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**NC**

**Rev: V2 4**

**: 2016 10 10**

**MC**

V2.4

2016-10-10

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518057

[www.megmeet.com](http://www.megmeet.com)

400-666-2-163

0755-86600999

B 5

D@7

D@7

A 7 D@7

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

A 7\$\$\$ A 7&\$\$ A 7& \$ D@7

```

..... 1
%% .....&
%%A 7 D@7 .....&
%%&A 7, $ .....(
%%" A 7$$$ .....)
%%(' A 7&$$ .....)
%%) A 7& $ .....*
%&L S6i j XYf .....*
%&'% .....+
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%('%A cXVi g .....%$
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%) ") .....%&

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# 1.1

A 7

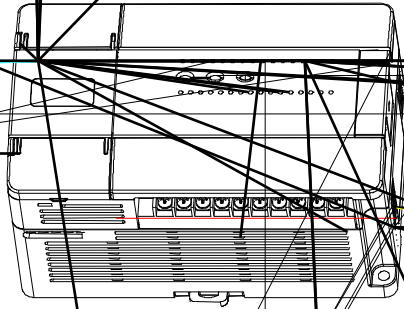
D@7

	MC280	MC200	MC100	MC80
	' & *(_6ntY	%&_ &(_6ntY	%&_ &(_6ntY	*_ %&_6ntY
	F	7 &\$\$	' &\$ % \$	' &\$ % \$
		%	99DF CA	99DF CA
	%%\$a g H\$ H&\$- %\$a g H&? \$ H(+ %a g H(, \$ H)%%	%%\$a g H\$ H&\$- %\$a g H&? \$ H&)% %a g H& & H&)		
	% 7\$ 7%- ' & 7&\$\$ 7&) ' & 7&* 7&)- 7' \$% 7' \$*	% 7\$ 7%- ' & 7&\$\$ 7&) ' & 7&* 7&)-		
	8\$ 8+--- F\$ F' &+*+)	8\$ 8+---	8\$ 8+---	8\$ 8' ---
	J \$ J*			
	N\$ N%)			
	G8\$ G8)%%	G8\$ G8&)		
	A \$ A %&& -	A \$ A % --	A \$ A &\$(+	A \$ A %&&'
	@A \$ @A**			
	GA \$ GA )%	GA \$ GA &)		
	G\$ G(-)	G\$ G-%	G\$ G%&&'	G\$ G%&&'
	%	%	%	%
	*	*	*	*
	%&	%\$		(
DHC	*	&	&	&
	'	#	#	#
	*	#	#	#
	%	%	%	%
	\$\$*) G	\$\$- G	\$\$ G	\$\$ G
			\$\$ &)	\$\$
		& #	& #	
	DCFH\$ FG& & DCFH% FG(, ) DCFH& FG(, )	DCFH\$ FG& & DCFH% FG& &#FG(, )	DCFH\$ FG& & DCFH% FG& &#FG(, )	DCFH\$ FG& &
	A cXVi g# #A 7Vi g#			

(

	MC 280	MC 200	MC 100	MC 80
				DRVI
IO				PLS
MODBUS				
EEPROM				
				PID

W 1 H 0 ) n ă B ( S ) X 5 K 7 a i & ' 1 ) v + H i • ) ă s h



1-1 MC80

DCFH\$

FG& &

A ]b] 8-B,

CB HA C: :

1.1.3 MC100

A 7%\$

A 7%\$!%%(6F5

1-2 MC100

DCFH\$ DCFH%

DCFH\$ FG& &

A ]b] 8-B,

DCFH% FG(,)

FG& &

CB HA C: :

1.1.4 MC200

A 7&\$

\* (



### 1.2.1

LS6i ]Xyf                      -6A `D7    A ]MtcgZhK ]bXck g  
 `K ]bXck g-, BH("\$ K ]bXck g&\$\$\$ K ]bXck gL D K ]bXck gJ]gU K ]bXck g+  
 LS6i ]Xyf

1-2 X\_Builder

7DI	=bH`      DYbhj a '&'      7DI	=bH`      DYbhj a %      7DI
	*(A	%& A
	*(\$ (, \$      &)*	, \$\$ *\$ \$      *)' )
	86-      FG&' &      I G6 FG&' &      I G6	
	D@7	

### 1.2.2 X\_Builder

LS6i ]Xyf

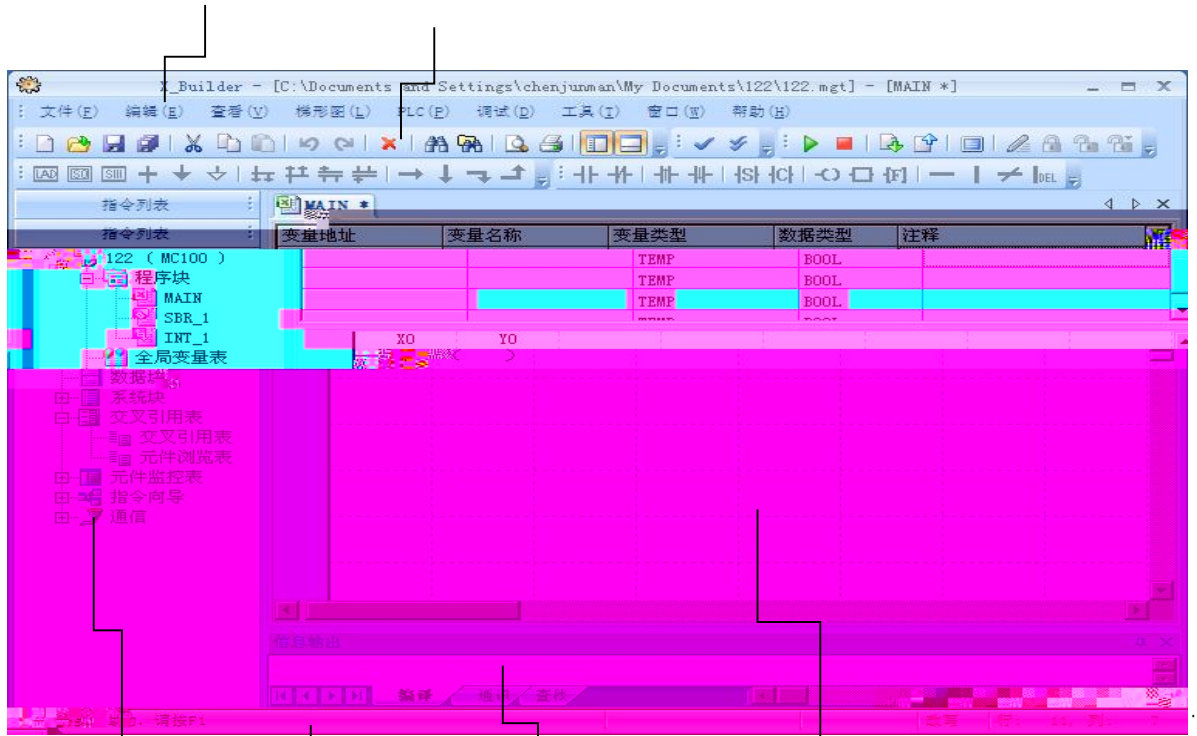
LS6i ]Xyf

K ]bXck g

LS6i ]Xyf

LS6i ]Xyf

### 1.2.3 X\_Builder



1-5 X\_Builder

LS6i ]Xyf

LS6i ]Xyf

1.2.4

D@7

FG& & 86-

I G6

1.3

MC

MC

MC100 MC200 MC280

1.3.1

%

A 75&\$\$! 8A \$%G@&

A 75&\$\$! 8A \$%



1-6

&

D@7

D@7!

!



1-7

L !Vi ]Xyf

D@7

(

D@7!

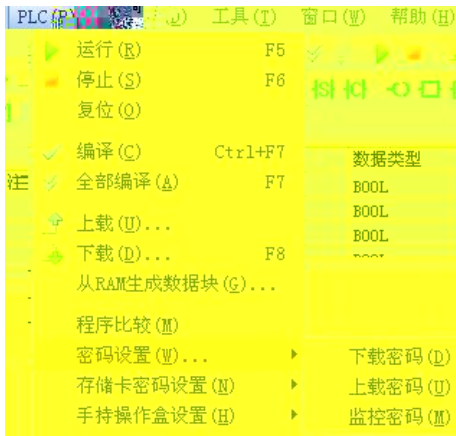
!

#

#

D@7

D@7



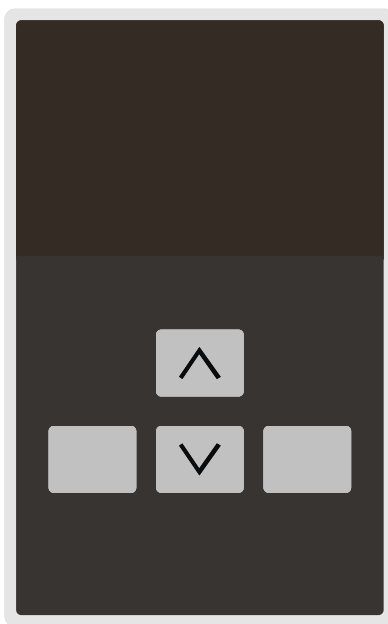
1-8

### 1.3.2

%	MCA200-UDM01SL1	MC	PLC	POWER	
&	UPLOAD	ENT	(WORK)		ERR
'	DOWNLOAD	WORK		WORK	ERR

### 1.3.3

%	MON			
&	PLC			
		⊖	⊖	SHIFT
				ENT
	ENT			



# 1.4

A 7%\$#\$\$ D@7 & DCFH\$ DCFH% A 7& \$ D@7  
 DCFH\$ DCFH% DCFH& DfcZVi g (,)  
 A cXVi g A 7Vi g

## 1.4.1 Modbus

DCFH% DCFH& FG(,) DCFH\$ FG& &#(,) D@7  
 FG(,) A cXVi g %\$\$ %\$&\$V]hg FHI  
 5G7=  
 DCFH\$ DCFH% FG& & D@7 % %  
 A cXVi g Modbus MC100 MC200

## 1.4.2 MCbus

A 7%\$A 7& \$ D@7 A 7Vi g DCFH% DCFH& FG(,) B.B  
 FG& &#(,) DCFH\$ A 7Vi g  
 A 7Vi g & ' & D@7 %\$&\$Vdg  
 A 7Vi g

## 1.4.3

5G7=  
 D@7 D@7 FG& & FG(,) FG(,)

# 1.5 MC PLC

A 7 D@7

## 1.5.1

<b>M80</b>	
<b>M100</b>	




1.5.3

<b>MC100</b>	
<b>MC200</b>	

1.5.4

<b>MC100</b>	
<b>MC200</b>	

1.5.5

<b>MC200</b>	

	MC	PLC	PLC	
&%"		.....		%
&%"%		.....		%
&%"&D@7		.....		%
&%"		.....		%
&%"(		.....		%
&%"		.....		%
&%"*		.....		%
&%"+		.....		%
&%", 8		.....		&\$
&%"-		.....		&\$
&%"%\$		.....		&\$
&%"%%		.....		&%
&%"&		.....		&%
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&%"&%"		.....		&
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&%"( ' A 7&\$ \$ A 7& \$ 6: A		.....		&
&%"		.....		\$
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&%"( (		.....		;
&%"( " D@7		.....		(
&%"( "*"		.....		)
&%"( "+" F 5A		.....		*

# 2.1

## 2.1.1

2-1 MC100

#C	#C	%&	
		#C	(
		%_	
		, \$\$\$ 8	
		\$" C#	
		C G#	
		' &	
		&&*	
+		%& #/8, L\$ L%++ M\$ M%++ %	
		&\$ (, A \$ A &\$ (+	
		* ( @A \$ @A **	
		&)* GA \$ GA &)	
		%&&( G\$ G%&&	
		&)* H\$ H& ) &	
		&)* 7\$ 7&)-	
		, \$\$\$ 8\$ 8+---	
		* ( J \$ J **	
		% N\$ N%&	
		&)* G8 \$ G8& )	
			% L\$ L+
		*	
		,	
DHC		&	
		%	
		& \$ FG& & % FG& & FG(, )	
		A cXVI g A 7VI g % B B.B	
		L\$ L%	)\$<n L\$ L) , \$<n
		L & L)	%\$<n
		M\$ M%	%\$\$<n
		L\$ L+	L\$!L' L(!L+
		&	
		* ( *	%
			%
	)	LS6i JXYf	-6A D7
		\$\$\$ &	

2-2 MC80

#C	#C	*\$
		* -
		(\$\$\$ 8
		\$" C#
		C G#
		' &
		&\$&
+		%& #& L\$ L%+ M\$ M%+ %
		%&&( A\$ A%&&
		* ( @A\$ @A**
		&)* GA\$ GA&)
		%&&( G\$ G%&&
		&)* H\$ H&)&
		&)* 7\$ 7&)
		(\$\$\$ 8\$ 8'---
		* ( J\$ J**
		%* N\$ N%&
		&)* G8\$ G8&)
DHC		%* L\$ L+
		*
		(
		&
		%
		% \$ FG&&
		A cXVI g
		L\$ L% )\$_<n L\$ L) , \$_<n
		L& L) %\$_<n
