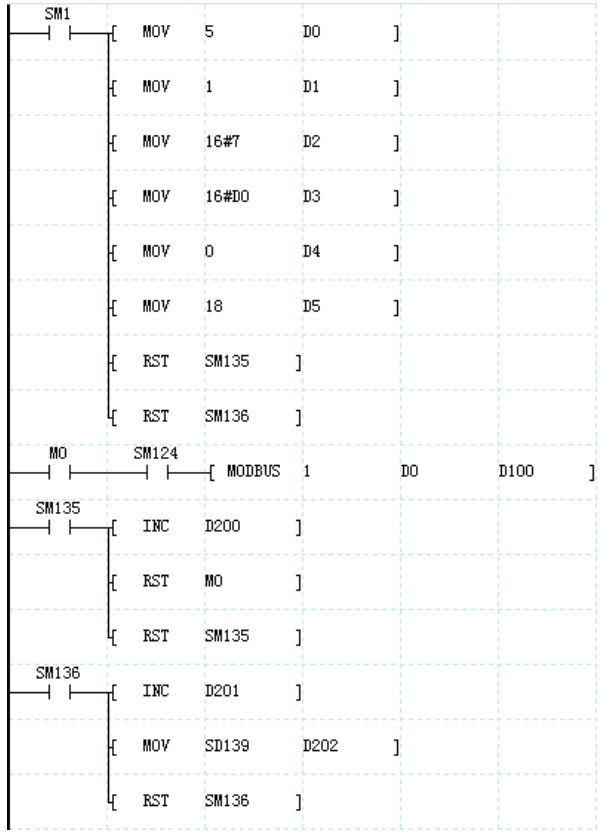
8 D106 40 41 42



1 5
D0
2 1 D1
3 11
D2/D3
4 29
D4/D5
5 D100
6 SM135 D200
7 SM136 D201
D202
8 SM124

1 MC200 PLC 1 0 11
39 12
2 Modbus
Modbus
SD139 D202 D202
3 MC200 Modbus
MC200 PLC

MC200 Modbus MC200 5 2000 2017
D100 D100 D101 D102 D103

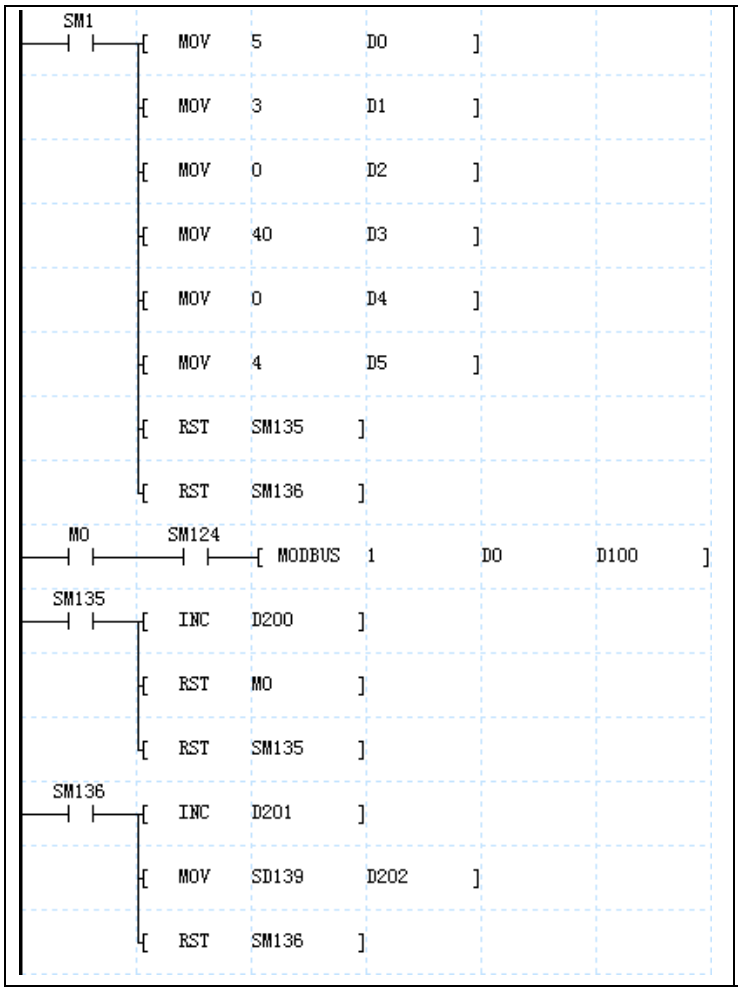


1 5
D0
2 1 D1
3 07D0 16
D2/D3
4 18
D4/D5
5 D100
6 SM135 D200
7 SM136 D201
D202
8 SM124

MC200 Modbus MC200 5 40 43

D100 D100 D101 D102 D103

40 8	40 8	41 8	41 8	42 8	42 8	43 8	43 8
D103	D104	D105	D106	D107	D108	D109	D110



1 5 D0

2 3 D1

3 40 D2/D3

4 4

5 D100

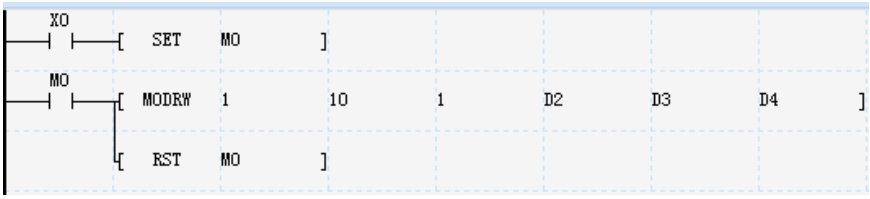
6 SM135 D200

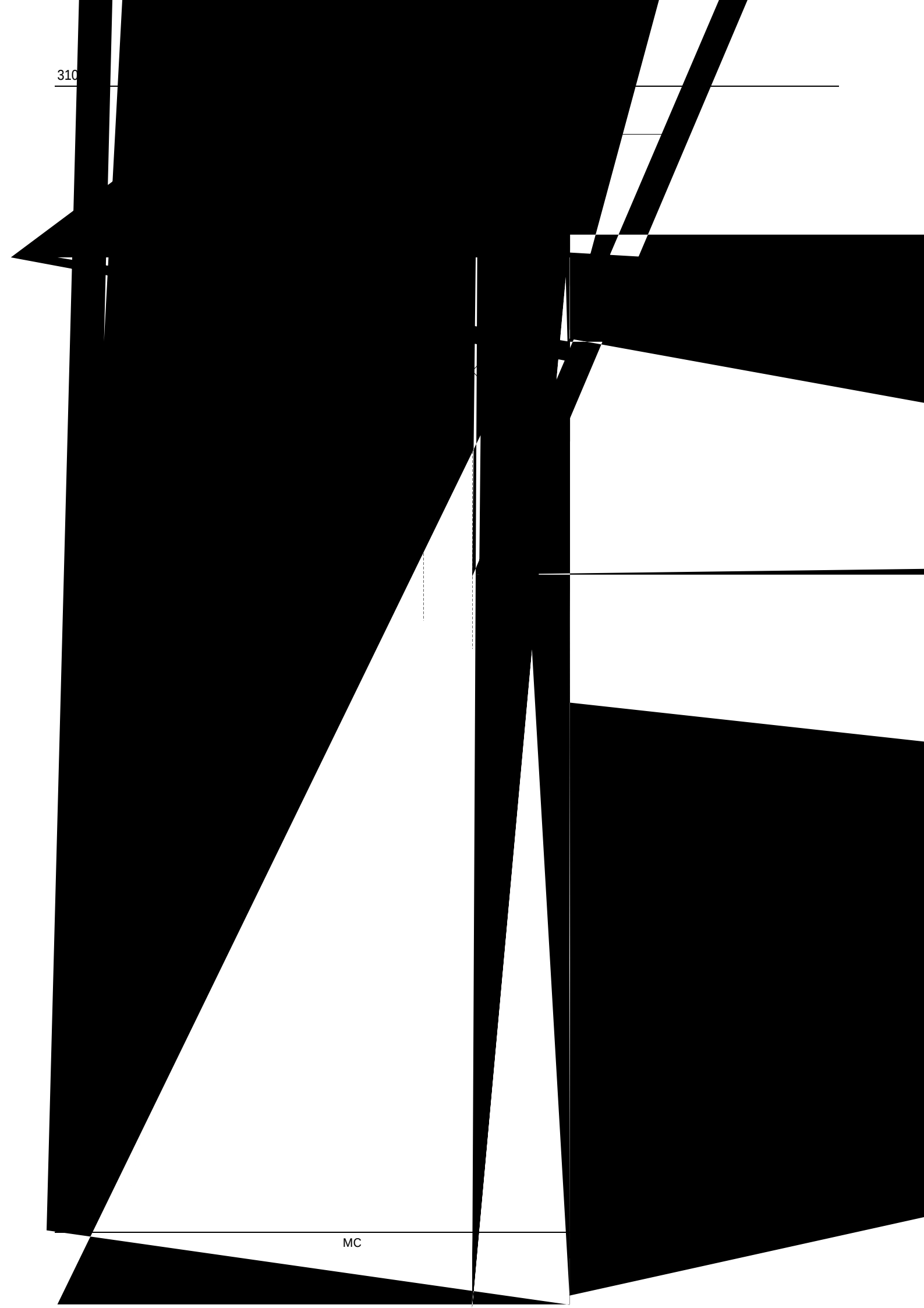
7 SM136 D201 D202

8 SM124

10.3.18

MODBUS





T_{12} 1ms

19200 8 1 RTU 10 20

T_5 $\frac{10 \quad 10}{19200}$ 1000 1 6.2*ms*

T_7 $\frac{20 \quad 10}{19200}$ 1000 1 11.4*ms*

T_4 T_8 T_9 1*ms*

T_6 35*ms*

T_3 1 6.2 35 11.4 1 1 55.6*ms*

10ms

T_2 $(INT(\frac{55.6}{15})$ 1))15 60*ms*

T_{10} 6.2 15 1 11.4 33.6*ms*

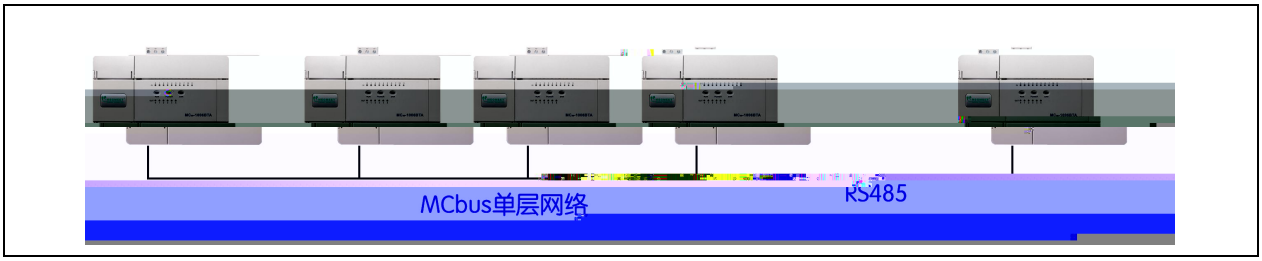
10.4 MCbus

10.4.1 MCbus

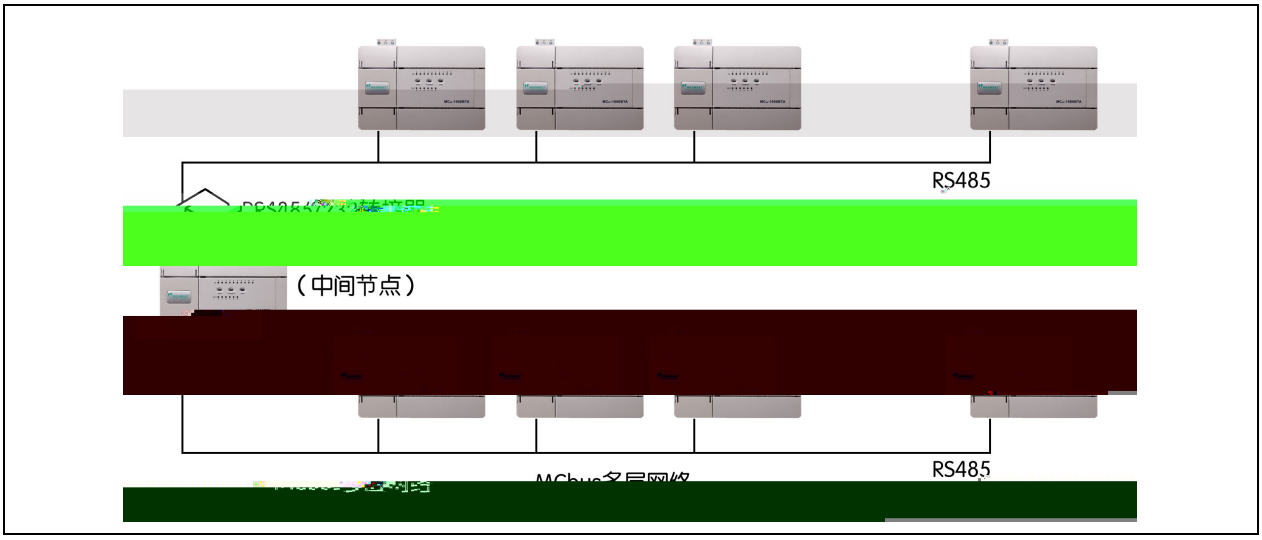
MCbus PLC MCbus RS485 PLC 1
0 RS232/RS485 MCbus PLC D M
PLC MCbus PLC
N:N
MCbus 0 PLC PLC
PLC PLC MCbus PLC SM

10.4.2 MCbus

MCbus



10-1 MCbus



10-2 MCbus

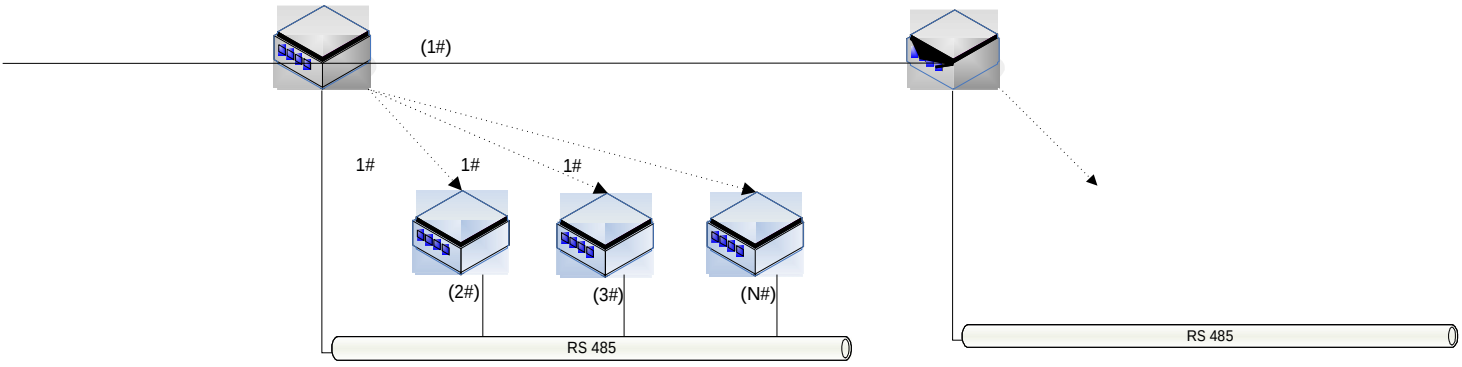
PLC 1 PORT MCbus PLC
PLC 2 32 PLC 16
PLC

10.4.3 MCBUS

MCBUS PLC

PLC( )

10-1 10-5 1 0 1



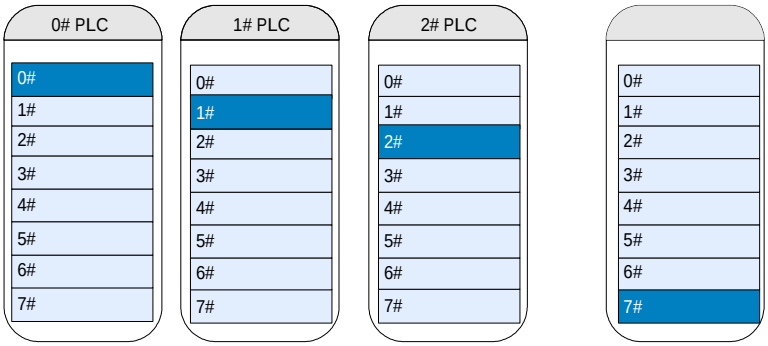
10-3

10.4.4 MCbus

MCbus PLC D M D M

PLC MCbus

PLC



D	1	2	3	4	5
D7756 D7757	#28	#14	#7		
D7758 D7759	#29				
D7760 D7761	#30	#15			
D7762 D7763	#31				

(1) 1 0# D D7700 D7701 0# PLC D7700 D7701 1#-31# D7700 D7701

(2) 2 0# D D7700 D7703 0# PLC D7700 D7701 D7702 D7703 1#- 15# D7700 D7704

MCbus M

M	1	2	3	4	5
M1400 M1415	#0	#0	#0	#0	#0
M1416 M1431	#1				
M1432 M1447	#2	#1			
M1448 M1463	#3				
M1464 M1479	#4	#2	#1		
M1480 M1495	#5				
M1496 M1511	#6	#3			
M1512 M1527	#7				
M1528 M1543	#8	#4	#2	#1	
M1544 M1559	#9				
M1560 M1575	#10	#5			
M1576 M1591	#11				
M1592 M1607	#12	#6	#3		#0
M1608 M1623	#13				
M1624 M1639	#14	#7			
M1640 M1655	#15				
M1656 M1671	#16	#8	#4	#2	#1

13

MCbus D 0

D	6	7	8	9
D7700 D7701	#0	#0	#0	#0
D7702 D7703	#1			
D7704 D7705	#2	#1		
D7706 D7707	#3			
D7708 D7709	#4	#2	#1	
D7710 D7711	#5			
D7712 D7713	#6	#3		
D7714 D7715	#7			
D7716 D7717	#8	#4	#2	#1
D7718 D7719	#9			
D7720 D7721	#10	#5		
D7722 D7723	#11			
D7724 D7725	#12	#6	#3	
D7726 D7727	#13			
D7728 D7729	#14	#7		
D7730 D7731	#15			

6 0# 0 D D7700 D7701 0# PLC D7700 D7701
1#- 15# D7700 D7701

MCbus D 1

D	10	11	12	13
D7732 D7733	#0	#0	#0	#0
D7734 D7735	#1			
D7736 D7737	#2	#1		
D7738 D7739	#3			
D7740 D7741	#4	#2	#1	
D7742 D7743	#5			
D7744 D7745	#6	#3		
D7746 D7747	#7			
D7748 D7749	#8	#4	#2	#1
D7750 D7751	#9			
D7752 D7753	#10	#5		
D7754 D7755	#11			
D7756 D7757	#12	#6	#3	
D7758 D7759	#13			
D7760 D7761	#14	#7		
D7762 D7763	#15			

10 0# 1 D D7732 D7733 0# PLC D773 D7733
1#- 15# D7732 D7733

MCbus M 0

		7	8	9
M1400 M1415	#0	#0	#0	#0
M1416 M1431	#1			
M1432 M1447	#2	#1		
M1448 M1463	#3			
M1464 M1479	#4	#2	#1	
M1480 M1495	#5			
M1496 M1511	#6	#3		
M1512 M1527	#7			
M1528 M1543	#8	M4 ɔ 0	Ă #2	#1
M1544 M1559	#9			
M1560 M1575	#10	#5		
M1576 M1591	#11			
M1592 M1607	#12	#6	#3	
M1608 M1623	#13			
M1624 M1639	#14	#7		

ī↑ M' x ж & Ŏ Û ≤N

10.4.5

D	14	15	16	17	18
D7500 D7507	#0	#0	#0	#0	#0
D7508 D7515	#1				
D7516 D7523	#2	#1			
D7524 D7531	#3				
D7532 D7539	#4	#2	#1		
D7540 D7547	#5				
D7548 D7555	#6	#3			
D7556 D7563	#7				
D7564 D7571	#8	#4	#2	#1	
D7572 D7579	#9				
D7580 D7587	#10	#5			
D7588 D7595	#11				
D7596 D7603	#12	#6	#3		
D7604 D7611	#13				
D7612 D7619	#14	#7			
D7620 D7627	#15				
D7628 D7635	#16	#8	#4	#2	#1
D7636 D7643	#17				
D7644 D7651	#18	#9			
D7652 D7659	#19				
D7660 D7667	#20	#10	#5		
D7668 D7675	#21				
D7676 D7683	#22	#11			
D7684 D7691	#23				
D7692 D7699	#24	#12	#6	#3	
D7700 D7707	#25				
D7708 D7715	#26	#13			
D7716 D7723	#27				
D7724 D7731	#28	#14	#7		
D7732 D7739	#29				
D7740 D7747	#30	#15			
D7748 D7755	#31				

10.4.6 MCbus





MCbus 0 PLC 0

0

0



PLC 6 PLC 6 6 PLC
0 5 2 PLC 8
PLC 6 7 6 7 MCbus 1
0 5

10.5

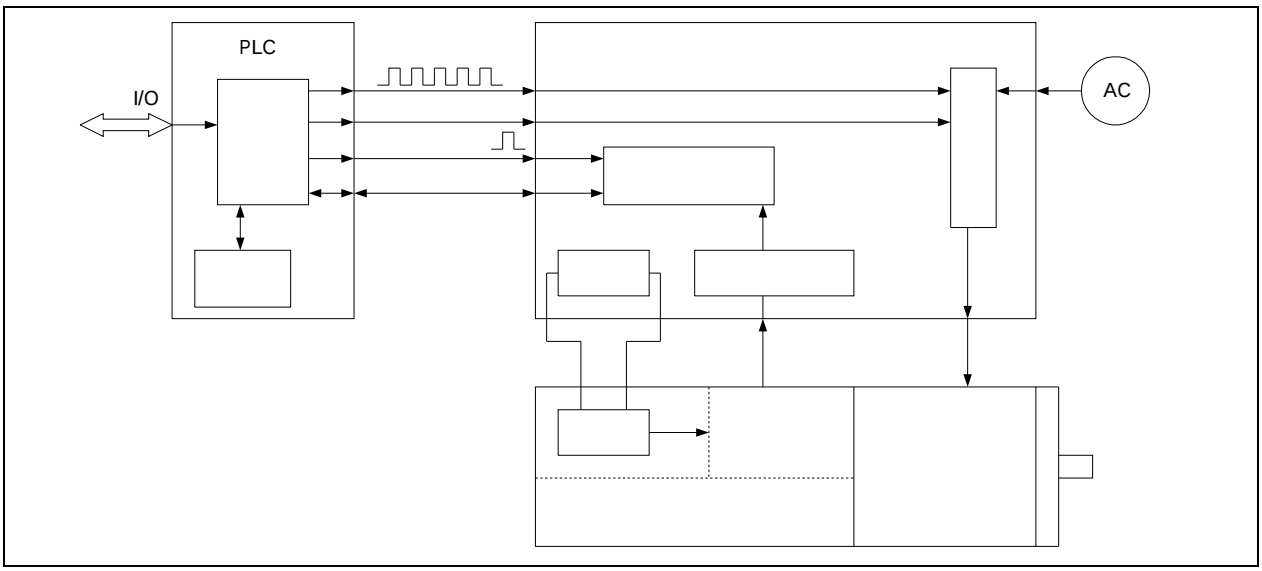
10.5.1

0 0 MCbus
0

11.1 321
11.1.1 321
11.1.2 322
11.1.3 323
11.2 MC PLC 323
11.3 325
11.4 326
11.4.1 MC280 326
11.4.2 MC200 338
11.4.3 MC100 341
11.5 342
11.5.1 342
11.5.2 349

11.1

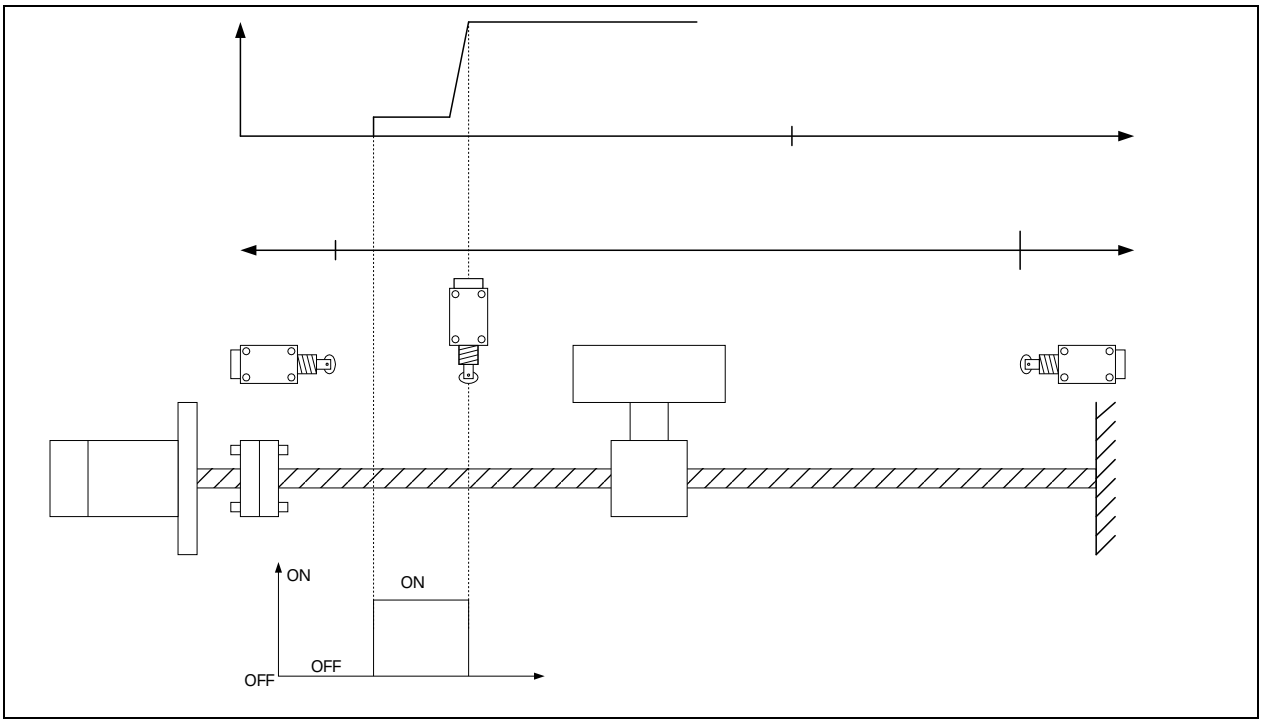
11.1.1



11-1

PLC PLC

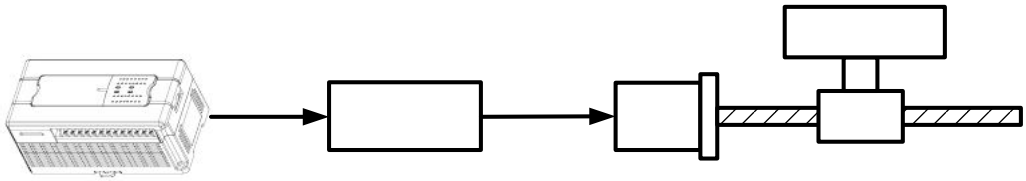
MC PLC



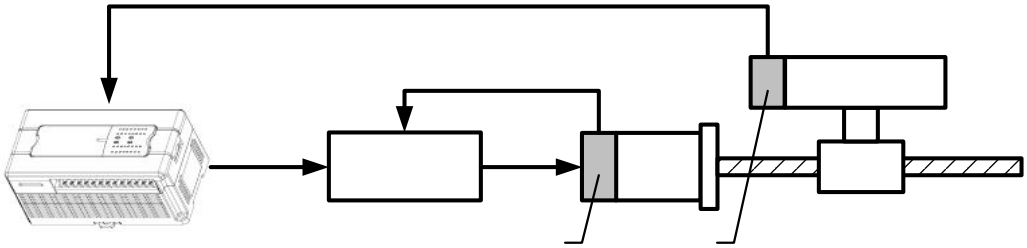
11-2

PLC ZRN

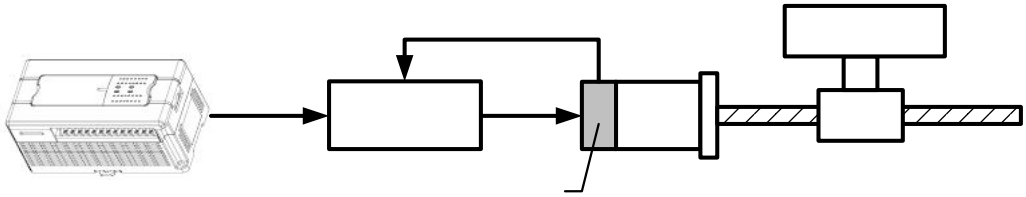
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11-3

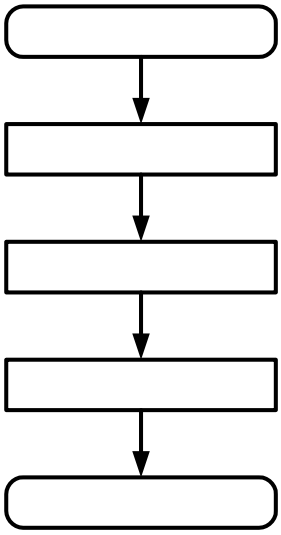


11-4



11-5

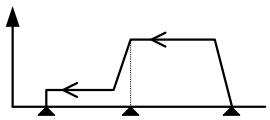
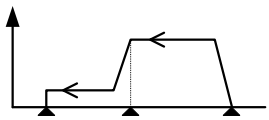
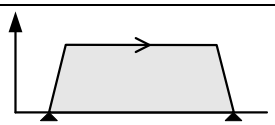
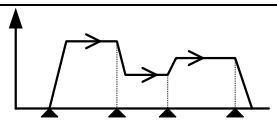
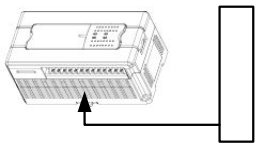
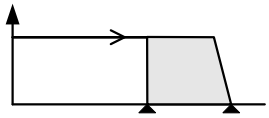
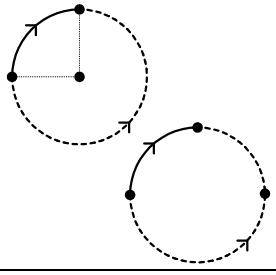
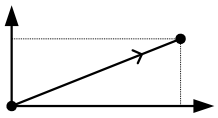
11.1.3

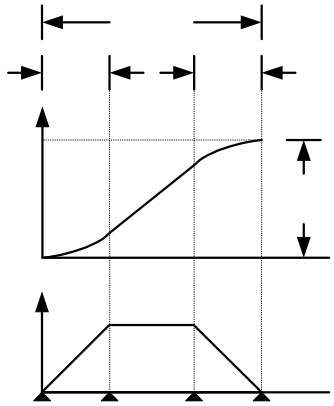
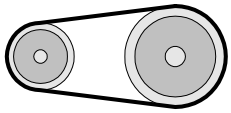


11.2 PLC

MC PLC

11-2 MC PLC

			MC280	MC200	MC100	MC80
DSZR		DOG DOG DOG ON				
ZRN		DOG DOG ON DOG OFF				
DRVI						
DRVA						
PLSV						
ABS						
STOPDV						
CW						
CCW						
LIN						

			MC280	MC200	MC100	MC80
MOVELINK						
GEARBOX						

6.10 IO

11.3

MC PLC

1

2 1 1 PLC

3 SD84 SD87 SD85
SD84 0 0
0
SD84 PLC SD84 100

4 SD80/SD82 SD80/SD82
SD80/SD82 SM82/SM83
SD80/SD82 Y0/Y1

5 SD50/SD52 PLC SD50/SD52
SD80/SD82

6 SD MC100 MC200/MC280 SD MC100

PLSY PLSR PLS SD

SD SD
SD
SD SD
PLSY PLSR PLS PLC
SD

F_{min_acc} $\sqrt{\frac{F_{max}\ 500}{T}}$

F_{max} SD85 SD86 T SD87
F_{min_acc}

F 3

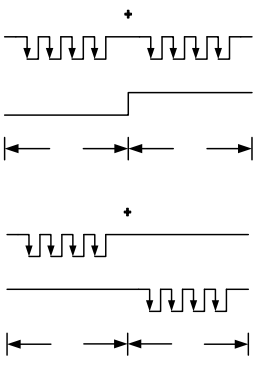
- F F F_{max}
- F F_{min_acc} F_{min_acc}
- F F_{min_acc} F_{max} F