		M\$ M% )\$_<n
		L\$ L+
		&
		* ( * %*
		%
		LS6i]XYf =6A D7

2-3 MC200

#C	#C	)%& &)* #&)*
		%&
		, \$\$\$ 8
		\$"- c#
		g & \$ g#
		' &
		&&%
+		&)* #&)* L\$ L'++ M\$ M++ %
		&&\$\$ A \$ A %--
		* ( @A \$ @A **
		&)* GA \$ GA &))
		--& G\$ G--%
		&)* H\$ H&)) &
		&)* 7\$ 7&))
		, \$\$\$ 8\$ 8+---
		* ( J \$ J **
		% N\$ N%)
	&)* G8\$ G8&))	
		% L\$ L+ #
		*
		%&
	DHC	&
		& \$ FG& & FG(, ) % FG& & FG(, )
		& (, ) FG(&& FG(, )
	A cXm g % B	
	L\$ L%	)\$<n L\$ L) , \$<n
	L& L)	%\$<n
	M\$ M%	%%\$<n
	L\$ L%+	
	(	&
		* ( *
		%
	)	L S6i ]'Xyf -6A 'D7
	D85	

2-4 MC280

#C	#C	)%& &)* #&)*
		'&
		, \$\$\$ 8 ' &? F
		\$*\$) C#
		C g#
		'&
+		&)* #&)* L\$ L'++ M\$ M++ %
		%&(\$ A \$ A %--
		*( @A \$ @A **
		)%& GA \$ GA)%%
		(\$-* G\$ G(\$-)
		)%& H\$ H)%% &
		&*& 7\$ 7' \$*
		(\$+*, 8\$ 8+--- F\$ F' &+*+
		*( J\$ J**
		% N\$ N%
		)%& G8\$ G8)%%
		% L\$ L+ #
		'
		'
		%&
		DHC
		%
		\$ FG& & ..... % 'FG(,)'
		& (,) FG(&& FG(,))
	A cXV g A 7V g % B B.B	
		L\$ L+ , %\$\$<n
		M\$ Mf ( &\$\$<n ( %\$\$<n
		L\$ L%+ L\$!L' L(!L+
		*( *
		%
		)
		L S6i ]XYf =6A 'D7

% L M  
 & H  
 A 7%\$\$A 7, \$A 7&\$\$  
 f%\$\$ag H\$ H&\$-

f&L%a g H&% H

2.1.3

L S6i JXYf

2.1.4

L S6i JXYf  
\$



2.1.5

A 7&\$\$

99DF CA

F 5A

A 7%\$\$

: @5G<

A 7& \$

: @5G<

99DF CA

F 5A



%

' \$

& A 7&\$\$ A 7& \$ D@7

2.1.6

D@7

GHCD FI B

99DF CA

2-5 PLC

	OFF	ON	STOP	RUN
99DF CA				
	↑	↑		
	↑	↑		

2.1.7

&&

A 7%\$\$

A 7&\$\$ A 7& \$

A 7&\$\$

A %\$\$ A &\$\$

A ' \$\$ A ( \$\$

A %\$\$ A &\$\$ A ' \$\$ A ( \$\$



2-2



% A 7&\$\$ A 7& \$ D@7

D@7

& A 7%\$\$ D@7

### 2.1.8 D

A 7%\$\$

9FCA K F

8

8\*\$\$ 8\*---

99DF CA

)ag



99DF CA

99DF CA

%\$\$

7DI

### 2.1.9

A 7&\$\$

L \$ L% A 7%\$\$ A 7& \$

L \$ L%

### 2.1.10

A 7&\$\$ A 7& \$



A 7%\$ D@7

2.1.11

A 7%\$ A 7&\$ A 7& \$ D@7

2-6

	D@7 D@7



) A 7 D@7 )

2.2

2.2.1

D@7 D@7 D@7

- 
- 
- 
- 
- 
- 

A 7%\$ A 7&\$ A 7& \$ D@7

GF5A

&'



2-3



D@7

8 A G H 7

A 7&\$\$ A 7& \$

A 7%\$\$



A 7%\$\$ D@7 H

D@7

D@7 GF 5A

GF 5A

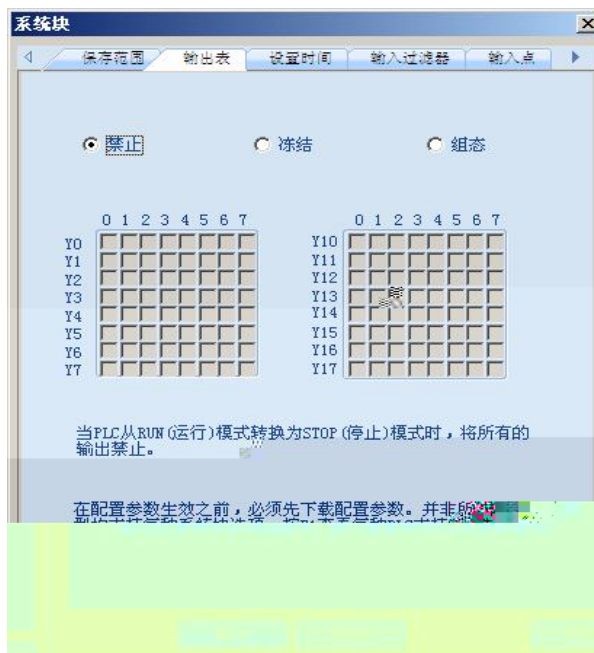
GF 5A

GF 5A

D@7 GF 5A

D@7

&(



2-4

7DI

f%& D@7

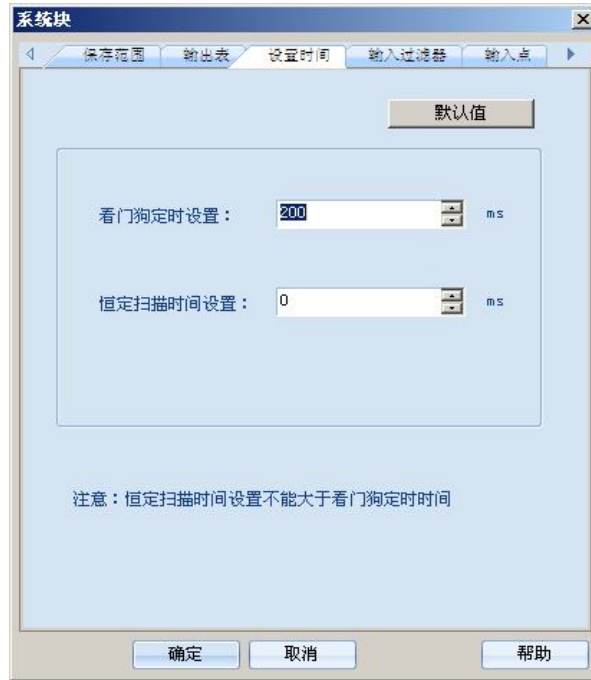
D@7

f&& D@7

fl 7 D@7

\$

&)



2-5

%"

D@7

\$a g

\$\$\$a g

&\$\$a g

&"

\$a g %\$\$\$a g

\$a g

'"

A 7&\$\$ A 7& \$

D@7

\$a g %\$\$a g

\$a g

D@7

L\$ L%+ A 7%\$\$ A 7& \$ L\$ L%+

A 7%\$\$

L\$ L' L( L+

\$ & ( , % ' & \*(

A 7& \$

L\$ L' L( L+

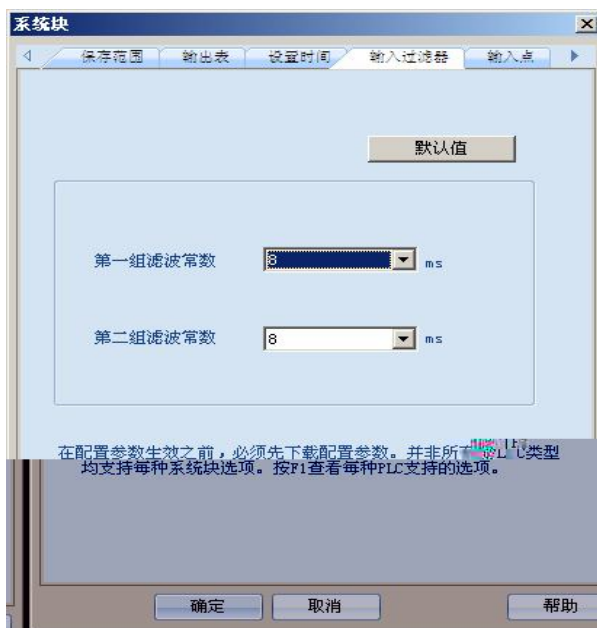
\$ \*\$a g

A 7&\$\$

\$ \*\$a g

A 7%\$\$

&\*



2-6

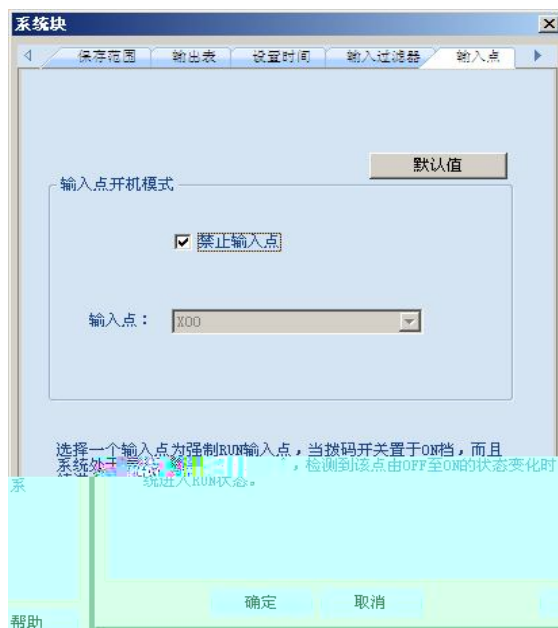
&+  
%

L\$ L%+

D@7 FI B

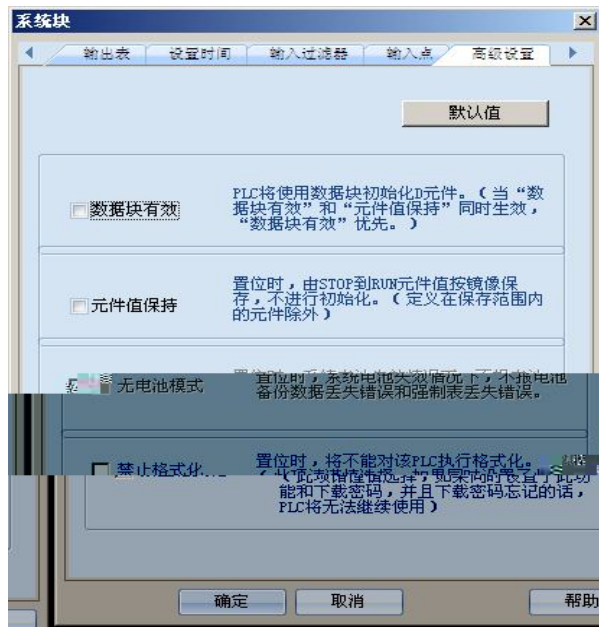
GHCD

CB



2-7

&



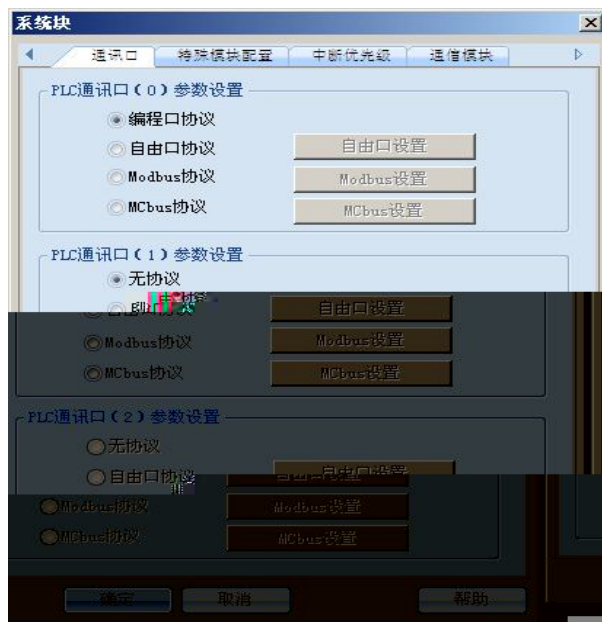
2-8

% : D@7 GHCD F I B 8  
 & : GHCD F I B



21.6

D@7 & -

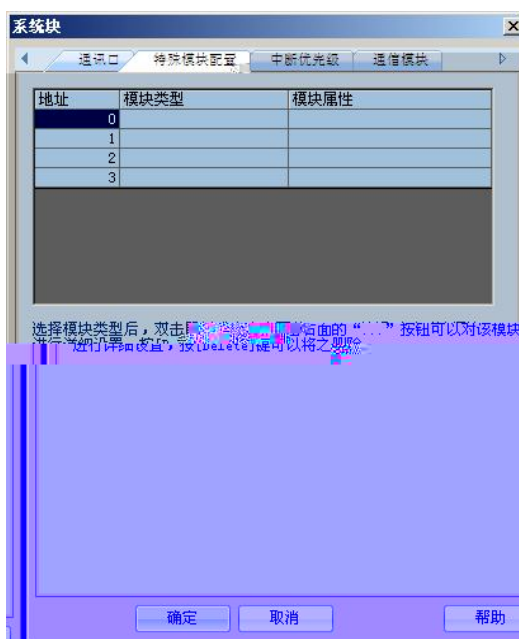


2-9

\$ % & \$ %  
 &  
 %  
 \$ A 7 D@7  
 L S6i JXYf \$ HA \$  
 &  
 5G7 = D@7  
 FI B  
 ' " A cXVi g  
 A cXVi g A cXVi g  
 \$ % &  
 (" A 7Vi g  
 A 7Vi g D@7 B : B A 7Vi g D@7 8 A  
 \$ % & A 7Vi g  
 A cXVi g A 7Vi g

A 7&\$\$

&%\$



2-10

%

\$

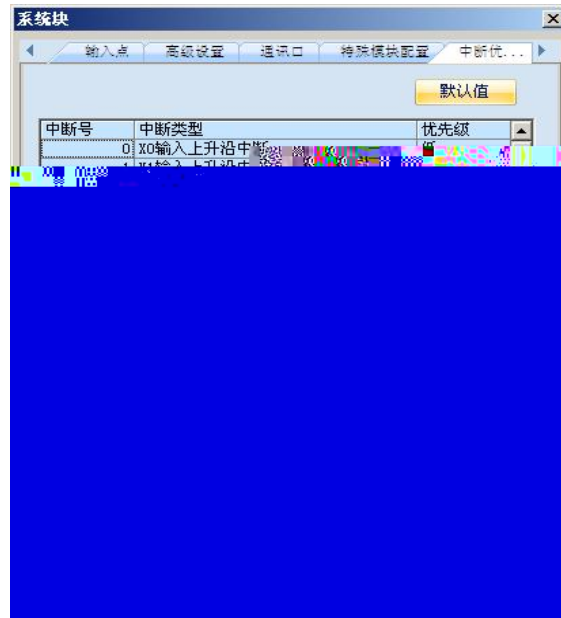
&”



2-11

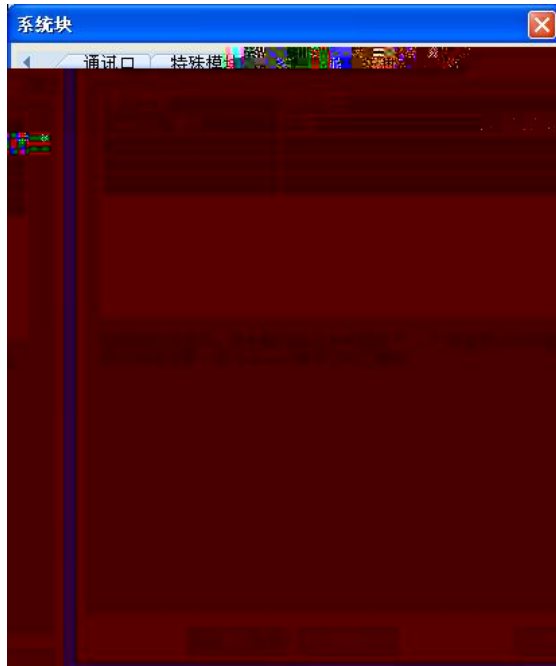
&%&

D@7

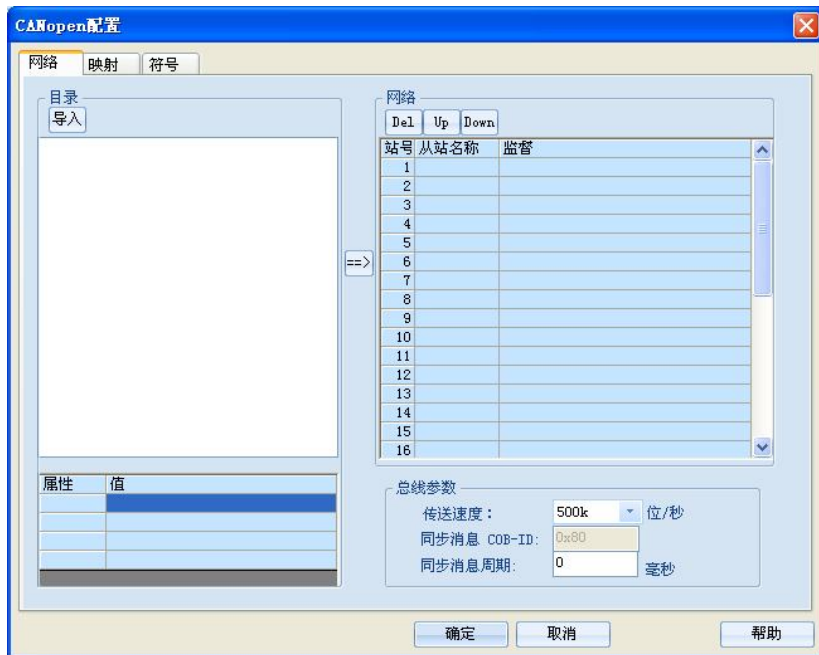


2-12

A 7&\$\$



2-13



2-14 CANOPEN

## 2.2.2

8

D@7

D@7

D@7

8

8

8

A 7& \$

8

F

L S6i J'XYf

2.2.3

D@7

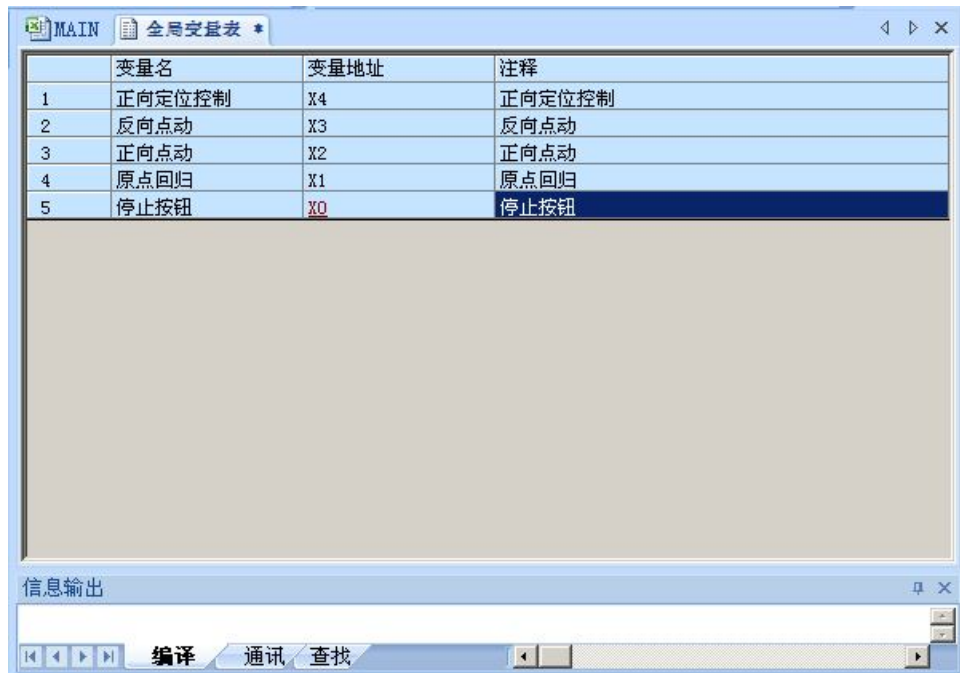
5 N U n \$ -

A 7 & \$ # \$ \$ # \$

D@7

% \$ \$ \$ # \$ \$ # ( \$

& %



2-15

2.2.4 MC 200 MC 280

BFM

A 7 & \$ \$ A 7 & \$

D@7

MC 200 MC 280

A 7 & \$ \$ A 7 & \$

6: A

HC

A 7 & \$ \$

6: A

A 7 & \$ \$

: FCA

A 7 & \$ \$

6: A

MC 200 MC 280

A 7 & \$ \$ A 7 & \$

6: A

G q - B W @ - ( £ 5 C ^ ~

HC

A 7 & \$ \$

6: A







G8'

G8'

GA'

G8'

9FF

<

&

6%

GA &\$

GA &\$



2-19 PLC

G8'

G8&\$

### 2.4.3

D@7



D@7

D@7

D@7

D@7

%

#

&

D@7

### 2.4.4

D@7

D@7

D@7

D@7

PLC

D@7

D@7

D@7

D@7

D@7

PLC

D@7

D@7

D@7

D@7

D@7

PLC

D@7

D@7

D@7

D@7

D@7

8

PLC

D@7

D@7

D@7

D@7

### 2.4.5 PLC

PLC

D@7

D@7

D@7

D@7

&&\$



2-20 PLC

PLC

D@7

D@7

D@7

&&%



2-21 PLC

D@7

D@7

### 2.4.6

D@7

D@7

&&



2-22

&&



2-23

&&(

变量地址	变量名称	变量类型	数据类型	注释
		TEMP	BOOL	
		TEMP	BOOL	
		TEMP	BOOL	
		TEMP	BOOL	

NETWORK 0

MO  [ SET ON YO ]

2-24

D@7

&&)

地址	数据类型	是/否
MO	BOOL	<input checked="" type="checkbox"/>

确定 取消

2-25

D@7

#

&&\*

元件名称	数据类型	显示格式	当前值	新数值
1 X1	BOOL	二进制	OFF	
2 Y1	BOOL	二进制	OFF	
3 D1	WORD	十进制	0	
4 D2	WORD	十进制	0	

2-26

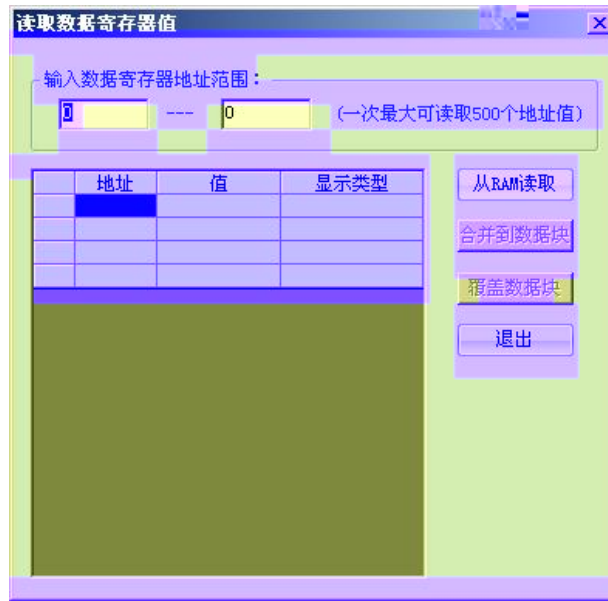
## 2.4.7 RAM

D@7

8

F5A

&&+



2-27 RAM

% %\$ , &

MC FLC

' %	.....	-
' %%	.....	-
' %&	.....	(\$
' %"	.....	(%
' %('	.....	(%
' %)	.....	(&
' %*"	.....	(&
' %+	.....	('
' %,	.....	('
' %-	.....	((
' %/\$	.....	((
' %%%	.....	)
' %/&	.....	)
' %%"	.....	(
' &	.....	(*
' &%"	.....	(*
' &&	.....	(+
' &"	.....	(+
' &(' 8 F J ' &	.....	(+

p + p é é 0

---

3.1

3.1.1

D@7

3.1.2

A 7 D@7

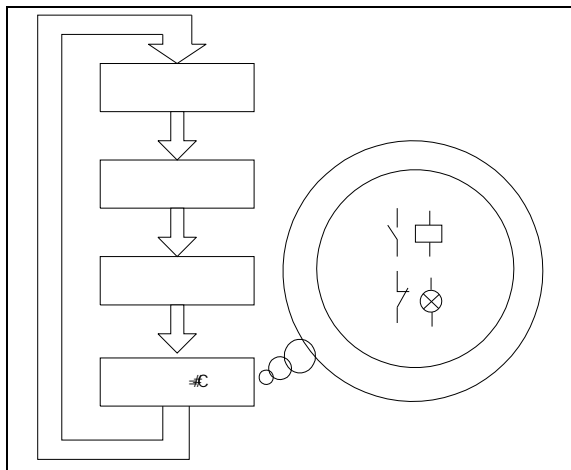
A 7 D@7

3-1 MC PLC

	MC100	MC200	MC280	