11.4

11.4.1 MC280

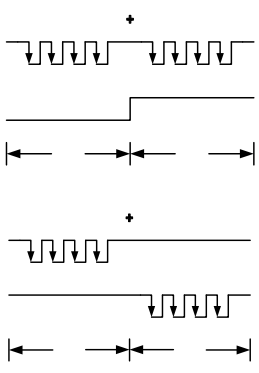
MC280

11-3 MC280-1616BTA8

0	+		Y0	200	X Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7	100	
			Y0				
	+		Y0				
			Y1				
	A + B	A	Y0/Y1(Y0 A Y1 B)				
		B	Y1/Y0(Y1 B Y0 A)				
1	+		Y1	200	X Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7		
			Y1				
	+		Y0				
			Y1				
	A + B	A	Y1/Y0(Y1 A Y0 B)				
		B	Y0/Y1(Y0 B Y1 A)				
2	+		Y2	200	Y Y0 Y1 Y2 Y3		
			Y2				
	+		Y2				
			Y3				

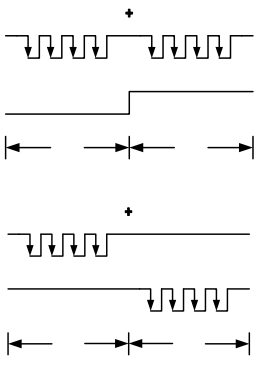
	A + B	A	Y2/Y3(Y2 A Y3 B)		Y4 Y5 Y6 Y7		
		B	Y3/Y2(Y3 B Y2 A)				
3	+		Y3	200	Y Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7		
			Y3				
	+		Y2				
			Y3				
	A + B	A	Y3/Y2(Y3 A Y2 B)				
		B	Y2/Y3(Y2 B Y3 A)				
4	+		Y4	100	X /Y /		
			Y4				
	PWM						
5	+		Y5	100	X /Y /		
			Y5				
	PWM						
6	+		Y6	100	X /Y /	20	
			Y6				
	A + B	A	Y6/Y7(Y6 A Y7 B)				
		B	Y7/Y6(Y7 B Y6 A)				
	PWM						
7	+		Y7	100	X /Y /		
			Y7				
	A + B	A	Y7/Y6(Y7 A Y6 B)				
		B	Y6/Y7(Y6 B Y7 A)				
	PWM						

11-4 MC280-1616BTA6

0	+		Y0	200	X Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7	100	
			Y0				
	+		Y0				
			Y1				
	A + B	A	Y0/Y1(Y0 A Y1 B)				
		B	Y1/Y0(Y1 B Y0 A)				
1	+		Y1	200	X Y0 Y1 Y2 Y3		
			Y1				
	+		Y0				
			Y1				

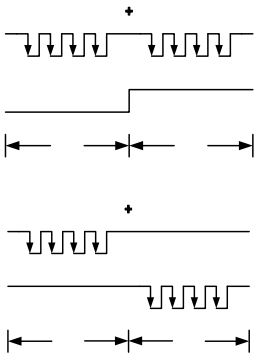
	A + B	A	Y1/Y0(Y1 A Y0 B)		Y4 Y5 Y6 Y7		
		B	Y0/Y1(Y0 B Y1 A)				
2	+		Y2	200	Y Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7		
			Y2				
	+		Y2				
			Y3				
	A + B	A	Y2/Y3(Y2 A Y3 B)				
		B	Y3/Y2(Y3 B Y2 A)				
3	+		Y3	200	Y Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7		
			Y3				
	+		Y2				
			Y3				
	A + B	A	Y3/Y2(Y3 A Y2 B)				
		B	Y2/Y3(Y2 B Y3 A)				
4	+		Y4	100	X /Y /	20	
			Y4				
	PWM						
5	+		Y5	100	X /Y /		
			Y5				
	PWM						

11-5 MC280-1616BTA4

0	+		Y0	200	X Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7	100	
			Y0				
	+		Y0				
			Y1				
	A + B	A	Y0/Y1(Y0 A Y1 B)				
		B	Y1/Y0(Y1 B Y0 A)				
1	+		Y1	200	X Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7		
			Y1				
	+		Y0				
			Y1				
	A + B	A	Y1/Y0(Y1 A Y0 B)				
		B	Y0/Y1(Y0 B Y1 A)				
2	+		Y2	200	Y		
			Y2				

	+		Y2		Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7		
			Y3				
	A + B	A	Y2/Y3(Y2 A Y3 B)				
		B	Y3/Y2(Y3 B Y2 A)				
3	+		Y3	200	Y Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7		
			Y3				
	+		Y2				
			Y3				
	A + B	A	Y3/Y2(Y3 A Y2 B)				
		B	Y2/Y3(Y2 B Y3 A)				

11-6 MC200E-1616BTA8

0	+		Y0	200	/	/	
			Y0				
	+		Y0				
			Y1				
	A + B	A	Y0/Y1(Y0 A Y1 B)				
		B	Y1/Y0(Y1 B Y0 A)				
1	+		Y1	200	/		
			Y1				
	+		Y0				
			Y1				
	A + B	A	Y1/Y0(Y1 A Y0 B)				
		B	Y0/Y1(Y0 B Y1 A)				
2	+		Y2	200	/		
			Y2				
	+		Y2				
			Y3				
	A + B	A	Y2/Y3(Y2 A Y3 B)				
		B	Y3/Y2(Y3 B Y2 A)				
3	+		Y3	200	/		
			Y3				
	+		Y2				
			Y3				
	A +	A	Y3/Y2(Y3 A Y2 B)				

	B	B	Y2/Y3(Y2 B Y3 A)				

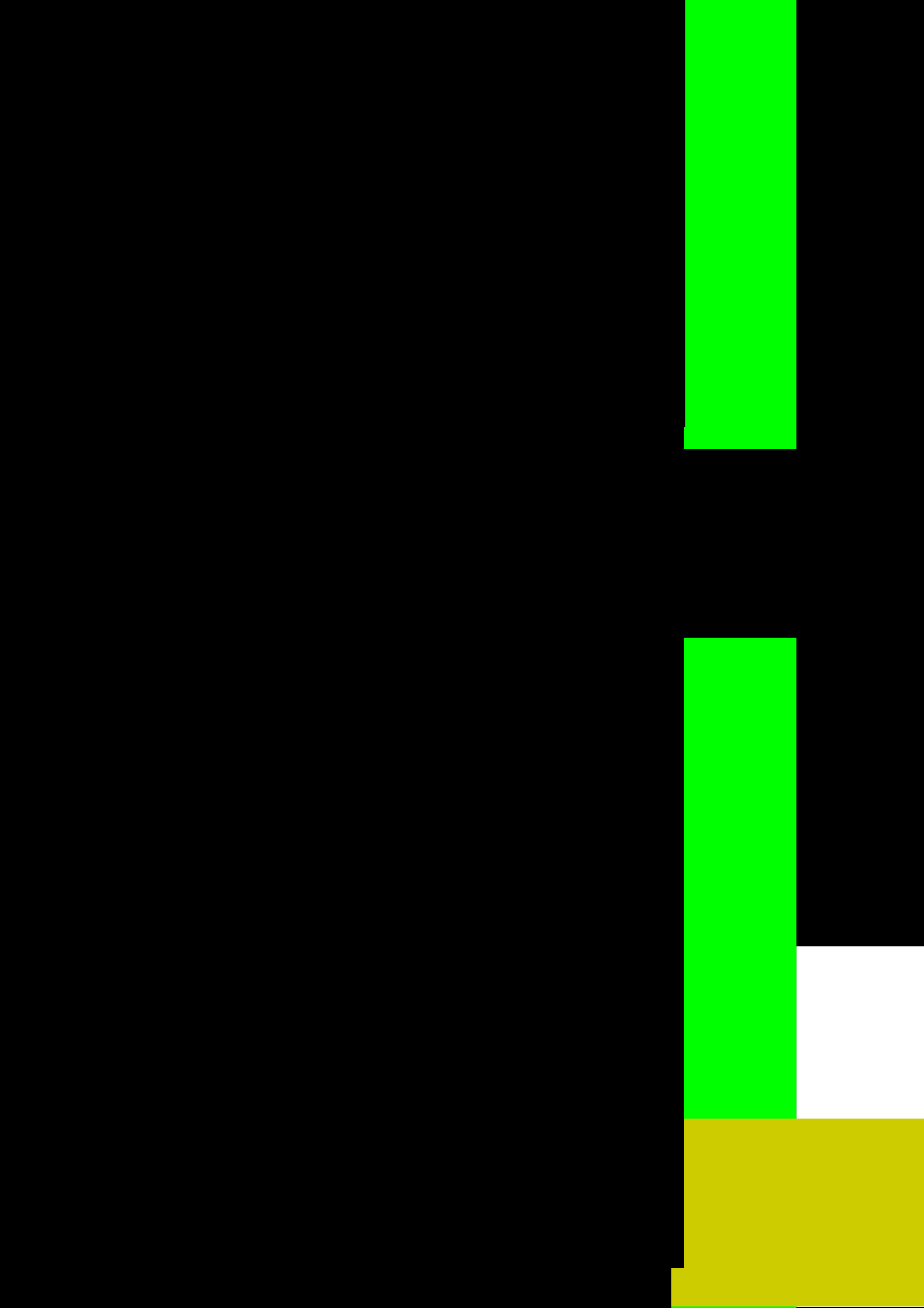
Y4

+

4 100 /

	ő	& Ъ ò M		Ҡ		
	B	B	<LЌ3/Y2(Y3Ü B)%P Y2 â¿Ð›ðF™€ wg v æ)			
	+		Y3			
			Y3ђ r			
	+	z	Y2 Y3			

3 200 /



			R/W
SD202	0	10 200000	R/W
SD203	0		R/W
SD204	0	1/10	R/W
SD205	0	50 5000 ms	R/W
SD206	0	SM281 N Y Y N	R/W
SD207	0	DSZR	R/W
SD208	0	DSZR	R/W
SD209	0		R/W
SD220	0	PLS	R

1 SD202 SD205

2 1/10

1 Y1

			R/W
SM261		Y1	R/W
SM271		Y1 busy ON ready OFF	R
SM71		Y1	R/W
SM310		DSZR/ZRN Y1 CLR CLR	R/W
SM311		DSZR Y1 SD316 N Y Y N Y11	R/W
SM312		DSZR Y1	R/W
SM313		DSZR Y1	R/W
SM314		DSZR Y1	R/W
SM315		DSZR Y1 OFF ON ON ON	R/W
SM316		DSZR Y1 OFF ON ON ON	R/W
SM317		Y1 DVIT	
SM318		DSZR Y1 busy ON ready OFF	R/W
SM319		Y1 DVIT	

SM310 Y11 1 CLR 20ms+1

1 Y1

			R/W
SD52	1	SD52 SD53	R/W
SD53	1		R/W
SD310	1	SD310 SD311	R/W
SD311	1	32 SD310	R/W
SD312	1	10 200000	R/W
SD313	1		R/W
SD314	1	1/10	R/W
SD315	1	50 5000 ms	R/W
SD316	1	SM311 N Y Y N	R/W
SD317	1	DSZR	R/W

SD318	1	DSZR	R/W
SD319	1		R/W

1 SD312 SD315

2 1/10

2 Y2

			R/W
SM262		Y2	R/W
SM272		Y2 busy ON ready OFF	R
SM72		Y2	R/W
SM320		DSZR/ZRN Y2 CLR CLR	R/W
SM321		DSZR Y2 SD326 N Y Y N Y12	R/W
SM322		DSZR Y2	R/W
SM323		DSZR Y2	R/W
SM324		DSZR Y2	R/W
SM325		DSZR Y2 OFF ON ON ON	R/W
SM326		DSZR Y2 OFF ON ON ON	R/W
SM327		Y2 DVIT	
SM328		DSZR Y2 busy ON ready OFF	R/W
SM329		Y2 DVIT	

SM320 Y12 1 CLR 20ms+1

2 Y2

			R/W
SD160	2	SD160 SD161	R/W
SD161	2		R/W
SD320	2	SD320 SD321 32 SD320	R/W
SD321	2		R/W
SD322	2	10 200000	R/W
SD323	2		R/W
SD324	2	1/10	R/W
SD325	2	50 5000 ms	R/W
SD326	2	SM321 N Y Y N	R/W
SD327	2	DSZR	R/W
SD328	2	DSZR	R/W
SD329	2		R/W
SD222	2	PLS	R

1 SD322 SD325

2 1/10

3 Y3

			R/W

			R/W
		Y Y N Y14	
SM342		DSZR Y4	R/W
SM343		DSZR Y4	R/W
SM344		DSZR Y4	R/W
SM345		DSZR Y4 OFF ON ON ON	R/W
SM346		DSZR Y4 OFF ON ON ON	R/W
SM347		Y4 DVIT	
SM348		DSZR Y4 busy ON ready OFF	R/W
SM349		Y4 DVIT	
	SM340	Y14 1 CLR	20ms+1

4 Y4

			R/W
SD164	4	SD164 SD165	R/W
SD165	4	SD340 SD341	R/W
SD340	4	32 SD340	R/W
SD341	4		R/W
SD342	4	10 100000	R/W
SD343	4		R/W
SD344	4	1/10	R/W
SD345	4	50 5000 ms	R/W
SD346	4	SM341o l . N	

SM355		DSZR Y5 OFF ON ON ON	R/W
SM356		DSZR Y5 OFF ON ON ON	R/W
SM358		DSZR Y5 busy ON ready OFF	R/W
SM350		Y15 1 CLR	20ms+1

5 Y5

			R/W
SD166	5	SD166 SD167	R/W
SD167	5		R/W
SD350	5	SD350 SD351	R/W
SD351	5	32 SD350	R/W
SD352	5	10 100000	R/W
SD353	5		R/W
SD354	5	1/10	R/W
SD355	5	50 5000 ms	R/W
SD356	5	SM351 N Y Y N	R/W
SD357	5	DSZR	R/W
SD358	5	DSZR	R/W
SD359	5		R/W
SD225	5	PLS	R

1 SD352 SD355

2 1/10

6 Y6

			R/W
SM266		Y6	R/W
SM276		Y6 busy ON ready OFF	R
SM76		Y6	R/W
SM360		DSZR/ZRN Y6 CLR CLR	R/W
SM361		DSZR Y6 SD366 N Y Y N Y16	R/W
SM362		DSZR Y6	R/W
SM363		DSZR Y6	R/W
SM364		DSZR Y6	R/W
SM365		DSZR Y6 OFF ON ON ON	R/W
SM366		DSZR Y6 OFF ON ON ON	R/W
SM368		DSZR Y6 busy ON ready OFF	R/W
SM360		Y16 1 CLR	20ms+1

6 Y6

			R/W
SD168	6	SD168 SD169	R/W

			R/W
SD169	6	SD360 SD361	R/W
SD360	6	32 SD360	R/W
SD361	6		R/W
SD362	6	10 100000	R/W
SD363	6		R/W
SD364	6	1/10	R/W
SD365	6	50 5000 ms	R/W
SD366	6	SM361 N Y Y N	R/W
SD367	6	DSZR	R/W
SD368	6	DSZR	R/W
SD369	6		R/W
SD226	6	PLS	R

1 SD362 SD365

2 1/10

7 Y7

			R/W
SM267		Y7	R/W
SM277		Y7 busy ON ready OFF	R
SM77		Y7	R/W
SM370		DSZR/ZRN Y7 CLR CLR	R/W
SM371		DSZR Y7 SD376 N Y Y N Y17	R/W
SM372		DSZR Y7	R/W
SM373		DSZR Y7	R/W
SM374		DSZR Y7	R/W
SM375		DSZR Y7 OFF ON ON ON	R/W
SM376		DSZR Y7 OFF ON ON ON	R/W
SM378		DSZR Y7 busy ON ready OFF	R/W

SM370 Y17 1 CLR 20ms+1

7 Y7

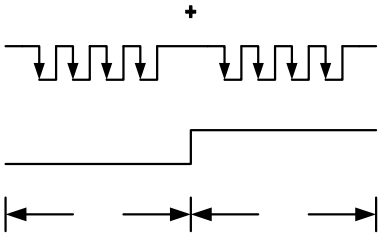
			R/W
SD170	7	SD170 SD171	R/W
SD171	7	SD370 SD371	R/W
SD370	7	32 SD370	R/W
SD371	7		R/W
SD372	7	10 100000	R/W
SD373	7		R/W
SD374	7	1/10	R/W
SD375	7		