	%& #& L \$ L%++ M\$ M%++	&)* #&)* L \$ L' ++ M\$ M ++ %	&)* #&)* L \$ L' ++ M\$ M ++ %	
	&\$ ( A \$ A &\$ ( + )	&\$\$\$ A \$ A % --	%&& (\$ A \$ A %&& -	%\$
	*( @A \$ @A *'	*( @A \$ @A *'	*( @A \$ @A *'	%\$
	&)* GA \$ GA &))	&)* GA \$ GA &))	)%& GA \$ GA )%%	%\$
	%&& ( G\$ G%&&'	--& G\$ G - %	( \$ - * G\$ G (\$ - )	%\$
	&)* H\$ H&)) &'	&)* H\$ H&)) &'	)%& H\$ H) %& &'	%\$
	&)* 7\$ 7&))	&)* 7\$ 7&))	&* * 7\$ 7' \$*	%\$
	, \$\$\$ 8\$ 8 +---	, \$\$\$ 8\$ 8 +---	, \$\$\$ 8\$ 8 +---	%\$
F			' & + * , F\$ F' & + * +	%\$
)	*( J \$ J *'	*( J \$ J *'	*( J \$ J *'	%\$
	% N\$ N% )	% N\$ N% )	% N\$ N% )	%\$
	&)* G8\$ G8 &))	&)* G8\$ G8 &))	)%& G8\$ G8 )%%	%\$
<p>% L M L %\$ D@7 &amp; H fA 7, \$ #A 7 % \$ \$ #A 7 &amp; \$ \$ L'  <ul style="list-style-type: none"> <li>• %\$ \$ a g H\$ H&amp;\$ -</li> <li>• %\$ a g H&amp; % \$ H&amp; ) %</li> <li>• % a g H&amp; ) &amp; H&amp; )</li> </ul> <p>fA 7 &amp; \$ L'  <ul style="list-style-type: none"> <li>• %\$ \$ a g H\$ H&amp;\$ -</li> <li>• %\$ a g H&amp; % \$ H ( +</li> <li>• % a g H ( , \$ H ) % \$</li> </ul> <p>7  <ul style="list-style-type: none"> <li>• % 7\$ 7% -</li> <li>• ' &amp; 7 &amp; \$ \$ 7 &amp; )</li> <li>• ' &amp; 7 &amp; * 7 &amp; )</li> </ul> <p>fA 7 &amp; \$ L'  <ul style="list-style-type: none"> <li>• % 7\$ 7% -</li> <li>• ' &amp; 7 &amp; \$ \$ 7 &amp; )</li> <li>• ' &amp; 7 &amp; * 7 &amp; ) - 7' \$ % 7' \$ * 7 &amp; * \$ ! 7' \$ \$</li> </ul> <p>( D@7 ) &amp;</p> </p></p></p></p>				

3.1.3

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 D@7 #C  
 'I& 21.2 PLC  
 D@7 #C



3-2 IO

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 M\$ M+ M%\$ M%+ M&\$ M&+

L M CB C::  
 L  
 U V  
 M  
 % L  
 & M  
 GHCD M

3.1.4

: M

% &

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CB C::

	M	M
FI B' GHCD'		
GHCD' FI B'		
221		



A 7Mg

A

3.1.5

G

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CB C::

	S	S
FI B` GHCD`		
GHCD` FI B`		
221		

3.1.6

H

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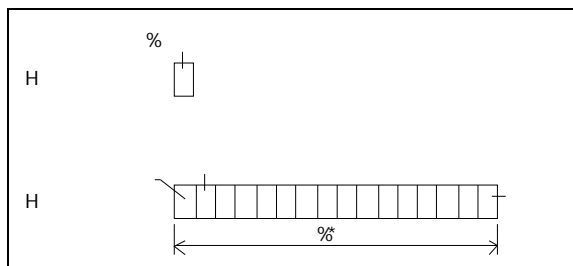
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CB C::

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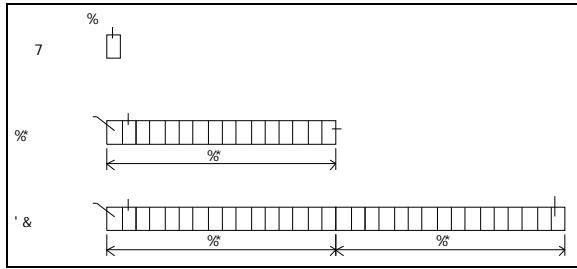
'&+\*,

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3.1.7

: C

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3-4 C

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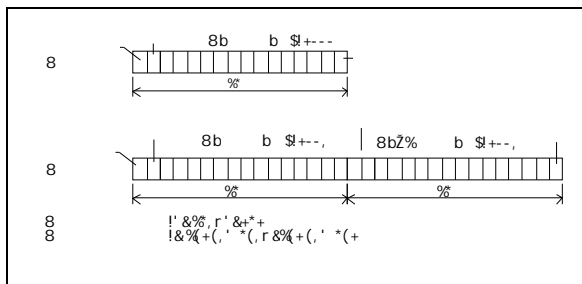
3.1.8

: D R

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3-5 D R

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GHCD' F I B'		
221		



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	D	D
F I B' GHCD		
GHCD' F I B'		
221		
R		



A 7Mg

8

### 3.1.9

GA

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D@7

GA GA  
GA

- GA \$ F I B CB
- GA %

3.1.11

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3.1.12

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@A

CB C: :

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3.1.13

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CB C: :

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3.2

3.2.1 Kn

?b

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3.2.2 Z

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@ B ' A \$ % G. H F ' L \$ N % ' A \$ ' , ' &

@8 A \$ %  
 G: HF L \* A \$ , ' &  
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 N & \$ 1 ' \$  
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% N N N

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 & G A G B  
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3.2.3

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 A C J ' ' ? % \$ ' ' 8 \$ ' '   
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3.2.4 D R V

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& 8=BH

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8Z%	%																		
fFZ%	6]P)	%	%	%	%	%	\$	-	,	+	*	)	(	'	&	%	\$		

K CF8

6]P)	%	%	%	%	%	\$	-	,	+	*	)	(	'	&	%	\$			

( 8K CF8

8fE	%																		
	6]P)	%	%	%	%	%	\$	-	,	+	*	)	(	'	&	%	\$		
8Z%	%																		
fFZ%	6]P)	%	%	%	%	%	\$	-	,	+	*	)	(	'	&	%	\$		



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D@7

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D@7

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3.3.4

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3-4

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%	*)' &*	\$ *)')'	
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' &	(& (-*+&)	\$ (& (-*+&)	
%	% % 9-	% \$ % ::::	
' &	% : 8%95: 9-	% \$ % :::::	
%	, +%*	, \$ , %++++	
' &	, +%* &	, \$ , ' ++++++	
%	& %\$\$\$\$%	& \$ & %%%%%%%%%%	
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	' % ( 9!%' ' % ( 9 \$ %	% ( ) - ( 9! , ' (\$ & 9 ' ,	-999!+) ( +

A 7 D@7

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  ("%& =@ ..... )(  
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  ("%# ..... ) *%
```