			R/W
SD378	7	DSZR	R/W
SD379	7		R/W
SD227	7	PLS	R
1 SD372 SD375 2 1/10			

11.4.2 MC200

MC200

11-9 MC200

0	+		Y0	
			Y0	
1	+		Y1	
			Y1	

0 Y0

			R/W
SM80	Y0	Y0	R/W
SM82	Y0	Y0 busy ON ready OFF	R
SM63	Y0	Y0	R/W
SM280		DSZR/ZRN Y0 CLR CLR	R/W
SM281		DSZR Y0 SD220 Y N Y10	R/W
SM282		DSZR Y0	R/W
SM283		DSZR/DVIT Y0	R/W
SM284		DSZR/DVIT Y0	R/W
SM285		DSZR Y0 OFF ON ON ON	R/W
SM286		DSZR Y0 OFF ON ON ON	R/W
SM287		DVIT Y0 OFF ON ON ON	R/W
SM288		DSZR/DVIT Y0 busy ON ready OFF	R/W
SM289	Y0	DVIT Y0 SD240 X N X0	R/W
SM260		DVIT Y0 Y1 SM289 SM299 SD240	R/W

SM280 Y10 1 CLR 20ms+1

0 Y0

			R/W
SD50	0	SD50 SD51	R/W
SD51	0		R/W
SD200	0	SD200 SD201	R/W
SD201	0	32 SD200	R/W
SD202	0	10 100000	R/W
SD203	0		R/W
SD204	0	1/10	R/W
SD205	0	50 5000 ms	R/W
SD207	0	DSZR	R/W
SD208	0	DSZR	R/W
SD209	0		R/W
SD220	0	SM281 N Y Y N	R/W
SD240		SM289 N Y Y N 0	R/W

1 SD202 SD205

2 1/10 1/10

1 Y1

			R/W
SM81	Y1	Y1	R/W
SM83	Y1	Y1 busy ON ready OFF	R
SM64	Y1	Y1	R/W
SM290		DSZR/ZRN Y1 CLR CLR	R/W
SM291		DSZR Y1 SD230 Y N Y11	R/W
SM292		DSZR Y1	R/W
SM293		DSZR/DVIT Y1	R/W
SM294		DSZR/DVIT Y1	R/W
SM295		DSZR Y1 OFF ON ON ON	R/W
SM296		DSZR Y1 OFF ON ON ON	R/W
SM297		DVIT Y1 OFF ON ON ON	R/W
SM298		DSZR/DVIT Y1 busy ON ready OFF	R/W
SM299	Y1	DVIT Y1 SD240 X N X1	R/W
SM260		DVIT Y0 Y1 SM289 SM299 SD240	R/W

SM290 Y11 1 CLR 20ms+1

1 Y1

			R/W
SD52	1	SD52 SD53	R/W
SD53	1		R/W
SD210	1	SD210 SD211	R/W
SD211	1	32 SD210	R/W
SD212	1	10 100000	R/W
SD213	1		R/W
SD214	1	1/10	R/W
SD215	1	50 5000 ms	R/W
SD217	1	DSZR	R/W
SD218	1	DSZR	R/W
SD219	1		R/W
SD230	1	SM291 N Y Y N	R/W
SD240		SM299 N Y Y N 1	R/W

1 SD212 SD215

2 1/10 1/10

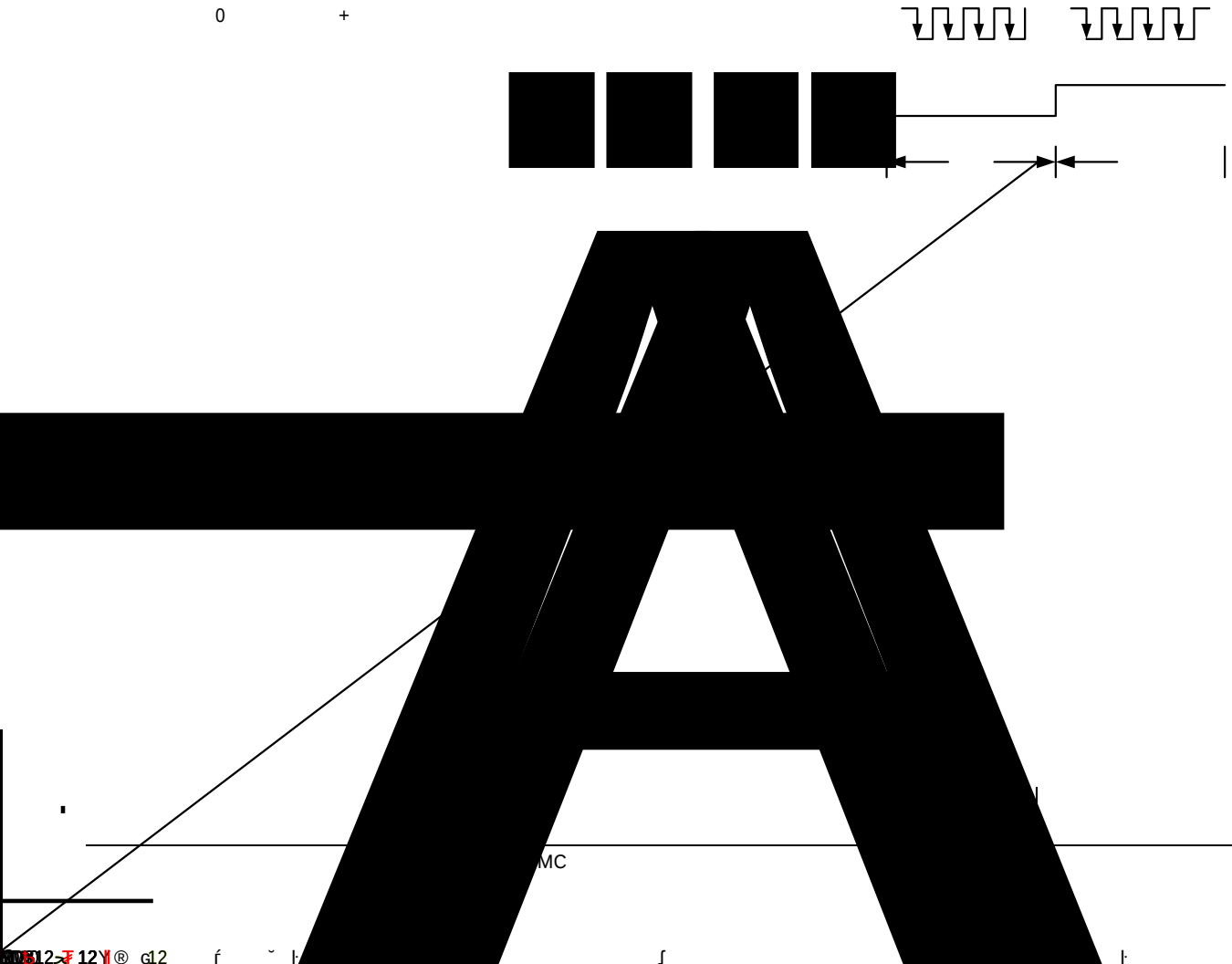
11.4.3 MC100

MC100

11-10 MC100

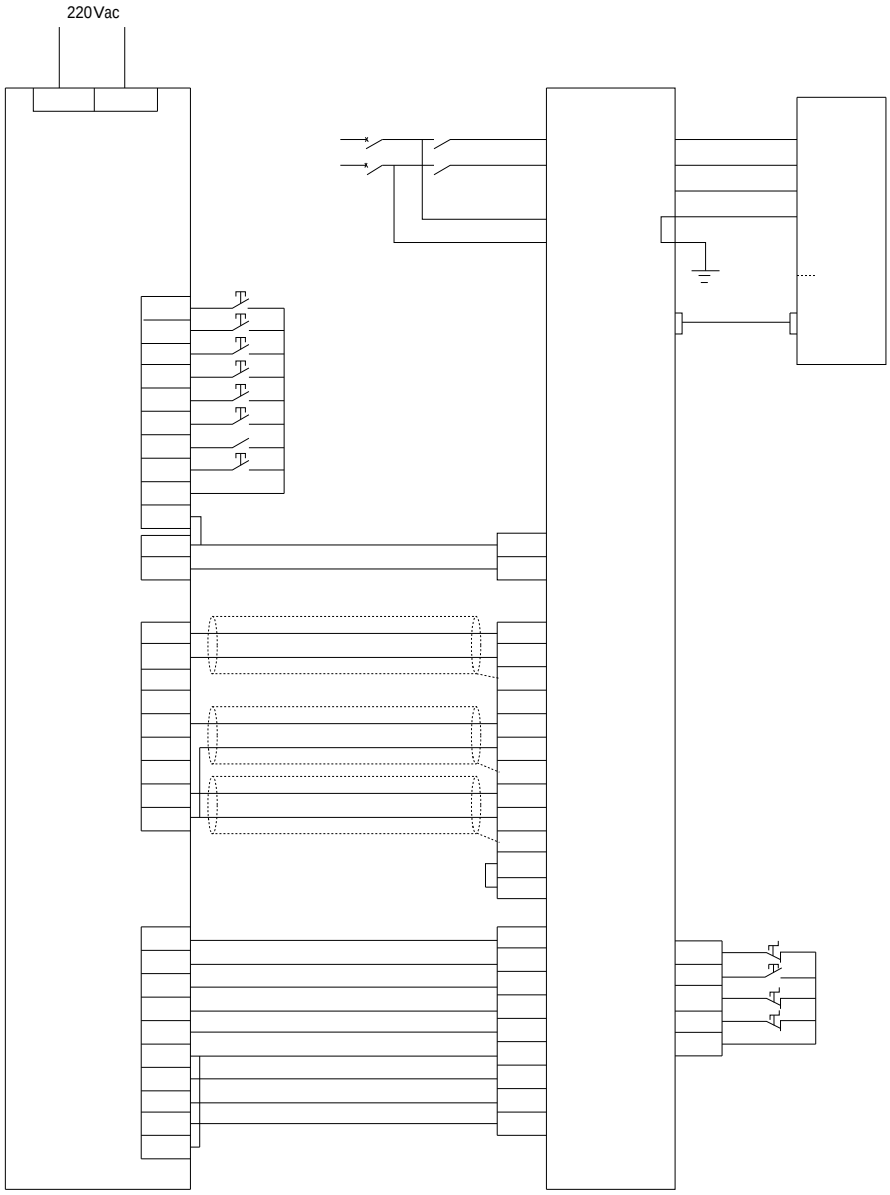
Y0

0 +



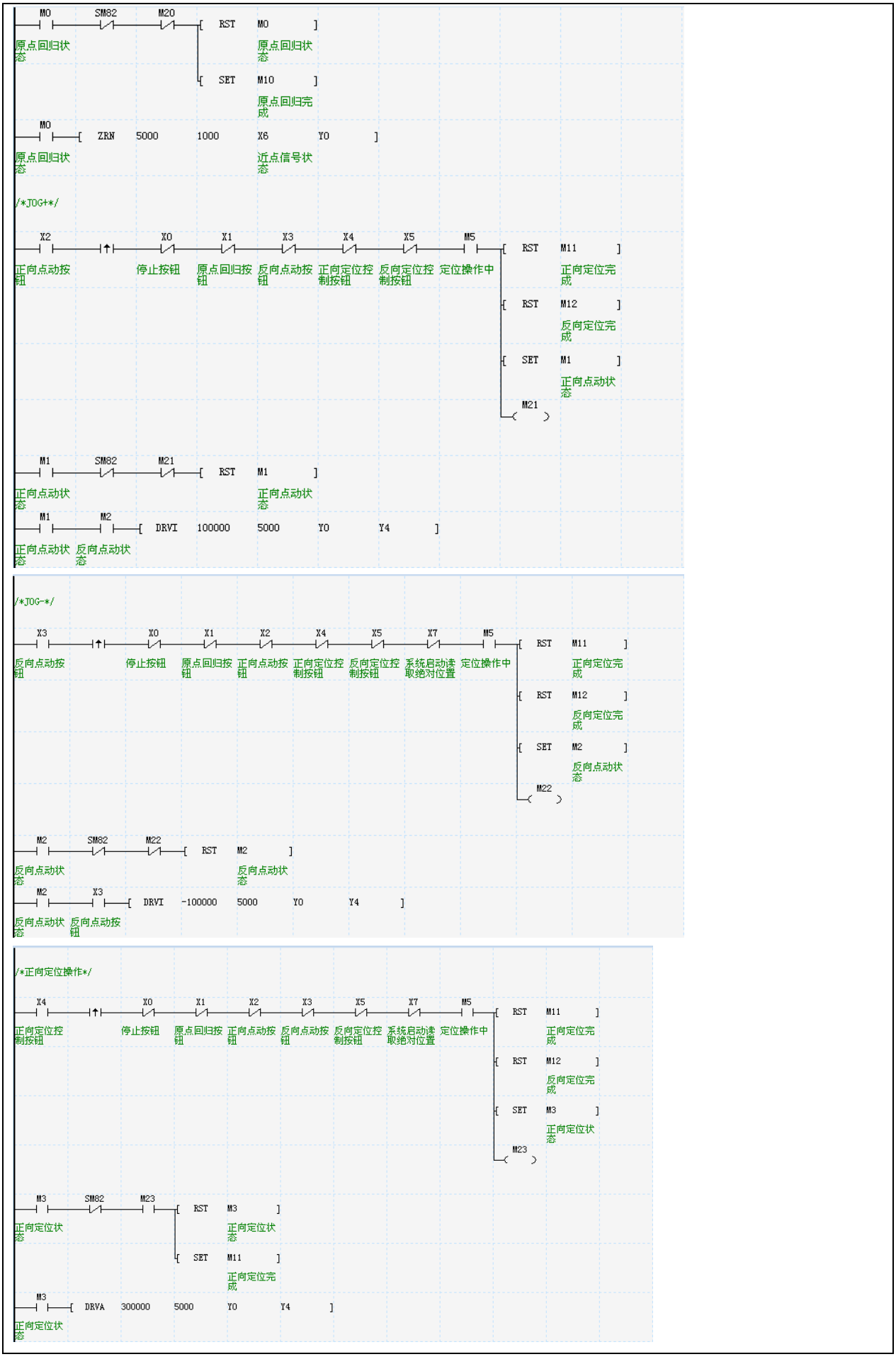
			R/W
SD50	0	SD50 SD51	R/W
SD51	0		R/W
SD80	0	SD80 SD81 32 SD80	R/W
SD81	0		R/W
SD52	1	SD52 SD53	R/W
SD53	1		R/W
SD82	1	SD82 SD83 32 SD82	R/W
SD83	1		R/W
SD84	0 1	1/10	R/W
SD85	0 1	10 100000	R/W
SD86	0 1		R/W
SD87	0 1	50 5000 ms	R/W
SD56	0	PLS	R
SD57	1	PLS	R

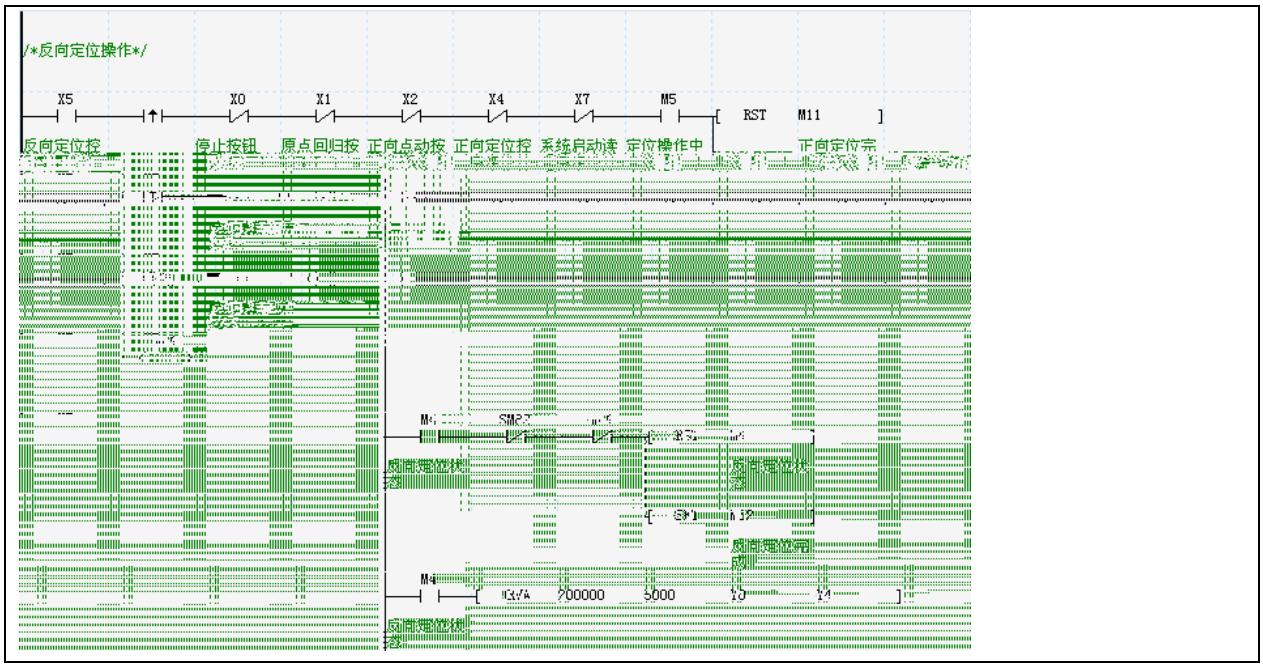
1 SD84 S


220Vac

7


/*上电初始化*/
SM1
SET SM85
清零有效
DMOV 5000 SD85
最高速度
MOV 200 SD87
加减速时间
/*故障和停止时停止输出脉冲，并停止所有的定位操作*/
X0
SM80
停止按钮
Y0输出控制
X13
伺服放大器故障信号
X0
ZRST M0 5
停止按钮
原点回归状态
X13
伺服放大器故障信号
/*绝对位置值读取*/
X7
ABS X10 Y10 SD80
系统启动读取绝对位置
Y0定位指令当前值
/*检测是否正在进行定位操作。M5为ON表示当前没有进行操作。*/
M0 原点回归状态
M1 正向点动状态
M2 反向点动状态
M3 正向定位状态
M4 反向定位状态
SM80 Y0输出控制
X13 伺服放大器故障信号
X14 系统就绪信号
M5 定位操作中
/*原点回归*/
X1 原点回归按钮
X0 停止按钮
X2 正向点动按钮
X3 反向点动按钮
X4 正向定位控制按钮
X5 反向定位控制按钮
X7 系统启动读取绝对位置
M5 定位操作中
RST M10 原点回归完成
RST M11 正向定位完成
RST M12 反向定位完成
SET M0 原点回归状态
M20


M0 SM82 M20 [RST M0]
原点回归状态 原点回归状态
[SET M10]
原点回归完成
M0 [ZRN 5000 1000 X6 Y0]
原点回归状态 近点信号状态
/*JOG+*/
X2 X0 X1 X3 X4 X5 M5 [RST M11]
正向点动按钮 停止按钮 原点回归按钮 反向点动按钮 正向定位控制按钮 反向定位控制按钮 定位操作中 正向定位完成
[RST M12]
反向定位完成
[SET M1]
正向点动状态
M21
M1 SM82 M21 [RST M1]
正向点动状态 正向点动状态
M1 M2 [DRVI 100000 5000 Y0 Y4]
正向点动状态 反向点动状态
/*JOG-*/
X3 X0 X1 X2 X4 X5 X7 M5 [RST M11]
反向点动按钮 停止按钮 原点回归按钮 正向点动按钮 正向定位控制按钮 反向定位控制按钮 系统启动读取绝对位置 定位操作中 正向定位完成
[RST M12]
反向定位完成
[SET M2]
反向点动状态
M22
M2 SM82 M22 [RST M2]
反向点动状态 反向点动状态
M2 X3 [DRVI -100000 5000 Y0 Y4]
反向点动状态 反向点动按钮
/*正向定位操作*/
X4 X0 X1 X2 X3 X5 X7 M5 [RST M11]
正向定位控制按钮 停止按钮 原点回归按钮 正向点动按钮 反向点动按钮 反向定位控制按钮 系统启动读取绝对位置 定位操作中 正向定位完成
[RST M12]
反向定位完成
[SET M3]
正向定位状态
M23
M3 SM82 M23 [RST M3]
正向定位状态 正向定位状态
[SET M11]
正向定位完成
M3 [DRVA 300000 5000 Y0 Y4]
正向定位状态



PLS

PLS PTO X_Builder PLS

PTO



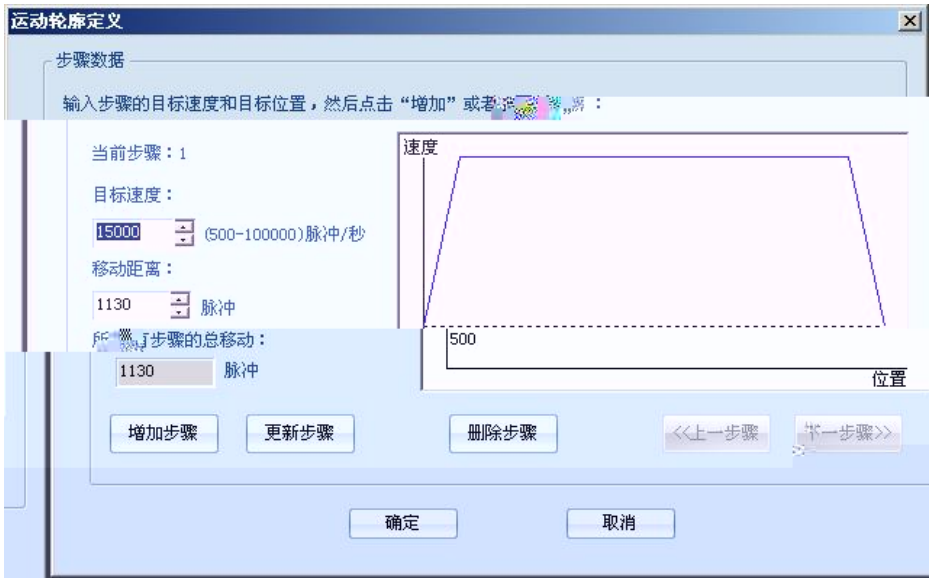


20000Hz

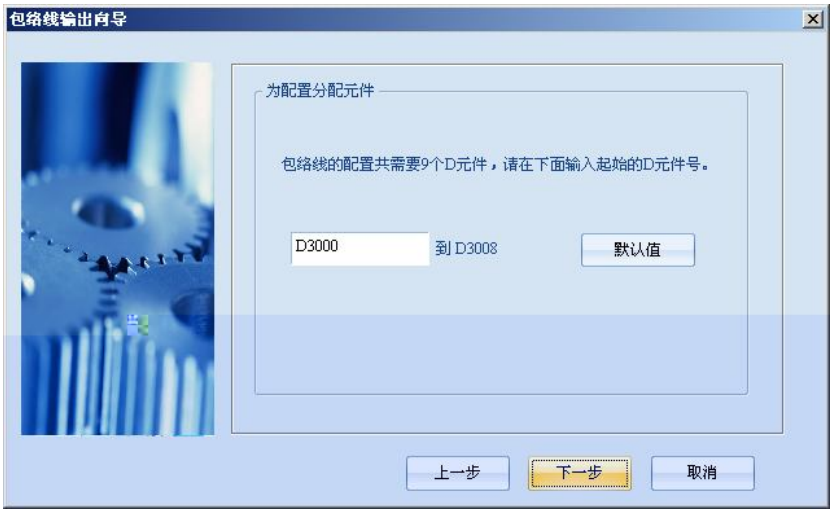
50000Hz

1000 50000 20000 100000 5000 316 0.316

20000 50000 0.316 2 11060



D D

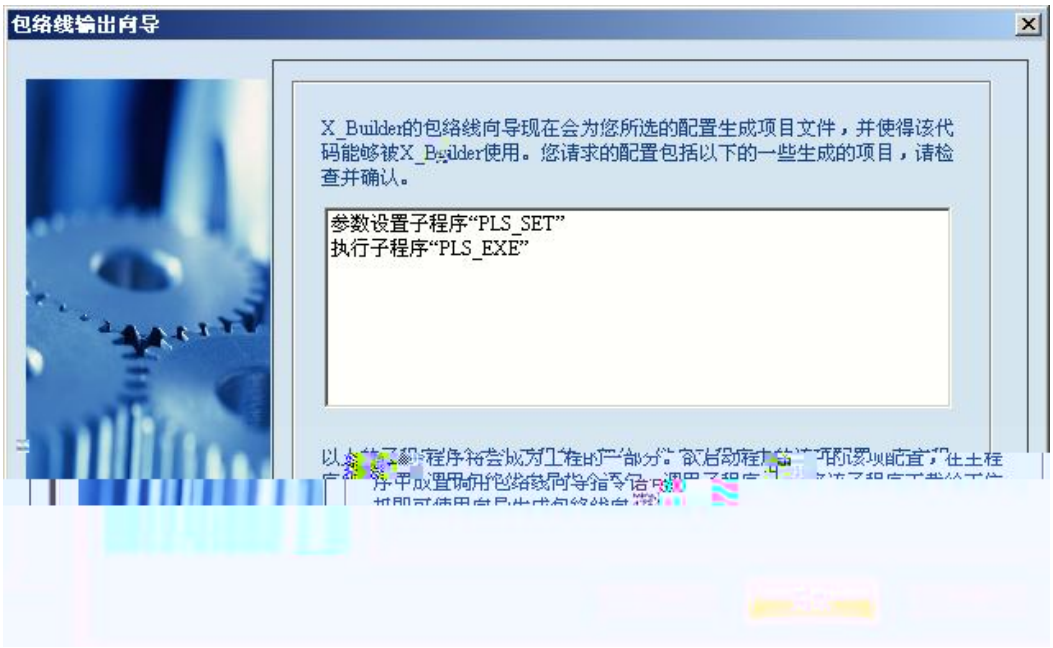

包络线输出向导
为配置分配元件
包络线的配置共需要9个D元件，请在下面输入起始的D元件号。
D3000
到 D3008
默认值
上一步
下一步
取消

PLS

D

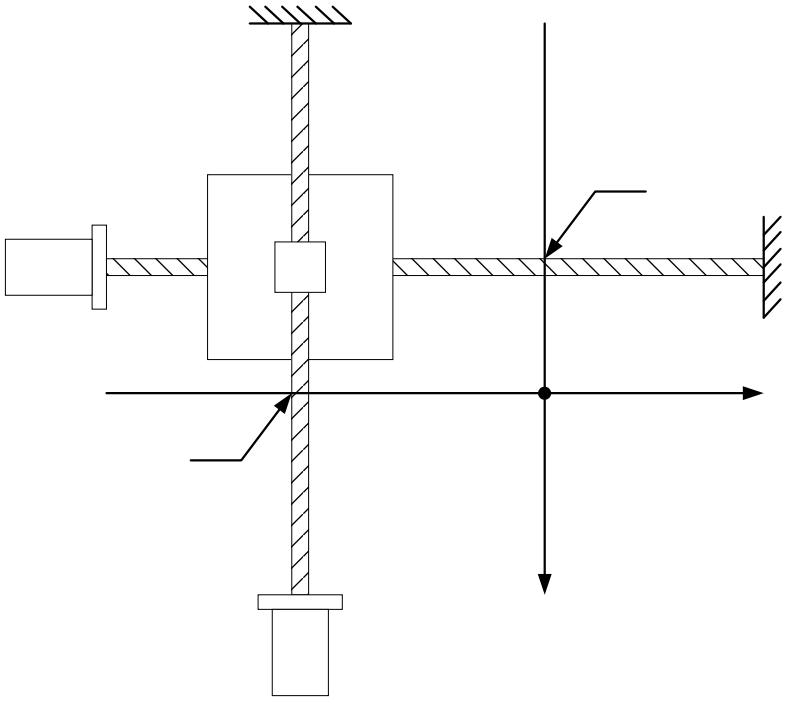

包络线输出向导
包络线向导将会建立两个子程序，请输入其名字。
输入生成子程序的名字
参数设置子程序的名字为：
PLS_SET
执行子程序的名字为：
PLS_EXE
请注意：子程序的名字不能和工程中已有的子程序同名。
上一步
下一步
取消

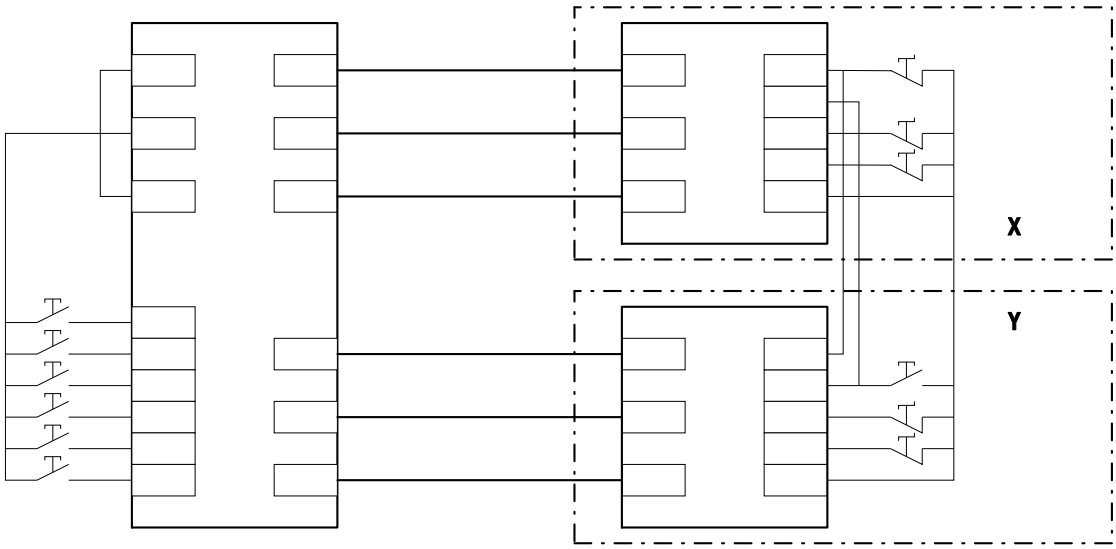
PTO


包络线输出向导
X_Builder的包络线向导现在会为您所选的配置生成项目文件，并使得该代码能够被X_Builder使用。您请求的配置包括以下的一些生成的项目，请检查并确认。
参数设置子程序“PLS_SET”
执行子程序“PLS_EXE”