# 4.1

@58

@

G 7

## 4.1.1

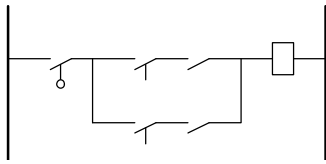
LAD

D@7

D@7

%

&



### 4.1.2 IL

D@7

	<pre> @8 ..... L \$ CF ..... L % 5B8 ..... L % A DG CI H ..... M \$ 5B8 ..... L % CI H ..... M % A DD 5B8 ..... L &amp; A DG CI H ..... M &amp; 5B8 ..... L ' 5B8 ..... L ( CI H ..... M A F 8 @8 ..... L ) 5B8 ..... L * @8 ..... L + 5B8 ..... L % CF 6 5B 6 CI H ..... M ( A DD CI H ..... M ) </pre>
--	--

### 4.1.3 SFC

<pre> /*用户程序运行第一个周期，激活S0步进状态*/ SM1     [ SET S0 ]  /*步进状态S0的处理*/ S0 &lt; S &gt;     Y0 &lt; &gt;           M0   [ SET S20 ]  /*步进状态S20的处理*/ S20 &lt; S &gt;     Y1 &lt; &gt;           M1     S0 &lt; &gt;  [ RET ] </pre>	
--	--

---

## 4.2

### 4.2.1

DCI

MAIN

SBR

INT

### 4.2.2

221 L S6i JXYf

### 4.2.3

F 8 F 8 F 8

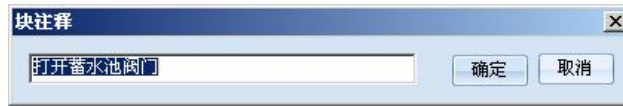
8 F

## 4.3

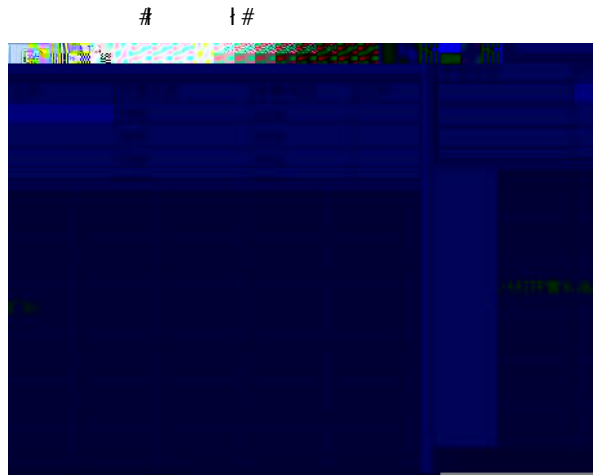
### 4.3.1



4-4

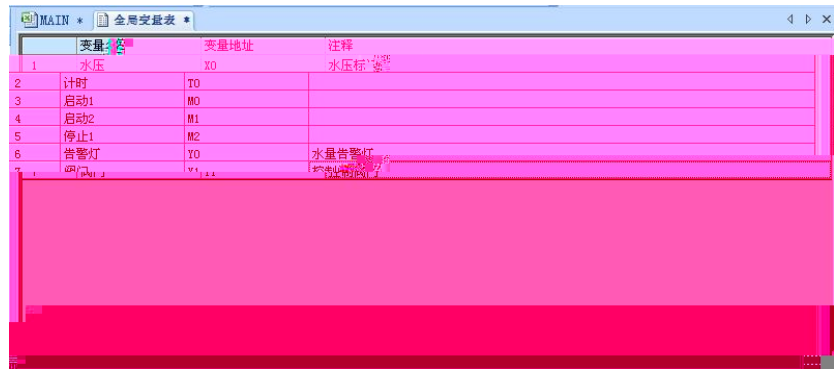


4-5



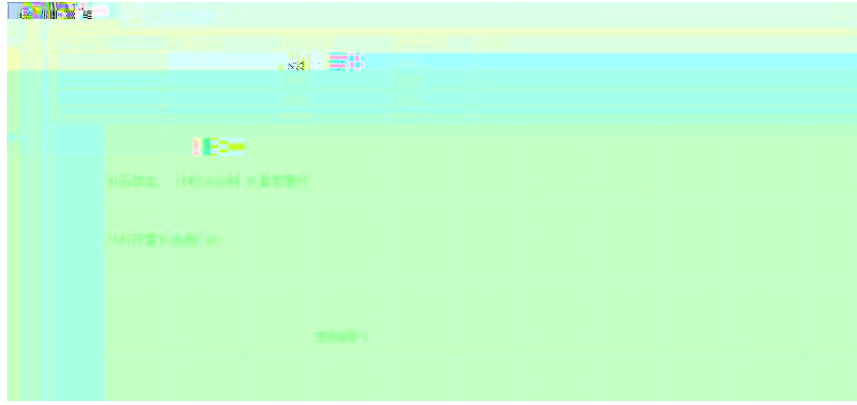
4-6

4.3.2



	变量名	变量地址	注释
1	水压	X0	水压标志
2	计时	T0	
3	启动1	M0	
4	启动2	M1	
5	停止1	M2	
6	告警灯	T0	水量告警灯
7	报警灯	M1, M2	报警灯

4-7



4-10



A 7&\$ A 7& \$

D@7

## 4.4

### 4.4.1

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### 4.4.2

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A 5-B G6F% G6F& G6F' G6F( G6F) G6F\*

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&

● A 5-B G6F\$ G6F\$

● A 5-B G6F\$ G6F% G6F\$

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### 4.4.3

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⊖ CI H ⊖BSCI H H9A D

- ⊖B
- CI H
- ⊖BSCI H » `QŽòq Ÿ™™ )(f- X04 řznê-9 \* Ê,
- H9A D

(

>\_B16Y™™\_020B1Y™™\_020B1Y™™\_020B1Y™™

4-1

变量地址	变量名称	变量类型	数据类型	注释
V0	IN1	IN	INT	
V1	IN2	IN_OUT	INT	
V2	OUT1	TEMP	INT	
		TEMP	BOOL	

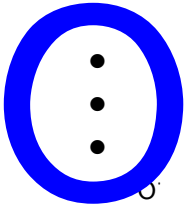
  

75@@

G6FS%

LD MO

■ C ■ L SBR\_1 3 2 DO



• B%  
 • B&  
 • CI H% 8\$

4.5

4.5.1

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- 

G % G% G& G  
8 % 8% 8&

4.5.2

SM180

SM181

SM182

4.5.3

GD8

L\$ L+

%

LA H

%

F7J

A cXVI g

MC PLC

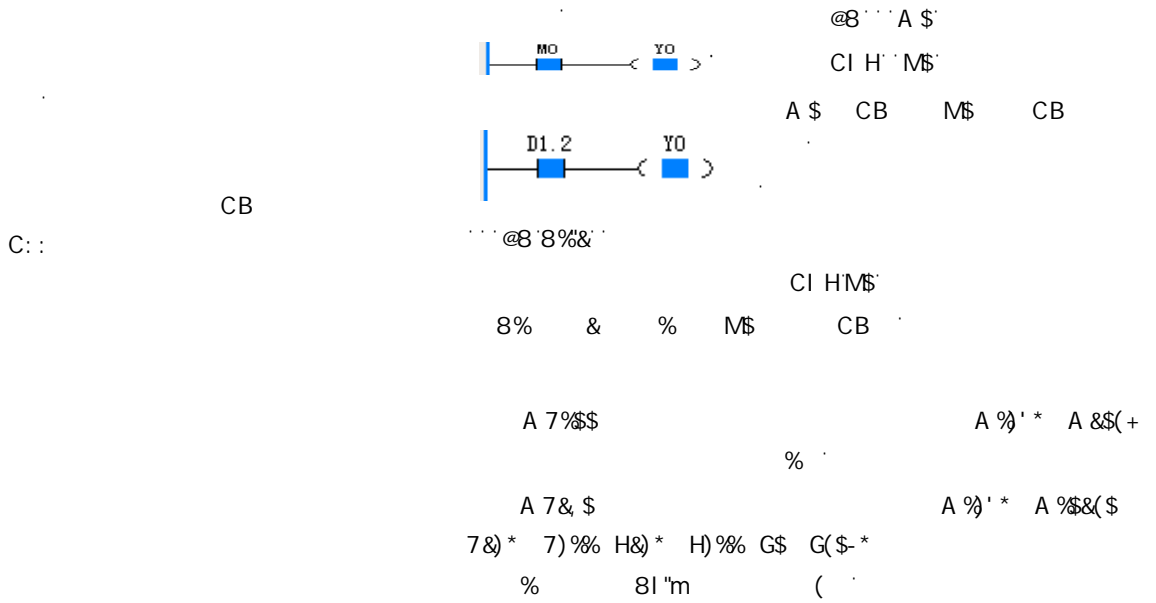
)"% .....\*  
  ) "%@B .....\*  
  ) "%&@B= .....\*  
  ) "% 5B8 .....\* (  
  ) "%( 5B= .....\* (  
  ) "%) CF .....\* (  
  ) "%\* CF= .....\*)  
  ) "%+ CI H .....\*)  
  ) "%, 5B6 .....\* \*  
  ) "%- CF 6 .....\* \*  
  ) "%\$ A DG .....\* +  
  ) "%%A F 8 .....\* +  
  ) "%&A DD .....\* +  
  ) "%% 9I .....\* ,  
  ) "%% 98 .....\* ,  
  ) "%% B J .....\* ,  
  ) "%% G 9H .....\* \_  
  ) "%% F GH .....\* \_  
  ) "%% B CD .....\* \_  
)"& .....+\$  
  ) "%&A 7 .....+\$  
  ) "%&A 7F .....+\$  
)" G 7 .....+%  
  ) "%GH@ G: 7 .....+%  
  ) "%G9H'G I G: 7 .....+%  
  ) "% CI H'G I G: 7 .....+%  
  ) "%( FGH'G I G: 7 .....+%  
  ) "% ) F 9H G 7 .....+&  
)"( .....+  
  ) "%HCB .....+  
  ) "%&HCBF .....+  
  ) "% HC: .....+(  
  ) "%( HA CB .....+(  
)" ) .....+  
  ) "%7HI % .....+  
  ) "%&7HF % .....+  
  ) "% 87BH ' & .....+\*

# 5.1

## 5.1.1 LD

										M200 M100 M80 M280			
										1			
G	6CC@	L	M	A	G	@A	GA	8l'm	7	H			

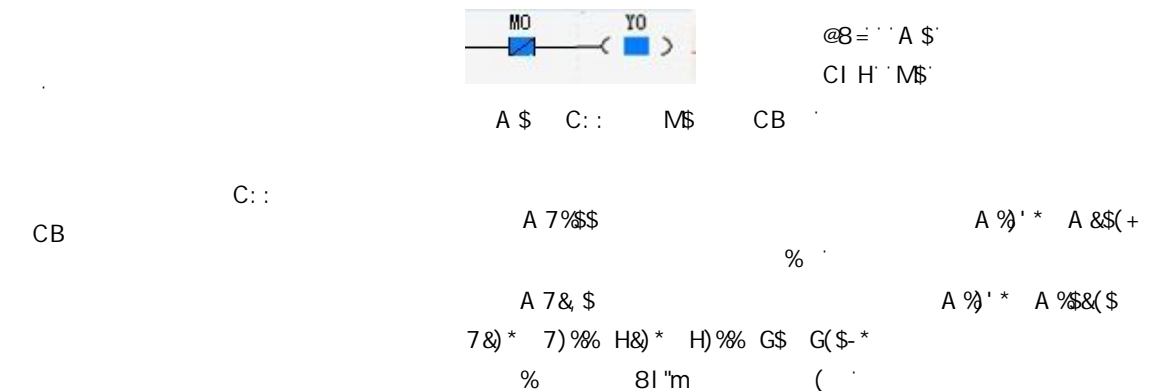
A 7 & \$



## 5.1.2 LDI

										M200 M100 M80 M280			
										1			
G	6CC@	L	M	A	G	@A	GA	8l'm	7	H			

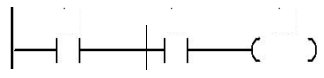
A 7 & \$



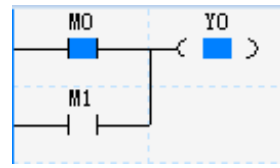
\*(

---

### 5.1.3 AND



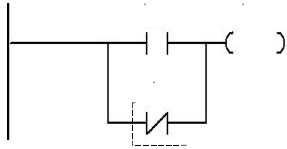
CB#C::



@B...A\$  
CF...A%  
CI H...M\$

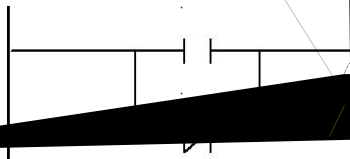
A \$ A % CB M\$ CB

### 5.1.6 ORI



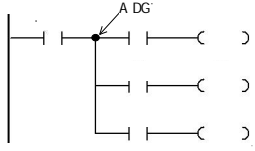
\*\*\*

5.1.8 ANB



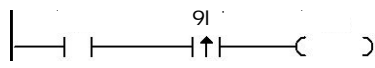
A 7

5.1.10 ~~MPS6~~

		M200 M100 M80 M280
		<b>1</b>

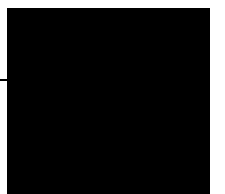
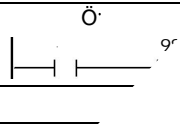
\*

5.1.13 EU



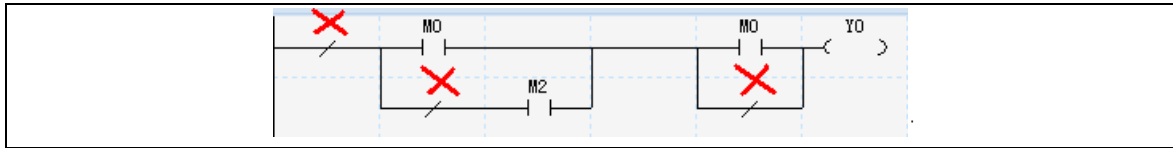
C:: CB

5.1.14 ED



BJ

BJ



5.1.16 SET

[ SET (D) ]										M200 M100 M80 M280				
										1				
G	6CC@		M	A	G	@A	GA		8l'm		7	H		

S



5.1.17 RST

[ RST (D) ]										M200 M100 M80 M280				
RS										1				
G	6CC@		M	A	G	@A	GA		8l'm		7	H		



8 7

8 H

5.1.18 NOP

[ NOP ]										M200 M100 M80 M280			
										1			

+\$

## 5.2

### 5.2.1 MC

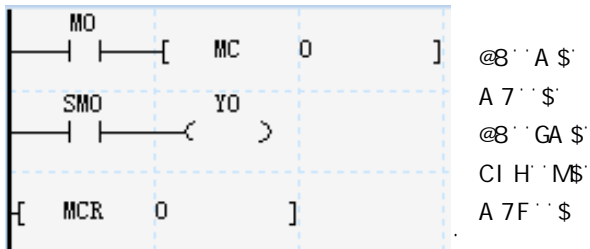
----- -----  [ MC (S) ]										M200 M100 M80 M280				
										3				
G	=BH													

### 5.2.2 MCR

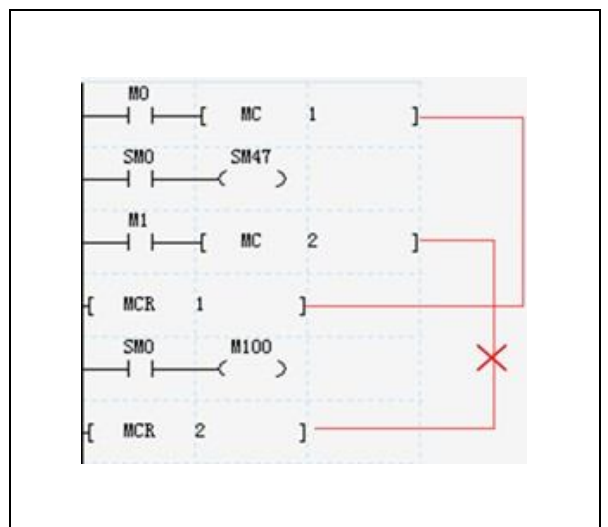
----- -----  [ MCR (S) ]										M200 M100 M80 M280				
										1				
G	=BH													

% A 7 A 7F A 7!A 7F A 7 A 7!A 7F  
 A 7!A 7F A 7!A 7F  
 \$ + A 7F A 7!A 7F  
 & A 7 A 7!A 7F  
 ' A 7 A 7!A 7F  
 ( A 7!A 7F  
 % A 7F  
 & A 7F  
 ' A 7!A 7F  
 + A 7!A 7F  
 ( A 7!A 7F

CI H HCB HC: DK A <7BH D@GM D@GF 8<G7G  
 GD8 8<G7= 8<G7F 8<GN 8<GH 8<GD 6CI H



A \$ CB A 7!\$!A 7F \$ M\$  
 CB A \$ C:: A 7!\$!A 7F \$  
 CI H M\$  
 M\$ C::



G: 7

## 5.3 SFC

### 5.3.1 STL SFC


<S>—		<b>M200 M100 M80 M280</b>			
		<b>3</b>			
G	6CC@	G			

### 5.3.5 RET SFC

		M200 M100 M80 M280
[ RET ]		
RET		1

# 5.4

## 5.4.1 TON

										M200 M100 M80 M280					
															
										5					
8	-BH											H			
G	-BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7	H	J	N	F

Ö  
 7-#q TM~ & | TM~ EDi‡  
 % 7-#qZ& T A'S I t t & »é' \$4ÑÀ TM€ p 1s7-#q  
 AÑ 0 TM~ S #r07•

5.4.3 TOF

TOF (m) (s)		M200 M100 M80 M280
-------------	--	--------------------

# 5.5

## 5.5.1 CTU 16

----- -----  CTU (D) (S) 1		MC200	MC100	MC80	MC260
----- -----		5			
8	BH				

## 5.5.3 DCNT 32

—   —  [ DCNT (D) (S) ]		<b>M200 M100 M80 M280</b>
		<b>7</b>

MC PLC

*!%	.....	
*!%: CF	.....	
*!%&B9LH	.....	
*!%" @6@	.....	(
*!%( 7>	.....	)
*!%) 7: 9B8	.....	)
*!%* K 8H	.....	*
*!%+ 9=	.....	*
*!%, 8=	.....	*
*!%- 7 9H	.....	*
*!%\$ GHCD	.....	*
*!%%75@@	.....	+
*!%&7GF9H	.....	+
*!&	.....	
*!&%A CJ	.....	
*!&&8A CJ	.....	
*!&" FA CJ	.....	-
*!&( 6A CJ	.....	-
*!&' ) : A CJ	.....	- \$
*!&* 8: A CJ	.....	- \$
*!&+ GK 5D	.....	- %
*!&, L 7<	.....	- %
*!&- 8L 7<	.....	- &
*!&%\$ DI G<	.....	- &
*!&%%: ÷ C	.....	-
*!&%&@÷ C	.....	- (
*!&% K G: F	.....	- )
*!&% K G: @	.....	- *
*!#	.....	+
*!# %588	.....	+
*!# "&G 6	.....	+
*!# " AI @	.....	,
*!# "( 8=	.....	,
*!# ") GEH	.....	-
*!# " * -B7	.....	-
*!# " +8A 7	.....	%\$
*!# " , J 56G	.....	%\$
*!# " - B9;	.....	%\$

```

*"'%8588                                     %$%
*"'%8GI 6                                     %$%
*"'%8AI @                                     %$&
*"'% 88J                                       %$&
*"'% 8GEH                                     %$'
*"'% 8-B7                                     %$'
*"'% 88A 7                                     %$(
*"'% 8J 56G                                   %$(
*"'% 8B9;                                     %$(
*"'% GI A                                     %$(
*"'&$8GI A                                    %$*
*"'(                                     %$*
*"'(%F 588                                    %$*
*"'(&FGI 6                                    %$+
*"'( FAI @                                    %$+
*"'( F8J                                       %$,
*"'( FGEH                                     %$,
*"'(* FJ 56G                                   %$-
*"'(+FB9;                                     %$-
*"'( G-B          G-B                       %$-
*"'(- 7CG          7CG                       %$
*"'(%$H5B          H5B                       %$
*"'(%%DCK 9F                                     %%%
*"'(%&@B          @B                         %%%
*"'(% 9LD                                     %%%
*"'(% FGI A                                     %%%
*"'(% 5G-B          5G-B                       %%
*"'(% 57CG          57CG                       %%
*"'(% 5H5B          5H5B                       %%(
*"'(% @C;                                     %%(
*"'(% F58          !2                         %%(
*"'(&$89;          !2                         %%)
*"'(                                     %%#
*"'&8H=                                     %%#
*"'( +18                                     %%+
*"'(: @H                                     %%+
*"'( 8: @H                                     %%+
*"'(* -BH                                     %%
*"'(+8-BH                                     %%
*"'(, 678          % 678                       %%
*"'(- 8678          ' & 678                   %%
*"'(%$6-B % 678                               %$$
*"'(%%86-B ' & 678                           %$$
*"'(%&; FM          %                          %%%
*"'(% 8; FM          ' &                       %%%

```

```

*) '%( ; 6-B %& %& %&
*) '%) 8; 6-B ' & %& &
*) '%) G9; %& &
*) '%+ 5G7 5G7= %& '
*) '% #H5 % % 5G7= %& '
*) '% 5H= 5G7= % % %& (
*) "%$@7BJ %& (
*) "%&F@7BJ %& )
* " + %& +
*) "%K 5B8 %& +
*) "%&K CF %& +
*) "% K LCF %& +
*) "%( 'K #BJ %& ,
*) "%) '8K 5B8 %& ,
*) "%* "8K CF %& -
*) "%+ '8K LCF %& -
*) "% , '8K #BJ %& -
* " + % $
*) "%+ %FCF % % $
*) "%+ "&FC@ % % %
*) "%+ ' F7F % % %
*) "%+ '( 'F7@ % % &
*) "%+)' 8FCF ' & % &
*) "%+ '* '8FC@ ' & % '
*) "%+ '+ '8F7F ' & % '
*) "%+ ', '8F7@ ' & % (
*) "%+ '- 'G<F % % (
*) "%+ '%$'G<@ % % )
*) "%+ '%%8G<F ' & % )
*) "%+ '%&8G<@ ' & % *
*) "%+ '% 'G: HF % *
*) "%+ '% %'G: H@ % +
* " , % ,
*) "%: FCA % ,
*) "% '&8: FCA % -
*) "% ' HC % $
*) "% '( '8HC % %
*) "% ,)' J FF8 % %
*) "% , '* 'F9: % &
*) "% , '+ 'F9: #C % &
*) "% , ' '9FCA K F 99DFCA % '
*) "% , '- 'DF % (
*) "% , '%$H? M % *
* " _ % +
*) "%_ '%HF 8 % +

```

```

*"-&HK F .....%A,
*"- " 'H588 .....%A-
*"- (" 'HG1 6 .....%A$
*"- )" '<CI F .....%A%
*"- "x' 87A D 1 0 2 02 21 01 .....%A&
*"- "+ 'H7A D 1 0 2 02 21 01 .....%A'
*"- ", '<HCG .....%A(
*"- "- 'GHC< .....%A(
*"%$ € .....%A)
*"%$%<7BH .....%A)
*"%$"&8<G7G .....%A+
*"%$" '8<G7= .....%A,
*"%$" ('8<GD= .....%A-
*"%$" '8<G7F .....%A$
*"%$" *'8<GN .....%A%
*"%$" +'8<GH .....%A&
*"%$" , '8<GD .....%A(
*"%$" - 'GD8 .....%A*
*"%$"$ 'D@GM .....%A+
*"%$"% 'D@GF .....%A,
*"%$"%& 'D@G .....%A$
*"%$"% 'D@G6 .....%A%
*"%$"% 'DK A .....%A'
*"%% .....%A(
*"%%&'D=8 .....%A(
*"%%&'F 5A D .....%A+
*"%%" '<57? @9 .....%A,
*"%%" ('HF =5B; @9 .....%A-
*"%%" '56G8 .....%A$
*"%%" *'856G8 .....%A%
*"%%" +'5@H .....%A&
*"%& !aq !aq .....%A & ð 0 +
*"%&'%A cXVi g

```

```

*!%(" '9B7C .....% ,
*!%(" '6#G CB .....% ,
*!%(" *'86#G CB .....% ,
*!%(" '+6CB CB .....% -
*!% ' .....% -
*!% '%6@B @B .....% -
*!% '&6@B = @B = .....&$ $
*!% " '65B8 5B8 .....&$ $
*!% "(" '65B = 5B = .....&$ %
*!% ")" '6CF CF .....&$ %
*!% " *'6CF = CF = .....&$ &
*!% " '+6CI H .....&$ &
*!% " , '6G9H .....&$ '
*!% " - '6FGH .....&$ '
*!% *' .....&$ (
*!% *!'@B 1 0 2 02 21 01 @B .....&$ (
*!% *'&5B8 1 0 2 02 2 .....&$ (

```

\*"%" 'GHFA CJ .....&&  
\*"&% .....&&-  
\*"&%"NF B .....&&-  
\*"&%"D@GJ .....&' \$  
\*"&%" '8FJ = .....&' %  
\*"&%"('8FJ 5 .....&' &  
\*"&%" '56G .....&' '  
\*"&%"\* '8GNF 8C; .....&' (  
\*"&%"+'GHCD8J .....&' \*  
\*"&%" '@B .....&' +  
\*"&%"-'7K .....&' -  
\*"&%"\$'77K .....&(\$  
\*"&%"%A CJ 9@B? .....&(&  
\*"&%"&'; 95F6CL .....&' .  
\*"&%" '8FJ 7 .....&' .  
\*"&%"( '75A H56@9 .....&' (  
\*"&%" ) '75A 6CL .....&') .  
\*"&%" .....&'+  
\*"&%"%A 95B .....&'+  
\*"&%"&'K HC6 .....&'+  
\*"&%" '6HCK .....&' -  
\*"&%"('1 B= .....&)\$  
\*"&%" '8-€