MC

11.5.2

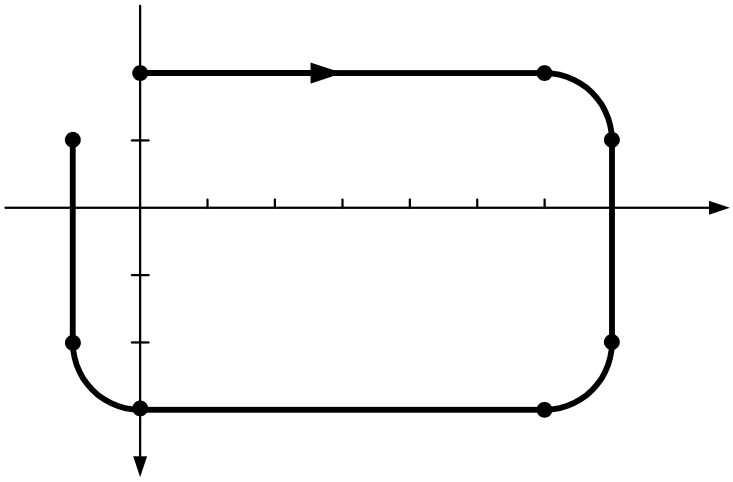




1

2

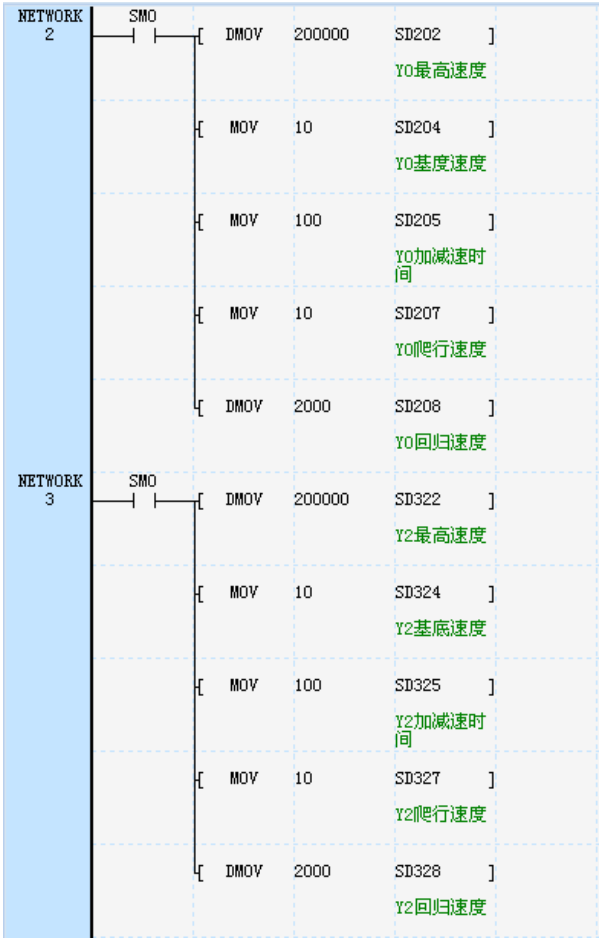
3

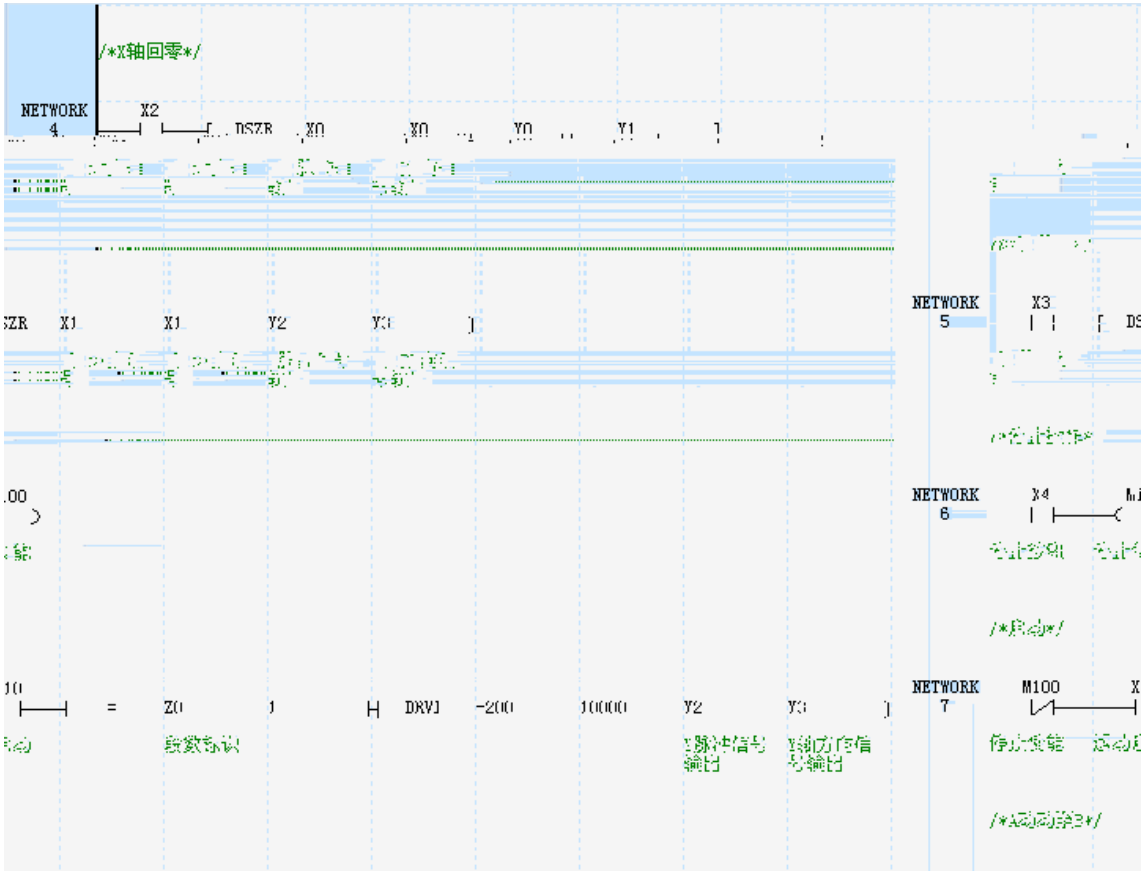


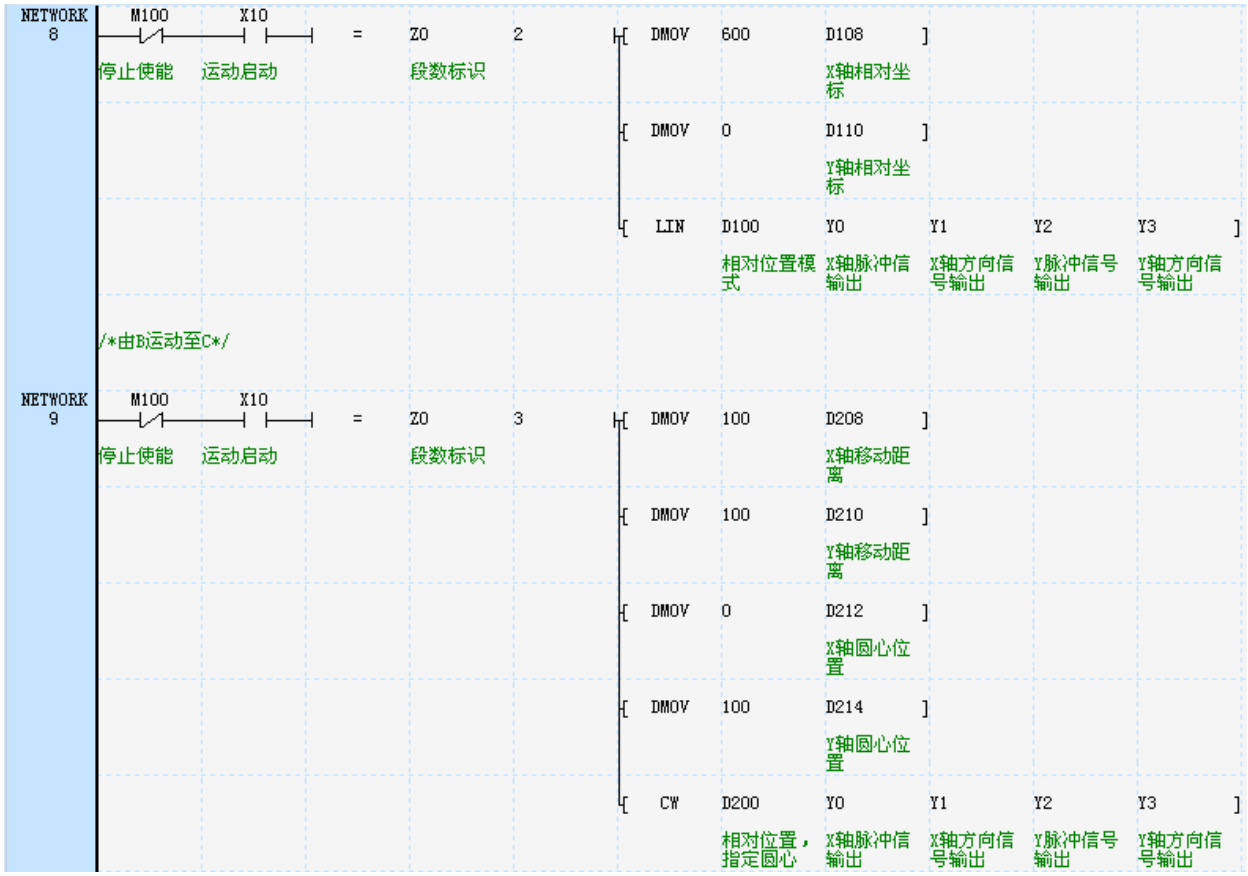
```
/*初始化运动控制指令相关软元件*/

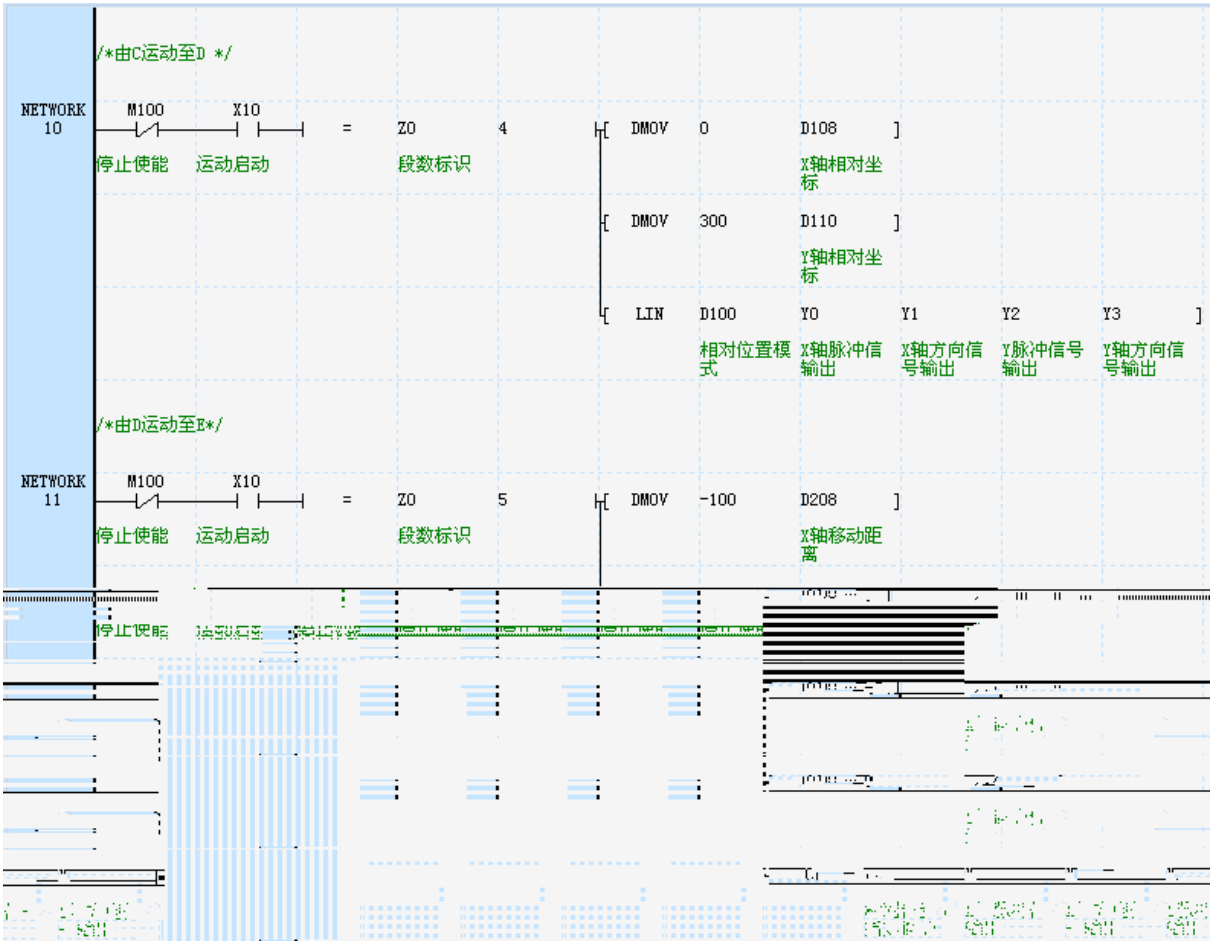
NETWORK 0
    SM1
    |  |---[ DMOV   0        D100    ]
                                相对位置模式
            [ DMOV   10000    D102    ]
                                直线插补初始速度
            [ DMOV   10000    D104    ]
                                直线插补合成速度
            [ DMOV   100      D106    ]
                                直线插椭减速度时间
            [ DMOV   0        D108    ]
                                X轴相对坐标
            [ DMOV   0        D110    ]
                                Y轴相对坐标
NETWORK 1
    SM1
    |  |---[ DMOV   0        D200    ]
                                相对位置，指定圆心
            [ DMOV   10000    D202    ]
                                圆弧插补保留
```


DMOV 10000 D204
圆弧插补合成速度
DMOV 100 D206
保留
DMOV 0 D208
X轴移动距离
DMOV 0 D210
Y轴移动距离
DMOV 0 D212
X轴圆心位置
DMOV 0 D214
Y轴圆心位置
MOV 1 Z0
段数标识
SET SM72
Y2脉冲输出完成中断
SET SM69
中断使能控制
EI

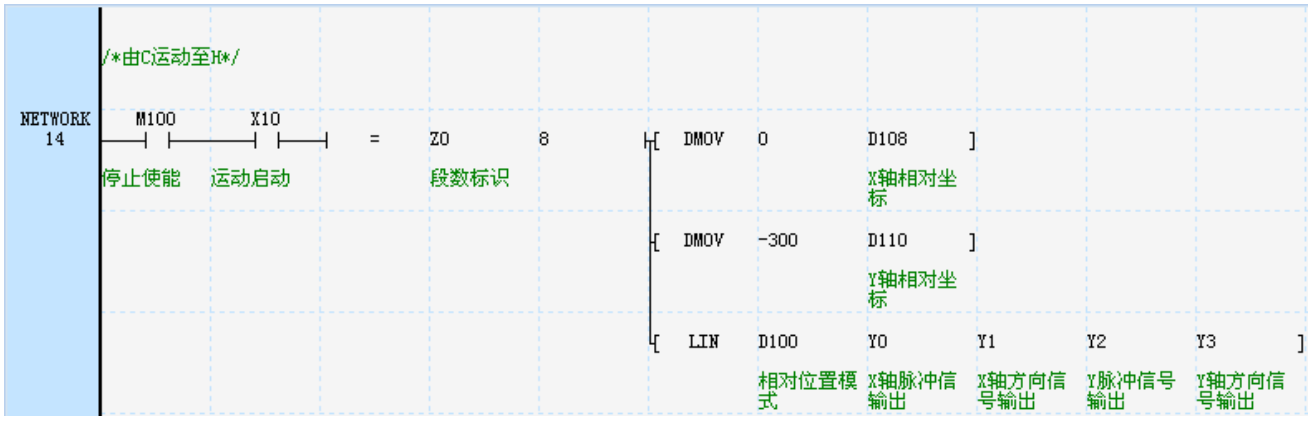

NETWORK 2
SM0
DMOV 200000 SD202
Y0最高速度
MOV 10 SD204
Y0基度速度
MOV 100 SD205
Y0加减速时间
MOV 10 SD207
Y0爬行速度
DMOV 2000 SD208
Y0回归速度
NETWORK 3
SM0
DMOV 200000 SD322
Y2最高速度
MOV 10 SD324
Y2基底速度
MOV 100 SD325
Y2加减速时间
MOV 10 SD327
Y2爬行速度
DMOV 2000 SD328
Y2回归速度


/*X轴回零*/
NETWORK 4
X2
DSZR
X0
Y0
Y1
NETWORK 5
X3
NETWORK 6
X4
/*启动*/
NETWORK 7
M100
停止使能
/*X轴运动至B*/
Z0
1
DRVI
-200
100000
Y2
Y3
段数标识
Y脉冲信号输出
Y轴方向信号输出


NETWORK 8
M100
X10
Z0
2
停止使能
运动启动
段数标识
DMOV 600 D108
X轴相对坐标
DMOV 0 D110
Y轴相对坐标
LIN D100 Y0 Y1 Y2 Y3
相对位置模式
X轴脉冲信号输出
X轴方向信号输出
Y脉冲信号输出
Y轴方向信号输出
/*由B运动至C*/
NETWORK 9
M100
X10
Z0
3
停止使能
运动启动
段数标识
DMOV 100 D208
X轴移动距离
DMOV 100 D210
Y轴移动距离
DMOV 0 D212
X轴圆心位置
DMOV 100 D214
Y轴圆心位置
CW D200 Y0 Y1 Y2 Y3
相对位置，指定圆心
X轴脉冲信号输出
X轴方向信号输出
Y脉冲信号输出
Y轴方向信号输出


/*由C运动至D */
NETWORK 10
M100
X10
=
Z0
4
DMOV
0
D108
停止使能
运动启动
段数标识
X轴相对坐标
DMOV
300
D110
Y轴相对坐标
LIN
D100
Y0
Y1
Y2
Y3
相对位置模式
X轴脉冲信输出
X轴方向信号输出
Y脉冲信号输出
Y轴方向信号输出
/*由D运动至E*/
NETWORK 11
M100
X10
=
Z0
5
DMOV
-100
D208
停止使能
运动启动
段数标识
X轴移动距离


/*由E运动至F*/
NETWORK 12
M100
X10
=
Z0
6
DMOV
-600
D108
停止使能
运动启动
段数标识
X轴相对坐标
DMOV
0
D110
Y轴相对坐标
LIN
D100
Y0
Y1
Y2
Y3
相对位置模式
X轴脉冲信输出
X轴方向信号输出
Y脉冲信号输出
Y轴方向信号输出
/*由F运动至G*/
NETWORK 13
M100
X10
=
Z0
7
DMOV
-100
D208
停止使能
运动启动
段数标识
X轴移动距离
DMOV
-100
D210
Y轴移动距离
DMOV
0
D212
X轴圆心位置
MOV
-100
D214
Y轴圆心位置
CW
D200
Y0
Y1
Y2
Y3
相对位置，指定圆心
X轴脉冲信输出
X轴方向信号输出
Y脉冲信号输出
Y轴方向信号输出


/*由C运动至H*/
NETWORK 14
M100
停止使能
X10
运动启动
=
Z0
段数标识
8
DMOV 0 D108
X轴相对坐标
DMOV -300 D110
Y轴相对坐标
LIN D100 Y0 Y1 Y2 Y3
相对位置模式
X轴脉冲信输出
X轴方向信号输出
Y脉冲信号输出
Y轴方向信号输出

STOP→RUN

SD SM SM R

1. PLC

			R/W	MC200	MC100	MC280
SM0		RUN STOP	R			
SM1		STOP RUN	R			
SM2			R			
SM3		STOP RUN	R			
SM4		2.4V	R			
SM5		40ms SD05	R			
SM6	24Vdc	24Vdc 50ms 50ms 24Vdc	R			
SM7		1	R			
SM8			R			
SM9		X ON PLC STOP RUN	R			

2.