# 6.1

## 6.1.1 FOR

[ FOR (S) ]		M200 M100 M80 M280												
		3												
G	-BH	?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7	H	J	N	F

## 6.1.2 NEXT

[ NEXT ]	M200 M100 M80 M280
	1

```

% :CF      B9LH      :CF!B9LH
& :CF
:CF!B9LH
      :CF!B9LH
      :CF
      :CF!B9LH
      :CF!B9LH

```

SM1	[ MOV 0 100 DO ]	@8 GA %
M2	[ FOR 100 ]	A CJ '\$ 8\$
SMD	[ INC DO ]	@8 A &
	[ NEXT ]	9I

```

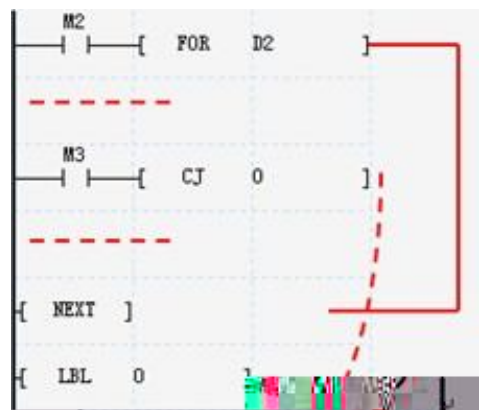
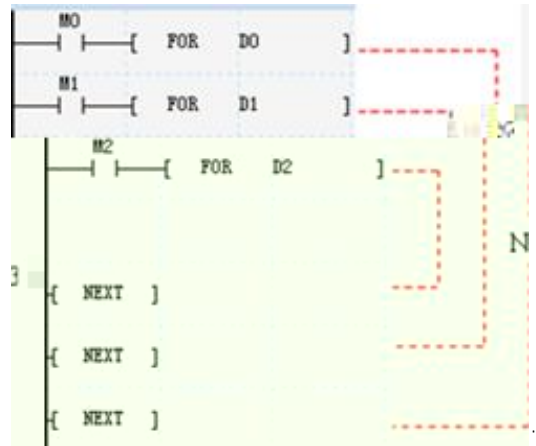
:CF %$$
@8 GA $
-B7 8%$$
B9LH'
8$1$ A &1C:: A & C:: CB
:CF!B9LH %$$ 8$
%$$ 8$1%$$

```

```

% :CF!B9LH      DCI
& :CF!B9LH      A 7&$$ 7DI
      :CF!B9LH
      :CF!B9LH

```



( 7>

) A 7!A 7F :CF!B9LH

```

M3
| | | [ CJ 0 ]
-----
M2
| | | [ FOR D2 ]
-----
[ LBL 0 ]
-----
[ NEXT ]

```

```

MO
| | | [ FOR D1 ]
-----
SMO
| | | [ MC 0 ]
-----
[ NEXT ]
-----
[ MCR 0 ]

```



:CF!B9LH

K 8H

### 6.1.3 LBL

[ LBL (S) ]		M200 M100 M80 M280	
		3	
G	=BH		

%

&

7>

%

&

\$ %&+

```

[ LBL 0 ]
-----
MO
| | | [ CJ 0 ]
-----
SMO
| | | [ MOV 100 D0 ]
-----
| | | [ CFEND ]
-----
[ LBL 0 ]
-----
M1
| | | [ MOV 200 D0 ]

```

重要的标号定义



6.1.6 WDT

—   —  [ WDT ]	M200 M100 M80 M280			
	1			

6.1.7 EI

|—| |—| [ EI ]

M200 M100 M80 M280

### 6.1.11 CALL

	M200	M100	M80	M280
[ CALL (子程序名) (参数1) (参数2) ]				
Å				

75@@

% 75@@

75@@

& 75@@

G6F%

8-BH#8K CF8

● 75@@G6F%N\$ N

8-BH#8K CF8

● 75@@G6F%7%- 7\$ 7%-

8-BH#8K CF8

● 75@@G6F%? &L\$ ?b % b

8-BH#8K CF8

G6F%

8-BH#8K CF8

● 75@@G6F%7&\$ 7&\$ 7&)

8-BH#8K CF8

● 75@@G6F%? &L\$ ?b ( b

8-BH#8K CF8

' 75@@

G6F%

CI H 8-BSCI H

● 75@@G6F%' &%

CI H 8-BSCI H

● 75@@G6F%?(L\$ ?(L\$

CI H 8-BSCI H

● 75@@G6F%G8\$ G8\$

CI H 8-BSCI H

( 75@@

### 6.1.12 CSRET

	M200	M100	M80	M280
[ CSRET ]				
CSRET				1

			M200	M100	M80	M280
			5			
G8	7	H	J	N	F	
G8	7	H	J	N	F	

%\$

%-

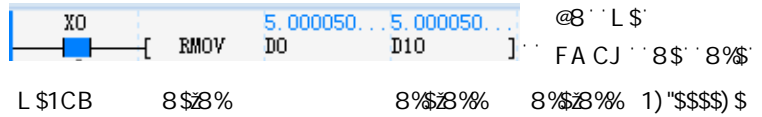
500 @8 L\$  
D10 ] ACJ 8\$ 8%

\$ 8%1) \$\$

			M200	M100	M80	M280
			7			

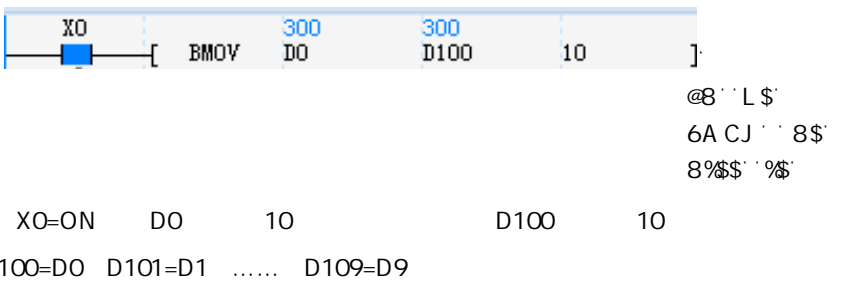
### 6.2.3 RMOV

										<b>M200 M100 M80 M280</b>					
---   ---  [ RMOV (S) (D) ]															
										<b>7</b>					
G	F95@								8				J		F
8	F95@								8				J		F



### 6.2.4 BMOV

										<b>M200 M100 M80 M280</b>					
---   ---  [ BMOV (S1) (D) (S2) ]															
										<b>7</b>					
G%	-BH		? bL	? bM	? bA	? bG	? b@A		8	G8	7	H	J		F
8	-BH		? bM	? bA	? bG	? b@A		8		7	H	J		F	
G&	-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F



6.2.5 FMOV

										<b>M200 M100 M80 M280</b>					
										<b>7</b>					
G%	=BH'		? bL'	? bM'	? bA'	? bG'	? b@A'	? bGA'	8'	G8'	7'	H'	J'	N'	F'
8'	=BH'			? bM'	? bA'	? bG'	? b@A'		8'		7'	H'	J'		F'
G&	=BH'		? bL'	? bM'	? bA'	? bG'	? b@A'	? bGA'	8'	G8'	7'	H'	J'	N'	F'

% 7 7\$ 7%-  
 & \$  
 ' ?b ?b

X0 [ FMOV DO 300 D100 10 ] @8' L\$  
 : A C J ' 8\$ ' 8\$ \$  
 %\$  
 L \$1CB 8\$ 8\$ \$ %\$ 8\$ \$18\$ %1  
 18\$ - 18\$ 1' \$ \$

6.2.6 DFMOV

										<b>M200 M100 M80 M280</b>					
										<b>9</b>					
G%	8=BH'		? bL'	? bM'	? bA'	? bG'	? b@A'	? bGA'	8'	G8'	7'		J'		F'
8'	8=BH'			? bM'	? bA'	? bG'	? b@A'		8'		7'		J'		F'
G&	=BH'		? bL'	? bM'	? bA'	? bG'	? b@A'	? bGA'	8'	G8'	7'	H'	J'	N'	F'

% 7 7&\$ 7&))  
 & \$  
 ' ?b ?b

X0 [ DFMOV DO 100000 D10 10 ] @8' L\$  
 : A C J ' 8\$ ' 8\$ \$  
 %\$  
 L \$1CB 8\$ 8\$ % 8\$ % & 8\$ 8\$ % 1  
 8\$ 8\$ % 1 1 8& 8&- 1 8\$ 8\$ % 1\$ \$\$\$\$

### 6.2.7 SWAP

---   ---  [ SWAP (D) ]										M200 M100 M80 M280					
										3					
8	=BH			?bM	?bA	?bG	?b@A		8		7	H	J	N	F

```
XO 10000
[ SWAP DO ]
```

@8 L\$  
GK 5D 8\$

L \$1CB 8 \$1\$1 %&+ (%)  
%\$\$\$

8\$ 8\$1\$1 &+ %\$

### 6.2.8 XCH

---   ---  [ XCH (D1) (D2) ]										M200 M100 M80 M280					
										5					
8%	=BH			?bM	?bA	?bG	?b@A		8		7	H	J	N	F
8&	=BH			?bM	?bA	?bG	?b@A		8		7	H	J	N	F

%  
&

A 7 D@7

?b D1  
D2 ?b "

%

```
XO 1000 5000
[ XCH DO D10 ]
```

@8  
L 7<

L \$1CB 8\$ 8%  
8\$1) \$\$\$

8%\$1%\$\$\$

8\$1%\$\$\$ 8%\$1) \$\$\$

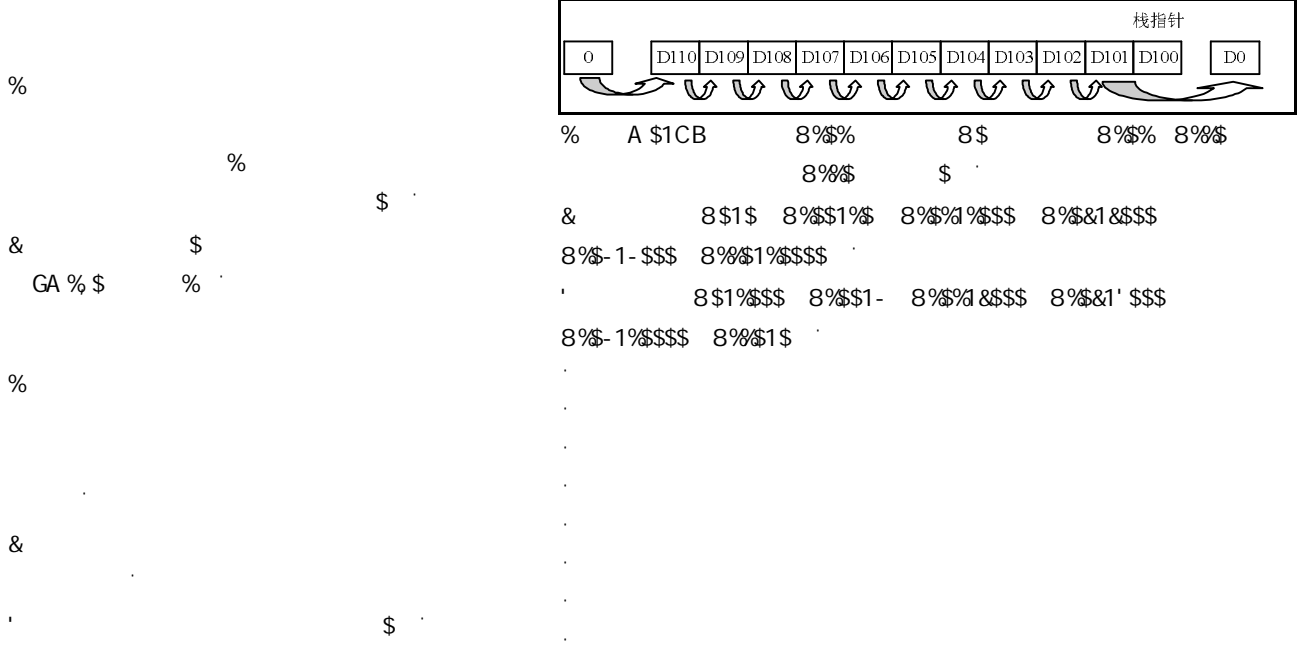
&

```
/*用户人机界面访问DO D1，对用户来说是可见的*/
/*初始化时要记得交换数据位置，使它符合用户人机界面的规则*/
```

## 6.2.9 DXCH

6.2.11 FIFO

										M200	M100	M50	M250		
[ ]															
										7					
8%	-BH								8			J	F		
8&	-BH		? bM	? bA	? bG	? b@A			8	7	H	J	N	F	
G	-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F



6.2.12 LIFO

--- ---[ LIFO (D1) (D2) (S) ]										M200 M100 M80 M280					
										7					
8%	=BH								8				J		F
8&	=BH		? bM	? bA	? bG	? b@A			8		7	H	J	N	F
G	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F

%

MO										9					
--- ---[ LIFO D100 D0 10 ]										1000					

@8 A \$

@= C 8%\$ 8\$ %

											栈指针					
D0	D110	D109	D108	D107	D106	D105	D104	D103	D102	D101	D100					

% A \$1CB 8%\$ 8\$ 8%\$ 8%\$

%

%

&

\$

GA % \$

%

&

8\$1\$ 8%\$1%\$ 8%\$1%\$\$\$

8%\$&1&\$\$\$

8%-1-\$\$\$ 8%\$1%\$\$\$

%

8\$1%\$\$\$ 8%\$1- 8%\$1%\$\$\$

8%\$&1&\$\$\$

8%-1-\$\$\$ 8%\$1%\$\$\$

&

\$

6.2.13 WSFR

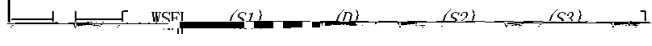
M200 M100 M80 M280

[ WSFR (S1) (D) (S2) (S3) ]