			R/W	MC200	MC1[redacted]	MC280
SM10	10ms	10ms 0	R			

SM20		SD20	R			
SM21		SD20	R			
SM22		SD20	R			
SM30		MODRW	R			

4.

					R/W	MC200	MC100	MC280
SM40	X0	/	1	X0	R/W			
SM41	X1	/	1	X1	R/W			
SM42	X2	/	1	X2	R/W			
SM43	X3	/	1	X3				

5.

			R/W	MC200	MC100	MC280
SM70		1 1-16 0 8	R/W			
SM71		1	R			

6.

			R/W	MC200	MC100	MC280
SM80	Y0	Y0	R/W			
SM81	Y1	Y1	R/W			
SM82	Y0	Y0 busy ON ready OFF	R			
SM83	Y1	Y1 busy ON ready OFF	R			
SM84	PWM	ON OFF	R/W			
SM85		ZRN CLR	R/W			
SM86	Y0	ON PLSY	R/W			
SM87	Y1	ON PLSY	R/W			
SM88		ON	R/W			
SM89	PLSV	ON	R/W			

7.

			R/W	MC200	MC100	MC280
SM90	X0	X0	R/W			
SM91	X1	X1	R/W			
SM92	X2	X2	R/W			
SM93	X3	X3	R/W			
SM94	X4	X4	R/W			
SM95	X5	X5	R/W			
SM96	X6	X6	R/W			
SM97	X7	X7	R/W			

1 STOP RUN HCNT SPD

6.10.9 SPD *6.10.1 HCNT*

2 MC100 MC200 X0 X7 SPD HCNT

80k DHSCS DHSCI DHSZ DHSP DHST 30k

8.

			R/W	MC200	MC100	MC280
SM100	X0 X1 AB 1 /4		R/W			
SM101	X2 X3 AB 1 /4		R/W			
SM102	X3 X4 AB 1 /4		R/W			
SM103	X4 X5 AB 1 /4		R/W			
SM104	X6 X7 AB 1		R/W			

	/4					

9. PORT0

			R/W	MC200	MC100	MC280
SM110	0	XMT 0	R/W			
SM111	0	RCV 0	R/W			
SM112	0		R/W			
SM113	0		R/W			
SM114	0		R			

SM112-SM114 PORT0 MC100 PLC PORT0 MCbus Modbus FREEPORT SM112-SM114

10. PORT1

			R/W	MC200	MC100	MC280
SM120	1	XMT 1	R/W			
SM121	1	RCV 1	R/W			
SM122	1		R/W			
SM123	1		R/W			
SM124	1		R			

SM122-SM124 PORT1 MC100 PLC PORT1 MCbus Modbus FREEPORT SM122-SM124

11. PORT 2

			R/W	MC200	MC100	MC280
SM130	2	XMT 2	R/W			
SM131	2	RCV 2	R/W			
SM132	2		R/W			
SM133	2		R/W			

			R/W	MC200	MC100	MC280
SM134	2		R			



12. Modbus

			R/W	MC200	MC100	MC280
SM135	1 Modbus		R/W			
SM136	1 Modbus		R/W			
SM137	2 Modbus		R/W			
SM138	2 Modbus		R/W			

13. MCbus

			R/W	MC200	MC100	MC280
SM140	0		R			
SM141	1		R			
SM142	2		R			
SM143	3		R			
SM144	4		R			
SM145	5		R			
SM146	6		R			
SM147	7		R			
SM148	8		R			
SM149	9		R			
SM150	10		R			
SM151	11		R			
SM152	12		R			
SM153	13		R			
SM154	14		R			

14.

			R/W	MC200	MC100	MC280
SM172	AD 0	1 AD 0	R/W			
SM173	AD 1	1 AD 1	R/W			
SM174	AD 0	1 0	R/W			
SM175	AD 1	1 0	R/W			
SM178	DA 0	1 DA 0	R/W			

15.

			R/W	MC200	MC100	MC280
SM180			R/W			
SM181	/		R/W			
SM182			R/W			
SM185			R/W			
SM188		1	R/W			

16. ASCII

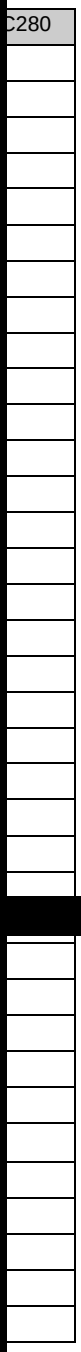
			R/W	MC200	MC100	MC280
SM186	ASC	0 1 ASCII 1 1 ASCII	R/W			
SM189	SAVER		R			

17.

			R/W	MC200	MC100	MC280
SM190		1 2 STOP RUN 3 4	R			
SM191		1 2	R			
SM192		1 2	R			

18.

			R/W	MC200	MC100	MC280
SM193			R			


C280

				R/W	MC200	MC100	MC280
	SM243	C243		R			
	SM244	C244		R			
	SM245	C245		R			
	SM246	C246		R			
	SM247	C247		R			
	SM301	C301		R			
	SM248	C248		R			
	SM249	C249		R			
	SM250	C250	C2 _ _ SM2 _ _	R			
	SM251	C251		R			
	SM304	C304		R			
	SM305	C305		R			
	SM306	C306		R			
	SM252	C252		R			
	SM253	C253		R			
	SM254	C254		R			
	SM255	C255		R/			
	SM256	C256		R/			
	SM257	C257		R/			
	SM258	C258		R/			
	SM259	C259		R/			

21.

			R/W	MC200	MC100	MC280
SM260		Y0 Y1 DVIT Y0 X0 Y1 X1 SD240 4 Y	R/W			
SM261	Y001	Y001	R/W			
SM262	Y002	Y002	R/W			
SM263	Y003	Y003	R/W			
SM264	Y004	Y004	R/W			
SM265	Y005	Y005	R/W			
SM266	Y006	Y006	R/W			
SM267	Y007	Y007	R/W			
SM271	Y001 busy/ready	Y001	R			
SM272	Y002 busy/ready	Y002	R			
SM273	Y003 busy/ready	Y003	R			
SM274	Y004 busy/ready	Y004	R			
SM275	Y005	Y005	R			

			R/W	MC200	MC100	MC280
	busy/ready					
SM276	Y006 busy/ready	Y006	R			
SM277	Y007 busy/ready	Y007	R			
SM280	[illegible]	[illegible] (Y0) DSZR/ZRN	R/W			
SM281		[illegible] Y2 Y0 [illegible]	R/W			
SM282	[illegible]	Y0 DSZR	R/W			
SM283	[illegible]	Y0 DSZR/DVIT	R/W			
SM284	[illegible]	Y0 [illegible]	R/W			
SM285	[illegible]	Y0 [illegible] DSZR	R/W			
SM286	[illegible]	Y0 [illegible]	R/W			
SM287	[illegible]	Y0 [illegible]	R/W			

SM334		Y3	DSZR/DVIT	R/W			
SM335		Y3	DSZR	R/W			
SM336		Y3	DSZR	R/W			
SM338		Y3	DSZR/DVIT	R/W			
SM340		Y4	DSZR/ZRN	R/W			

1 SD50 SD55 STOP→RUN

2 SD SM SD R

1. PLC

			R/W	MC200	MC100	MC280	
SD00	PLC	10 MC100 20 MC200	R				
SD01		1001 1.001	R				
SD02		12 12k	R				
SD03			R				
SD04		0.1V 3.6V 36	R				
SD05		10ms 10ms 100ms 100ms	R				10 100ms
SD06		4 4 6 6	R				
SD07	I/0		R				
SD08			R				
SD09	10 X0 0 X10 8 15		R			0 15	
SD10	IO		R				
SD11	IO		R				
SD12	IO		R				
SD13							
SD14							
SD15							
SD16							
SD17							
SD18		SM16 0.1ms ,32 0 -- 429496729.5ms	R/W		3.009		
SD19			R/W		3.009		

2. FIFO

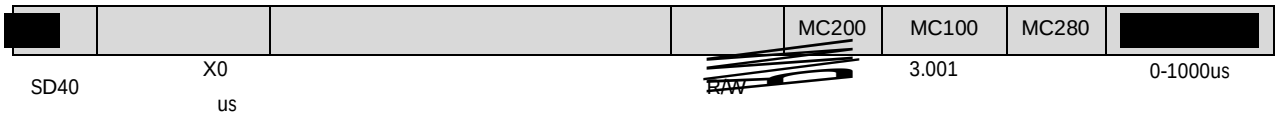
			R/W	MC200	MC100	MC280	
SD20	0	5 SD20	R				
SD21	1		R				
SD22	2		R				
SD23	3		R				
SD24	4		R				

[redacted]

SD33	1000ms	1000

[redacted]

6.



9.

			R/W	MC200	MC100	MC280	
SD66	0	1 32767	R/W				1 32767ms
SD67	1	1 32767	R/W				1 32767ms
SD68	2	1 32767	R/W				1 32767ms

1ms

5ms

10.

		R/W	MC200	MC100	MC280	
SD80	Y0	R/W				0
SD81	Y0	R/W				
SD82	Y1	R/W				0
SD83	Y1	R/W				
SD84	ZRN DRVI DRVA	R/W				0
SD85	ZRN DRVI DRVA	R/W				100.000
SD86	ZRN DRVI DRVA	R/W				
SD87	ZRN DRVI DRVA	R/W				100
SD88		R/W				100
SD89		R/W				100

11.

			R/W	MC200	MC100	MC280	
SD100			R				2000 2099
SD101			R				1 12
SD102			R				1 31
SD103			R				0 23
SD104			R				0 59
SD105			R				0 59
SD106			R				0 6
TWR							

12. 0



13. 1

				R/W	MC200	MC100	MC280	
		SD120.0 SD120.2	b2 b1 b0 000 38,400 001 19,200 010 9,600 011 4,800 100 2,400 101 1,200 110 57,600 111 115,200					
		SD120.3	0 1 1 SD120.4					
		SD120.4						

SD120 1 R/W

			R/W	MC200	MC100	MC280	
SD126			R				
SD127			R				
SD128			R				

14. Modbus/MCbus

		R/W	MC200	MC100	MC280	
SD130	0	R/W				MOD 1 32 MCBUS 0 31
SD131	0 /MCbus	R/W				
SD132	0	R/W				
SD133	MCbus 0	R/W				1 13
SD135	1	R/W				MOD 1 32 MCBUS 0 31
SD136	1 /MCbus	R/W				
SD137	1	R/W				0 100
SD138	MCbus 1	R/W				1 13
SD139	Modbus 1	R				

15. 2

				R/W	MC200	MC100	MC280	
SD140	2	SD140.0 SD140.2	b2 b1 b0 000 38,400 001 19,200 010 9,600 011 4,800 100 2,400 101 1,200 110 57,600 111 115,200	R/W				
		SD140.3	0 1 1 2					
		SD140.4	0 1					
		SD140.5	0 1					
		SD140.6	0 8 1 7					
		SD140.7	1 0					
		SD140.8	1 0					
		SD140.9	1 0					
		SD140. 10	1 0					
SD140		SD140.11		R/W				
		SD140.12	0 1					
		SD140.13 SD140.15						

			R/W		MC100	MC280	
SD141			R/W				
SD142			R/W				
SD143		0ms	R/W				0 32767ms
SD144		0ms	R/W				0 32767ms
SD145		0 1 2 3	R				

		R/W	MC200	MC100	MC280	
SD182	DHST DHSP	R/W				
SD183	DHST DHSP	R/W				
SD184		R/W				

19.

		R/W	MC200	MC100	MC280	
SD191		R				
SD192		R				
SD193	MODBUS (PORT0)	R				
SD194	MODBUS (PORT1)	R				
SD195	MODBUS (PORT2)	R				

20.

			R/W	MC200	MC100	MC280	
SD196	PORT0 ms	0 5 5ms	R/W	3.009	3.009	/	0-32767
SD197	PORT1 ms		R/W	3.009	3.009	/	
SD198	PORT2 ms		R/W	3.009	3.009	/	

21.

		R/W	MC200	MC100	MC280
SD200	Y0	R/W			
SD201	Y0	R/W			
SD202	Y0 ZRN PLSV DRVI DRVA DSZR DVIT 10 100000	R/W			
SD203	Y0 ZRN PLSV DRVI DRVA DSZR DVIT 10 100000	R/W			
SD204	Y0 ZRN PLSV DRVI DRVA DSZR DVIT (1/10)	R/W			
SD205	Y0 ZRN DRVI DRVA DSZR DVIT SD204 S 50m 5000ms	R/W			

SD213	Y1 ZRN PLSV DRVI DRVA DSZR DVIT 10 100000	R/W				
SD214	Y1 ZRN PLSV DRVI DRVA DSZR DVIT (1/10)	R/W				
SD215	Y1 ZRN DRVI DRVA DSZR DVIT SD214 SD212 SD213 50ms 5000ms	R/W				
SD217	Y1 DSZR	R/W				
SD218	Y1 DSZR	R/W				
SD219	Y1 DSZR	R/W				
SD220	Y0	R/W				
SD230	Y1	R/W				
SD240		R/W				

					R/W	MC100	MC200	MC280
SD220		16	0	Y000	R			
SD221		16	0	Y001	R			
SD222		16	0	Y002	R			
SD223		16	0	Y003	R			
SD224		16	0	Y004	R			
SD225		16	0	Y005	R			
SD226		16	0	Y006	R			
SD227		16	0	Y007	R			
SD310		32	0	Y001	R/W			
SD311								
SD312		32	100000(MC280:200000)	ZRN,PLSV,DRVI,DRVA DSZR DVIT (10-100000) y1 MC280 10 200000	R/W			
SD313					R/W			
SD314		16	5000(MC280:500)	ZRN,PLSV,DRVI,DRVA DSZR DVIT (1/10) y1	R/W			
SD315		16	1000	ZRN,DRVI,DRVA DSZR DVIT SD314 SD312,SD313 y1 50ms 5000ms	R/W			
SD316		16	0	Y1	R/W			
SD317		16	1000	Y1 DSZR	R/W			
SD318		32	50000	Y1 DSZR	R/W			
SD319					R/W			
SD320		32	0	Y002	R/W			
SD321								
SD322		32	100000(MC280:200000)	ZRN,PLSV,DRVI,DRVA DSZR DVIT (10-100000) y2 MC280 10 200000	R/W			
SD323					R/W			
SD324		16	5000(MC280:500)	ZRN,PLSV,DRVI,DRVA DSZR DVIT (1/10) y2	R/W			
SD325		16	1000	ZRN,DRVI,DRVA DSZR DVIT SD324 SD322,SD323 y2 50ms 5000ms	R/W			