6.2.14 WSFL

M200 E

C200



## 6.3

### 6.3.1 ADD

[ ADD (S1) (S2) (D) ]										M200 M100 M80 M280					
										7					
G%	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G&	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8	=BH			? bM	? bA	? bG	? b@A		8		7	H	J	N	F

%

&

X0	[	ADD	1000 D0	2000 D1	3000 D10	]
----	---	-----	---------	---------	----------	---

@8 L \$

588 8\$ 8% 8%\$

L \$1CB 8\$ %\$\$\$ 8% &\$\$\$

8% 8%\$1' \$\$\$

%

&

GA % %

' &+\*+

\$

GA % \$

' &+\*,

GA % &

### 6.3.2 SUB

[ SUB (S1) (S2) (D) ]										M200 M100 M80 M280					
										7					
G%	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G&	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8	=BH			? bM	? bA	? bG	? b@A		8		7	H	J	N	F

### 6.3.3 MUL

[ MUL (S1) (S2) (D) ]									M200 M100 M80 M280						
									8						
G%	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G&	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8	8=BH			? bM	? bA	? bG	? b@A		8		7		J		F

%

A I @

' &

&

X0			1000	2000	2000000		
		[	MUL	D0	D1	D10	]

@8 L \$

A I @ 8\$ 8% 8%

L \$1CB 8\$ %\$\$\$ 8% &\$\$\$

8%8% 8%8% 1&\$\$\$\$\$

### 6.3.4 DIV

[ DIV (S1) (S2) (D) ]									M200 M100 M80 M280						
									7						
G%	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G&	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8	=BH			? bM	? bA	? bG	? b@A		8		7	H	J	N	F

%

\$

\$

&

X0			2500	1000	2		
		[	DIV	D0	D1	D10	]

@8 L \$

8

8= 8\$ 8%8%

L \$1CB 8\$ &\$\$\$ 8% %\$\$\$

8%8% 8%1& 8%1)\$

6.3.5 SQT

[ SQT (S) (D) ]										M200 M100 M50 M250					
										5					
G	-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8	-BH			? bM	? bA	? bG	? b@A		8		7	H	J	N	F

\$

% 

X0	1000	31
[ SQT	DO	D10

 @8 L\$ GEH 8\$ 8%

& \$ L\$1CB 8\$ %\$\$\$ 8% 8%\$1' % GA % \$

GA % &

6.3.6 INC

[ INC (D) ]										M200 M100 M50 M250					
										3					
8	-BH			? bM	? bA	? bG	? b@A		8		7	H	J	N	F

!&+\*, ' &+\*+ 7 7\$

7%-

%

X0	1001
[ INC	DO

 @8 L\$ -B7 8%

L\$1CB 8\$ %\$\$\$ % 8\$1%\$\$\$

### 6.3.7 DMC

[ DEC (D) ]										M200 M100 M80 M280					
										3					
8	=BH			?bM	?bA	?bG	?b@A		8		7	H	J	N	F

!'&+\*, ' &+\*+

%

X0	999
[ DEC D0 ]	

@8`L\$`

8A7`8\$`

L\$1CB 8\$ %\$\$\$ %

8\$1---

### 6.3.8 VABS

[ VABS (S) (D) ]										M200 M100 M80 M280					
										5					
G	=BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7	H	J	N	F
8	=BH			?bM	?bA	?bG	?b@A		8		7	H	J	N	F

!'&+\*+ ' &+\*+ !' &+\*,

X0	-1000	1000
[ VABS D0 D10 ]		

@8`L\$`

J56G`8\$`8\$`

L\$1CB 8\$ !\$\$\$

8% 8%!\$\$\$

### 6.3.9 NEG

[ NEG (S) (D) ]										M200 M100 M80 M280					
										5					
G	=BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7	H	J	N	F
8	=BH			?bM	?bA	?bG	?b@A		8		7	H	J	N	F

!'&+\*+ ' &+\*+ !' &+\*,

@8`L\$`

B9;`8\$`8\$`

X0	1000	-1000
[ NEG D0 D10 ]		

L\$1CB 8\$ %\$\$\$

8% 8%!\$\$\$

6.3.10 DADD

---   ---  [ DADD (S1) (S2) (D) ]										M200 M100 M80 M280					
										10					
G%	8-BH'		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F
G&	8-BH'		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F
8	8-BH'			? bM	? bA	? bG	? b@A		8		7		J		F

%  
&  
  
%  
&  
GA % %  
GA % \$  
GA % &

6.3.11 DSUB

---   ---  [ DSUB (S1) (S2) (D) ]										M200 M100 M80 M280					
										10					
G%	8-BH'		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F
G&	8-BH'		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F
8	8-BH'			? bM	? bA	? bG	? b@A		8		7		J		F

%  
&  
  
%  
&  
GA % %  
GA % \$  
GA % &

6.3.12 DMUL

										<b>M200 M100 M80 M280</b>				
—   —  [ DMUL (S1) (S2) (D) ]														
										<b>10</b>				
G%	8-BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7		J	F
G&	8-BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8					

6.3.14 DSQT

—   —  [ DSQT (S) (D) ]										M200 M100 M80 M280					
										7					
G	8=BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7		J		F
8	8=BH			?bM	?bA	?bG	?b@A		8		7		J		F5

\$

X0	83000	288	@8 L \$
DSQT	D0	D10	8GEH 8\$ 8\$

%

&

\$ A E°k₂9 TMö TM€ Bc...SGE° 8\$8% TM~ &HS7Adö [ 9 TMö TM~ &HS7A [ 8%5Z9% 8%5Z8%

GA % \$

GA % &

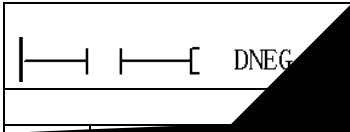
6.3.15 DINC

—   —  [ DINC (D) ]										M200 M100 M80 M280					
										4					
8															

### 6.3.16 DDMC

—   —  [ DDEC (D) ]		<b>M200 M100 M80 M280</b>
---------------------	--	---------------------------

6.3.18 DNEG



8	8-B
---	-----

88%+(,'\*(+ 88%+(,'\*(+ 88%+(,'\*(,

X0	100000	-100000	@8'L\$
----	--------	---------	--------

L\$TCB

### 6.3.20 DSUM

[ DSUM (S1) (S2) (D) ]										M200 M100 M80 M280				
										9				
G%	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	J		F
G&	-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N F
8	8-BH			? bM	? bA	? bG	? b@A		8		7	J		F

SMD	[	DMOV	100000	100000	D0	]	@8 GA \$
		DMOV	200000	200000	D2	]	8A CJ \$\$\$ 8\$
		DMOV	300000	300000	D4	]	8A CJ &\$\$\$ 8&
		DMOV	400000	400000	D6	]	8A CJ \$\$\$ 8(
		DMOV	500000	500000	D8	]	8A CJ (\$\$\$\$ 8*
		DMOV	500000	500000	D8	]	8A CJ )\$\$\$ 8,
		DMOV	500000	500000	D8	]	@8 L \$
XO	[	DSUM	100000	5	1500000	D100	8GI A 8\$ ) 8\$ \$

\$ &))

L \$1CB 8\$ ) &

8\$\$\$8%%

8\$\$\$8%% 1 8\$8%

8, 8- 1) \$\$\$\$

## 6.4

### 6.4.1 RADD

[ RADD (S1) (S2) (D) ]										M200 M100 M280				
										10				
G%	F95@								8			J		F
G&	F95@								8			J		F
8	F95@								8			J		F

GA % %

\$

GA % \$

%

&

XO	[	RADD	-1000.20	2000.500	1000.300	D0 D2 D10	]	@8 L \$
								F588 8\$8&8\$

%

L \$1CB 8\$8% !\$\$\$8\$ 8&8' &\$\$\$) \$\$

8\$\$\$8% 8\$\$\$8% 1!\$\$\$ \$ \$

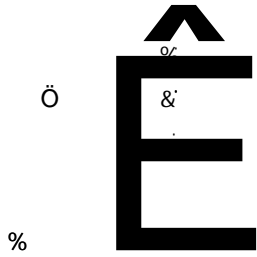
&

%+\$%&Y \$ ,

%+\$%&Y \$ ,

6.4.2 RSUB

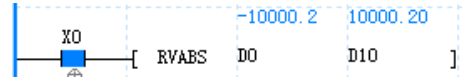
[ RSUB (S1) (S2) (D) ]										M200 M100 M280					
A										10					
G%	F95@								8				J		F
G&	F95@								8				J		F
8	F95@								8				J		F



#### 6.4.4 RDIV

6.4.6 RVABS

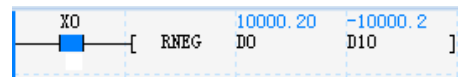
[ RVABS (S) (D) ]										M200 M100 M280		
										7		
G	F95@							8			J	F
8	F95@							8			J	F



```
@8 L$
FJ56G 8$ 8%
L$1CB 8$8% 1$$$$&
8$8% 8$8% 1$$$$&
```

6.4.7 RNEG

[ RNEG (S) (D) ]										M200 M100 M280		
										7		
G	F95@							8			J	F
8	F95@							8			J	F

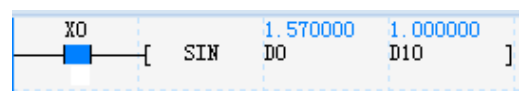


```
@8 L$
FB9 8$ 8%
L$1CB 8$8% 1$$$$&
8$8% 8$8% 1$$$$&
```

6.4.8 SIN SIN

[ SIN (S) (D) ]										M200 M100 M280		
										7		
G	F95@							8			J	F
8	F95@							8			J	F

& \$ GA % \$



```
%
G-B
@8 L$
G-B 8$ 8%
```

%%\$

L \$1CB 8\$8% 1%)+ G-B

8\$8% 8\$8% 1%

### 6.4.9 COS COS

												M200	M100	M280				
[ COS (S) (D) ]																		
												7						
G	F95@											8				J		F
8	F95@											8				J		F

X0			3.140000	-1.000000
			[ COS D0 D10 ]	

@8 L\$  
7CG 8\$ 8\$

L \$1CB 8\$8% 1% 7CG

8\$8% 8\$8%

%

1!\$\$\$\$\$

7CG

&

GA % \$

### 6.4.10 TAN TAN

												M200	M100	M280				
[ TAN (S) (D) ]																		
												7						
G	F95@											8				J		F
8	F95@											8				J		F

X0			1.570000	1255.848
			[ TAN D0 D10 ]	

@8 L\$  
H5B 8\$ 8\$

L \$1CB 8\$8% 1%)+ H5B

8\$8% 8\$8%

%

1%&)" (, ' - ,

H5B

&

%+\$%&Y \$ ,

!%+\$%&Y \$ ,

GA % %

\$

GA % \$

6.4.11 POWER

—   —  [ POWER (S1) (S2) (D) ]										M200 M100 M280					
										10					
G%	F95@								8				J		F
G&	F95@								8				J		F
8	F95@								8				J		F

### 6.4.13 EXP

[ EXP (S) (D) ]										M200 M100 M280			
										7			
G	F95@							8			J		F
B	F95@							8			J		F

X0	[ EXP	10.00000	22026.46
	DO	D10	]

@8 L\$  
9LD 8\$ 8\$

L \$1CB 8\$ 8% 1%\$ 9LD 8\$ 8% 8\$ 8%

% 9LD 1&&\$&\*"(.(

&

+\$%(%&Y \$ ,

+\$%(%&Y \$ ,

GA %%

\$ GA % \$

### 6.4.14 RSUM

[ RSUM (S1) (S2)										M200 M100 M280			
G%	F95@							8					F
G&	=BH	? bL	? bM					8			p@A	? bGA	F
B	F95@							8					F

&

% \$ &))

## 6.4.15 ASIN

6.4.17 ATAN ATAN

[ ACOS (S) (D) ]										MC280				
5H5B fB fDL										7				
G	F95@							8				J	F	
8	F95@							8				J	F	

& \$ GA % \$

SMD	[ ATAN ]	3.140000	1.262481	@B GA \$
		D0	D10	5H5B 8\$ 8%

%  
H5B!

GA \$1CB fB\$ 8% ' % H5B! fB\$ 8% fB\$  
8% 1% & \* & (, %

6.4.18 LOG

[ LOG (S) (D) ]										MC280				
@C; fB fDL										7				
G	F95@							8				J	F	
8	F95@							8				J	F	

& \$ GA % \$

SMD	[ LOG ]	3.000000	0.477121	@B GA \$
		D0	D10	@C; 8\$ 8%

% @C;  
@C; %

GA \$1CB 8\$ fB% '\$ 8\$ fB% 8\$ fB% 1\$ (+% %

6.4.19 RAD ->

[ RAD (S) (D) ]										MC280				
F58 fB fDL										7				
G	F95@							8				J	F	
8	F95@							8				J	F	

& \$ GA % \$

SMD	[ RAD ]	180.0000	3.141593	@B GA \$
		D0	D10	F58 8\$ 8%

GA \$1CB 8\$fB% % \$\$ 8%\$fB% 8%\$fB%1' '%(%) -'

6.4.20 DEG ->

—  —  [ DEG (S) (D) ]		M280
89; fB fDL		7
G	F95@	8

# 6.5

6CC@		%	CB C::	% @A
8BH		%	!' &+*, Z' &+*+	% J
8BH		' &	!&%+(, '* (, Z&%+(, '* (+	& J
K CF8		%	\$ *)' )'	% J
8K CF8		' &	\$ (& (-*+&-)	& J
F 95@		' &	-%%+)(-(')%9!' , r-'('\$& & (**'9Z" ,	& J

BCD

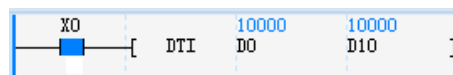
678 !! 678 6]bUfm7cXYX'8Y]a U  
 678 , (&%678  
 , (&%678

\$	\$\$\$\$	\$\$\$\$
%	\$\$\$\$%	\$\$\$\$%
&	\$\$%\$	\$\$%\$
'	\$\$%\$	\$\$%\$
(	\$%\$	%\$
)	\$%\$%	%\$%
*	\$%\$	%\$%
+	\$%\$%	%\$%
,	%\$	%\$
-	%\$%	%\$