					R/W	MC100	MC200	MC280
SD326		16	0	Y2	R/W			
SD327		16	1000	Y2 DSZR	R/W			
SD328		32	50000	Y2 DSZR	R/W			
SD329					R/W			
SD330		32	0	Y003	R/W			
SD331								
SD332		32	100000(MC280:200000)	ZRN,PLSV,DRVI,DRVA DSZR DVIT (10-100000) y3 MC280 10 200000	R/W			
SD333					R/W			
SD334		16	5000(MC280:500)	ZRN,PLSV,DRVI,DRVA DSZR DVIT (1/10) y3	R/W			
SD335		16	1000	ZRN,DRVI,DRVA DSZR DVIT SD334 SD332,SD333 y3 50ms 5000ms	R/W			
SD336		16	0	Y3	R/W			
SD337		16	1000	Y3 DSZR	R/W			
SD338		32	50000	Y3 DSZR	R/W			
SD339					R/W			
SD340		32	0	Y004	R/W			
SD341								
SD342		32	200000	ZRN,PLSV,DRVI,DRVA DSZR DVIT (10-100000) y4 MC280 10 200000	R/W			
SD343					R/W			
SD344		16	500	ZRN,PLSV,DRVI,DRVA DSZR DVIT (1/10) y4	R/W			
SD345		16	1000	ZRN,DRVI,DRVA DSZR DVIT SD344 SD342,SD343 y4 50ms 5000ms	R/W			
SD346		16	0	Y4	R/W			
SD347		16	1000	Y4 DSZR	R/W			
SD348		32	50000	Y4 DSZR	R/W			
SD349					R/W			
SD350		32	0	Y005	R/W			
SD351					R/W			
SD352		32	200000	ZRN,PLSV,DRVI,DRVA DSZR DVIT (10-100000) y5 MC280 10 200000	R/W			
SD353					R/W			
SD354		16	500	ZRN,PLSV,DRVI,DRVA DSZR DVIT (1/10) y5	R/W			
SD355		16	1000	ZRN,DRVI,DRVA DSZR DVIT SD354 SD352,SD353 y5 50ms 5000ms	R/W			
SD356		16	0	Y5	R/W			
SD357		16	1000	Y5 DSZR	R/W			

					R/W	MC100	MC200	MC280
SD358		32	50000	Y5 DSZR	R/W			
SD359					R/W			
SD360		32	0	Y006	R/W			
SD361					R/W			
SD362		32	200000	ZRN,PLSV,DRVI,DRVA DSZR DVIT (10-100000) y6 MC280 10 200000	R/W			
SD363					R/W			
SD364		16	500	ZRN,PLSV,DRVI,DRVA DSZR DVIT (1/10) y6	R/W			
SD365		16	1000	ZRN,DRVI,DRVA DSZR DVIT SD364 SD362,SD363 y6 50ms 5000ms	R/W			
SD366		16	0	Y6	R/W			
SD367		16	1000	Y6 DSZR	R/W			
SD368		32	50000	Y6 DSZR	R/W			
SD369					R/W			
SD370		32	0	Y007	R/W			
SD371					R/W			
SD372		32	200000	ZRN,PLSV,DRVI,DRVA DSZR DVIT (10-100000) y7 MC280 10 200000	R/W			
SD373					R/W			
SD374		16	500	ZRN,PLSV,DRVI,DRVA DSZR DVIT (1/10) y7	R/W			
SD375		16	1000	ZRN,DRVI,DRVA DSZR DVIT SD374 SD372,SD373 y7 50ms 5000ms	R/W			
SD376		16	0	Y7	R/W			
SD377		16	1000	Y7 DSZR	R/W			
SD378		32	50000	Y7 DSZR	R/W			
SD379					R/W			

22.

		R/W	MC100	MC200	MC280
SD401	S900-S999	R/W			

23.

		R/W	MC100	MC200	MC280
SD430	1	R/W			
SD431	2	R/W			
SD432	3	R/W			
SD433	4	R/W			
SD434	5	R/W			

Modbus MC100 MC200 MC280

1. Modbus

MC PLC 0 Modbus 1 Modbus

1 RS485 RS232 RS232

2 RTU ASCII ASCII

3 Modbus 1 31

4

5 38 400 19 200 bps 9 600 bps 4 800 bps 2 400 bps 1 200 bps 19200 8 1

6 2 252 ASII 252 RTU

2. Modbus

01 02 03 05 06 08 15 16

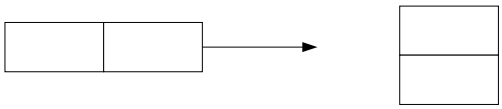
		Modicon		
01		0 [1]·xxxx	Y X M SM S T C	

[redacted]

5 MC200 Modbus LONG INT

MC200 PLC 32 32 D

D3,D4 16 D3 16 D4



3. Modbus

3.1 0x01

MC PLC 256

1

	01H	H	L	H	L	(CRC LRC)

2

8 0

	01H	n	No.1	é é	No.n	(CRC LRC)

B7	B6	B5	B4	B3	B2	B1	B0

3.2 0x02

MC PLC X X 256

1

	02H	H	L	H	L	(CRC LRC)

2

8 0

	02H	n	No.1	é é	No.n	(CRC LRC)

B7	B6	B5	B4	B3	B2	B1	B0

3.3 0x03

125

1

	03H	H	L	H	L	(CRC LRC)

2

	03H	n	No.1	é é	No.n		(CRC LRC)
			H L		H L		

3.4 0x05

broadcast 1

1

	05H	H	L	H	L	(CRC LRC)

0xFF00(ON,1) 0x0000(OFF,0)

2

	05H	H	L	H	L	(CRC LRC)

3.5 0x06

1

1

	06H	H	L	H	L	(CRC LRC)

2

	06H	H	L	H	L	(CRC LRC)

3.6 (0x0F)

1968 0x07b0 ,

1

	0FH	H	L	H	L	(n)	No.1	é é	No.N (CRC LRC)

B7	B6	B5	B4	B3	B2	B1	B0

2

	0FH	H	L	H	L	(CRC LRC)

3.7 (0x10 Hex)

120 0x78

1

	0x10H	H	L	H	L	(n)	No.1 H	No.1 L	é é	No.N H / No.N L / (CRC LRC)

2

	0x10H	H	L	H	L	(CRC LRC)

3.8

1. X Y

7 01 01 04 B0 00 0A BC DA

04 B0 1200 10 X0 X9

01 01 02 00 00 B9 FC

02 00 00

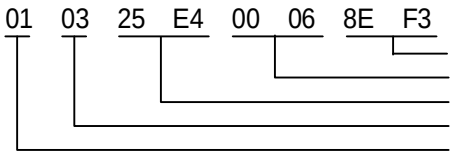
1 01 CRC

2 X

1 C C200 C255 C301 C306 C200 C255 C301 C306

03 16 C

C200 C202 C RTU



9700 9701 C200 9700 16 9701 16

2

01 03 25 E5 00 04 5E F2

25 E5 9701

01 83 02 C0 F1

3

01 03 25 E4 00 05 CE F2

25E4 5

01 83 03 01 31

LONG INT

Modbus

0x01	
0x02	
0x03	
0x10	
0x11	
0x12	/
0x13	
0x14	
0x15	
0x16	
0x17	
0x18	
0x19	
0x1A	CRC/LRC
0x1B	modrw
0x1C	
0x1D	
0x1E	

0x1	
0x2	
0x3	
0x4	
0x5	
0x6	
0x18	
0x20	
0x21	
0x22	

	MC100/MC200		MC80	
	D7940	D7969	D3940	D3969
	D7970	D7999		
	D7800 (MC200)	D7894 (MC200)		
MCbus	D7700	D7763		
MCbus 14-18	D7500	D7755		
MCbus	M1400	M1911		
EROMWR	D6000	D6999		

X0 X7 SPD

PLC

1 X0 X7

X0 X7 SPD

	X0	X1	X2	X3	X4	X5	X6	X7	kHz		
									MC280	MC200	MC100
C236	/										50

100

				MC100	MC200	MC280
0						
1 9						
10	SRAM					
11	FLASH					
12						

13

				MC100	MC200	MC280
61						
62						
63						
64			SD20			
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75	I/O					
76						
77	PLSR					
78	BFM					
79	ABS					
80	ABS					

MC200

MC200 10 EEPROM 10
D 5 PLC D
PLC PLC EEPROM

	0						
1	D7800	D7801		D7802		D7803	D7804	D7805--D7809
2	D7810	D7811		D7812		D7813	D7814	D7815--D7819
3	D7820	D7821		D7822		D7823	D7824	D7825--D7829
4	D7830	D7831		D7832		D7833	D7834	D7835--D7839
5	D7840	D7841		D7842		D7843	D7844	D7845--D7849
6	D7850	D7851		D7852		D7853	D7854	D7855--D7859
7	D7860	D7861		D7862		D7863	D7864	D7865--D7869
8	D7870	D7871		D7872		D7873	D7874	D7875--D7879
9	D7880	D7881		D7882		D7883	D7884	D7885--D7889
10	D7890	D7891		D7892		D7893	D7894	D7895--D7899

ASCII

ASCII HEX		3							
		0	1	2	3	4	5	6	7
4	0	NUL	DLE	SPACE	0	@	P		p
	1	SOH	DC1	!	1	A	Q	a	q
	2	STX	DC2	"	2	B	R	b	r
	3	ETX	DC3	#	3	C	S	c	s
	4	EOT	DC4	$	4	D	T	d	t
	5	ENQ	NAK	%	5	E	U	e	u
	6	ACK	SYN	&	6	F	V	f	v
	7	BEL	ETB		7	G	W	g	w
	8	BS	CAN	(	8	H	X	h	x
	9	HT	EM	)	9	I	Y	i	y
	A	LF	SUB	*	:	J	Z	j	z
	B	VT	ESC	+	;	K	[	k	{
	C	FF	FS		<	L		l	
	D	CR	GS	-	=	M	]	m	}
	E	SO	RS	.	>	N	^	n	
	F	SI	US	/	?	O		o	DEL

					MC200	MC100	MC80	MC280	
A	ABS		8						10
	ACOS	COS^{-1}	7						113
	ADD		7						97
	ANB		1						66
	AND		1						64
	AND<	AND<	5						205
	AND<=	AND<=	5						205
	AND<>	AND<>	5						205
	AND=	AND=	5						205
	AND>	AND>	5						205
	AND>=	AND>=	5						205
	ANDD<	AND<	7						208
	ANDD<=	AND<=	7						208
	ANDD<>	AND<>	7						208
	ANDD=	AND=	7						208
	ANDD>	AND>	7						208
	ANDD>=	AND>=	7						208
	ANDR<	AND>	7						211
	ANDR<=	AND<=	7						211
	ANDR<>	AND<>	7						211
	ANDR=	AND=	7						211
	ANDR>	AND>	7						211
	ANDR>=	AND>=	7						211
	ANI		1						64

					MC200	MC100	MC80	MC280	
B	BRST		5						203
	BSET		5						203
	BTOW		7						249
C	CALL								87
	CAMBOX		11						245
	CAMTABLE		11						244
	CCITT	CCITT	7						194
	CCW		12						240
	CFEND		1						85
	CIRET		1						86
	CJ		3						85
	COS	COS	7						110
	CRC16	CRC16	7						195
	CSRET		1						87
	CTR	16	5						75
	CTU	16	5						75
	CMP		7		*		*		213
	CW		12						239
D	DADD		10						101
	DBAND		9						218
	DBCD	32 BCD	7						119
	DBIN	32 BCD	7						120
	DBITS	ON	6						198
	DCMP<		7						152
	DCMP<=		7						152
	DCMP<>		7						152
	DCMP=		7						152
	DCMP>		7						152
	DCMP>=		7						152
	DCNT	32	7						76
	DDMC		4						104
	DDIV		10						102
	DMC		3						100
	DEG	->	7						115
	DMCO		5						197
	DFLT		7						117
	DFMOV		9						90
	DFROM		10						139
	DGBIN	32	7						122
	DGRY	32	7						121
	DHSCI		10						158
	DHSCR		10						160
	DHSCS		10						157
	DHSP		10						164
	DHSPI		10						159
	DHST		10						162
	DHSZ		13						161
	DI		1						86
	DINC		4						103

					MC200	MC100	MC80	MC280	
	ORD<=	OR<=	7						209
	ORD<>	OR<>	7						209
	ORD=	OR=	7						209
	ORD>	OR>	7						209
	ORD>=	OR>=	7						209
	ORI		1						65
	ORR<	OR>	7						212
	ORR<=	OR<=	7						212
	ORR<>	OR<>	7						212
	ORR=	OR=	7						212
	ORR>	OR>	7						212
	ORR>=	OR>=	7						212
	OUT		1						65
	OUT Sxx	SFC	3						71
P	PID	PID	9						174
	PLS		7						170
	PLSR		10						168
	PLSV		8						230
	PLSY		9						167
	POWER		10						111
	PUSH		7						92
	PWM	PWM	7						173
	PLSB		12						171
R	RAD	->	7						114
	RADD		10						106
	RAMP		12						177
	RCL	16	7						132
	RCR	16	7						131
	RCV	RCV	7						193
	RDIV		10						108
	REF	I/O	5						142
	REFF		3						142
	RET	SFC	1						72
	RLCNV		12						125
	RMOV		7						89
	RMUL		10						107
	RND		3						253
	RNEG		7						109
	ROL	16	7						131
	ROR	16	7						130
	RSQT		7						108
	RST		1						69
	RST Sxx	SFC	3						71
	RSUB		10						107
	RSUM		9						112
	RVABS		7						109
	RCMP		9		*		*		214
	SCL		7						219
	SEG	7	5						122
	SER		9						220
	SET		1						69


STOP
1

					MC200	MC100	MC80	MC280	
W	WAND		7						127
	WDT		1						86
	WINV		5						128
	WOR		7						127
	WSFL		9						96
	WSFR		9						95
	WTOB		7						247
	WXOR		7						127
X	XCH		5						91
	XMT	XMT	7						192
Z	ZONE		9						218
	ZRN		11						229
	ZRST		5						196
	ZSET		5						197

* MC200

					MC200	MC100	MC80	MC280	
	LD		1						63
	LDI		1						63
	AND		1						64
	ANI		1						64
	OR		1						64
	ORI		1						65
	OUT		1						65
	SET		1						69
	RST		1						69
	ANB		1						66
	ORB		1						66
	INV		1						68
	NOP		1						69
	MPS		1						67
	MRD		1						67
	MPP		1						67
	MC		3						70
	MCR		1						70
	EU		2						68
	ED		2						68
	TON		5						73
	TOF		5						74
	TMON		5						74
	TONR		5						73
	CTU	16	5						75
	CTR	16	5						75
	DCNT	32	7						76
	LBL		3						84
	CJ		3						85
	CALL								87
	CSRET		1						87
	CFEND		1						85
	CIRET		1						86
	FOR		3						83
	NEXT		1						83
	WDT		1						86
	STOP		1						86
	EI		1						86
	DI		1						86

					MC200	MC100	MC80	MC280	
SFC	STL	SFC	3						71
	SET Sxx	SFC	3						71
	OUT Sxx	SFC	3						71
	RST Sxx	SFC	3						71
	RET	SFC	1						72
	MOV		5						88
	DMOV		7						88
	RMOV		7						89
	BMOV		7						89
	SWAP		3						91
	XCH		5						91
	DXCH		7						92
	FMOV		7						90

			MC200	MC100	MC80	MC280	
	10						106
	10						107
	10						107
	10						108
	7						109
	7						109
	7						108
	7						109
	7						110
	7						110
LN	7						111
EXP	7						112
	10						111
	9						112
	7						113
-1	7						113
-1	7						114
	7						114
	7						115
	7						114
	7						127
	10						128

					MC200	MC100	MC80	MC280	
	HCNT		7						155
	DHSCS		10						156
	DHSCR		10						159
	DHSCI		10						158
	DHSZ		13						161
	DHST		10						162
I/O	DHSP		10						164
	SPD	SPD	7						166
	PLSY		9						167
	PLSR		10						168
	PLSB		12						171
	PWM	PWM	7						173
	PLS		7						173
	PID	PID	9						174
	RAMP		12						177
	TRIANGLE		12						179
	HACKLE		12						178
	ABSD		9						

					MC200	MC100	MC80	MC280	
	TRD		3						147
	TWR		3						148
	TADD		7						

					MC200	MC100	MC80	MC280	
	AND<>	AND<>	5						205
	ANDD<>	AND<>	7						208
	ANDR<>	AND<>	7						211
	OR=	OR=	5						206
	ORD=	OR=	7						209
	ORR=	OR=	7						212
	OR>	OR>	5						206

			MC200	MC100	MC80	MC280	
LD	5						199
LDI	5						200
AND	5						200
ANI	5						201
OR	5						201

					MC200	MC100	MC80	MC280	
	STRMOV		5						228
	RND		3						253
	DUTY		7						253
* MC200									