## 6.5.1 DTI

[ DTI (S) (D) ]										M200 M100 M80 M280					
										6					
G	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F
8	8-BH			? bM	? bA	? bG	? b@A		8		7	H	J	N	F

' &+\*+ !' &+\*,



@8 L \$  
 8H= 8\$ 8\$

L \$1CB 8 \$z8% 1\$ \$\$\$ 8% 8% 1\$ \$\$\$



6.5.5 INT

										<b>M200 M100 M280</b>					
—   —  [ INT (S) (D) ]															
										<b>6</b>					
G	F95@								8				J	F	
8	=BH			?bM	?bA	?bG	?b@A		8		7	H	J	N	F

' &+\*+    1' &+\*+    !' &+\*,    1!' &+\*,

%

X0	10000.50	10000
[ INT	D0	D10 ]

@8 L\$  
=BH 8\$ 8%

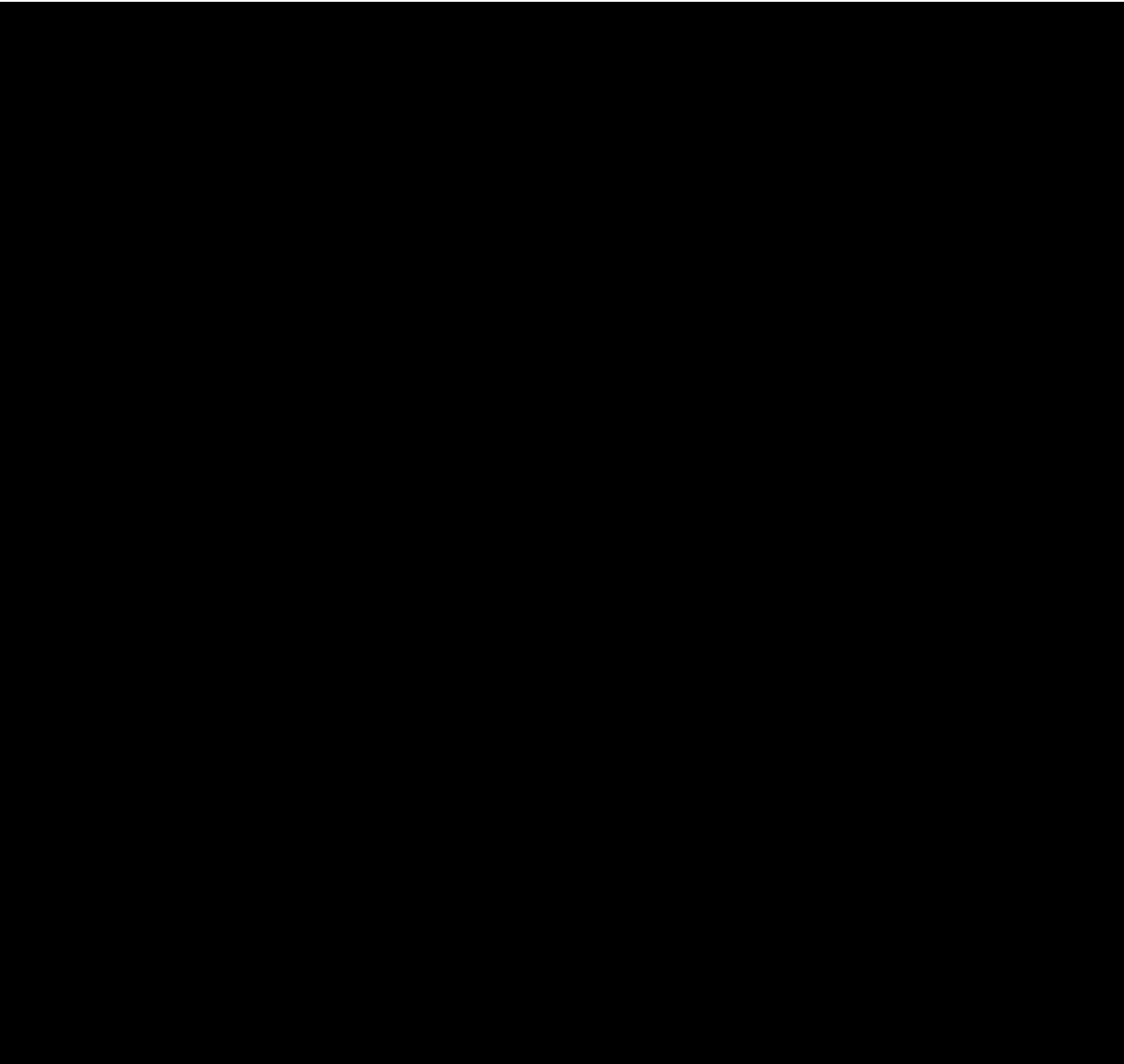
&

L\$1CB    8\$8% 1%\$\$\$)  
8%\$1%\$\$\$    8%

6.5.6 DINT

|—| |—| [ DINT (S) (D) ]

**M200 M100 M280**



<b>MBO M2BO</b>		
	N	F
	N	F

\$ 8%

~~678~~ 8%

<b>MBO M2BO</b>	

### 6.5.9 BIN 16 BCD



6.5.11 GRY

16

[ GRY (S) (D) ]			
G	K CF8		? bL
8	K CF8		

%

È

%

6.5.14 DGBIN 32

[ DGBIN (S) (D) ]										M200 M100 M80 M280			
										7			
G	8K CF8		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	J	F
8	8K CF8			? bM	? bA	? bG	? b@A		8		7	J	F

3435973836 2290649224  
 [ DGBIN D0 D10 ]
 
 @B L\$  
 8; 6-B 8\$ 8\$  
 L \$1CB 8\$8% 1\$ 77777777 (')-+', '\* '&  
 ' & 8\$8% 8\$8% 1\$ ..... &&-\$\*(-&&

6.5.15 SEG 7

[ SEG (S) (D) ]										M200 M100 M80 M280			
-----------------	--	--	--	--	--	--	--	--	--	--------------------	--	--	--

6.5.16 ASC ASCII

		M200 M100 M80 M280																	
[ ASC (S1~S8) (D) ]																			
		19																	
G%	K CF8																		
G&	K CF8																		
G'	K CF8																		
G(	K CF8																		
G)	K CF8																		
G*	K CF8																		
G+	K CF8																		
G.	K CF8																		
8	K CF8									8		7	H	J <sup>3</sup>	N <sup>3</sup>	F			

5G7 = \$! 8% \$! +9  
 \$L \$\$

\$

MO	[ ASC	12345678	12849	DO

@B A \$

5G7 %& () \*+, ' 8\$

A \$1CB 5G7 =

- GA % \*1C: : 8\$1\$' & %  
 8%1\$' (' 8&1\$' \*) 8' 1\$' ', '+
- GA % \*1CB 8\$1\$' % 8%1\$' &  
 8&1\$' '' 8' 1\$' ( 8(1\$' ) 8)1\$' \* 8\*1\$' '+  
 8+1\$' ',

5G7 =

GA % \*1C: :

5G7 = GA % \*1CB

% 5G7 =

6.5.17 ITA 16 16

ASCII

		M200 M100 M80 M280													
[ ITA (S1) (D) (S2) ]															



$V_{SL}$   $V_S$   
 $S_n$   $D_n$

$V$   
:  
:  
:

.....  
.

MC200 MC280

.....

% \*(

D@7

$V_{MH}$

$V_M$

$V_{SL}$

$V_{SH}$

$S_n$

$D_n$

A f $V_{SL}$   $V_{SH}$   $V_M$   $V_{MH}$  %\$\$\$

B  $V_{SL}$  f $V_M$  A #\$\$\$

$D_n$  f $S_n$  A #\$\$\$ B

$D_n$  ' &+\*+ ' &+\*+  
!' &+\*, !' &+\*,

M1	[	MOV	282	282	D1000	]	
				3530	D1001		
				260	D1002		
				3650	D1003		
M4	[	MOV	282	282	D100	]	
				3530	D101		
				1906	D102		
				0	D103		
				5000	D104		
				-115	D105		
M2	[	LCNV	282	282	D1000	D200	6

@8 = A %

FA CJ ' & & ' 8\$\$\$

FA CJ ' ' )' \$ ' 8\$\$\$

FA CJ ' & \* \$ ' 8\$\$\$

FA CJ ' ' \* ) \$ ' 8\$\$\$

@8 = A (

FA CJ ' & & ' 8\$\$\$

FA CJ ' ' )' \$ ' 8\$\$\$

FA CJ ' % \* \$ ' 8\$\$\$

FA CJ ' \$ ' 8\$\$\$

FA CJ ' ) \$\$\$ 8\$\$\$

FA CJ ' ! % ) ' 8\$\$\$

@8 ' A &

F@7BJ : 8\$\$\$ 8\$\$\$ 8\$\$\$ 8\$\$\$ \*

A &1CB @7BJ

8&\$\$fB&\$\$L'1' &\*\$

8&\$\$fB&\$\$L'1' \*)\$

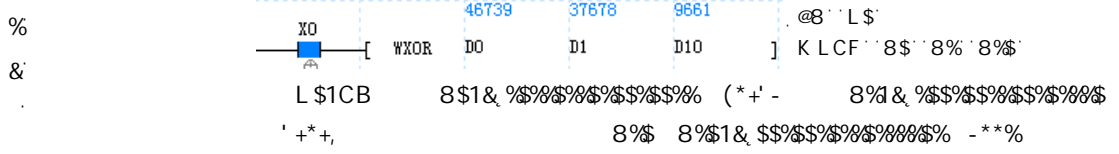
8&\$(fB&\$\$L'1' %))

8&\*\$fB&\$\$L'1' ! (" & ,

8&\$, fB&\$\$L'1' )% ("&+\*

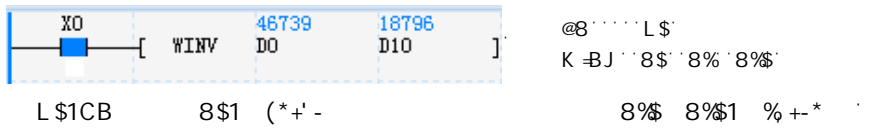
8&\$\$fB&\$\$L'1' !% (" ) +





6.6.4 WINV

										<b>M200 M100 M80 M280</b>					
[ WINV (S) (D) ]															
										<b>5</b>					
G	K CF8		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8	K CF8			? bM	? bA	? bG	? b@A		8		7	H	J	N	F



6.6.5 DWAND

										<b>M200 M100 M80 M280</b>					
[ DWAND (S1) (S2) (D) ]															
										<b>10</b>					
G	8K CF8		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F



# 6.7

## 6.7.1 ROR 16

ROR (S1) (D) (S2)															
G%	K CF8		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8	K CF8			? bM	? bA	? bG	? b@A		8		7	H	J	N	F
G&	BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F

%

&

GA % %

\$

?b

?b

(

6.7.2 ROL 16

[ ROL (S1) (D) (S2) ]																
G%	K CF 8		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F	
8	K CF 8			? bM	? bA	? bG	? b@A		8		7	H	J	N	F	
G&	-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F	

%

&







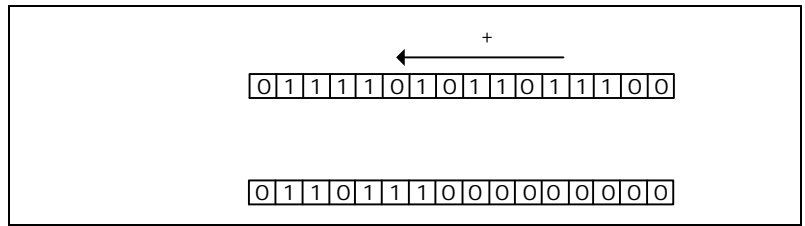
### 6.7.10 SHL 16

[ SHL (S1) (D) (S2) ]														
G%	K CF 8	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8	K CF 8		? bM	? bA	? bG	? b@A		8		7	H	J	N	F
G&	=BH	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F

%

&

```
MO | | | [ SHL 31452 28160 7 ] @8 A $
D0 D10
```



\$

? b ? b (

A \$1CB 8\$1& \$%000\$%\$%\$%000\$ \$'%)& + 8%\$  
8%\$1& \$%\$%000\$ \$\$\$\$\$\$\$\$ & %\$

### 6.7.11 DSHR 32

[ DSHR (S1) (D) (S2) ]														
G%	8K CF 8	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F
8	8K CF 8		? bM	? bA	? bG	? b@A		8		7		J		F
G&	=BH	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F

%

&

```
MO | | | [ DSHR 1939381420 1893927 10 ] @8 A $
D0 D10
```

% A \$1CB 8\$8% 1& \$%000\$%000\$%000\$ \$%000\$%\$%000\$ \$  
%'-' , %&\$ %\$ 8%\$8% 8%\$8%  
1& \$\$\$\$\$\$\$\$\$\$%000\$%000\$%000\$ \$%000\$ %-' -&+  
& G<F

### 6.7.12 DSHL 32

---   ---  [ DSHL (S1) (D) (S2) ]		
-----------------------------------	--	--

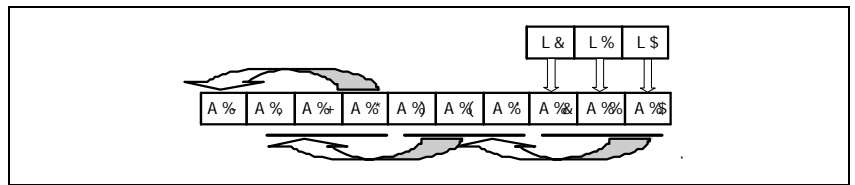
### 6.7.14 SFTL

SFTL (S1) (D) (S2) (S3)														
G%	6CC@	L	M	A	G	@A	GA			7	H			
8	6CC@		M	A	G	@A				7	H			
G&	=BH	?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7	H	J	N	F
G	=BH	?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7	H	J	N	F

%

```
MO | | | SFTL ON ON 10 3 ] @8...A$
      XO M10                G:H@L$A%$%$'
```

&



%

% A \$1CB      A %\$      %\$

&

A %+ A %      L \$

&      L \$1% L %1\$ L &1% A %1\$ A %&1% A %&1% A %1\$ A %1\$  
A %1% A %\*1\$ A %-1\$ A %1\$ A %1%  
'      L \$ L &      A %\$1% A %&1\$ A %&1% A %1\$ A %1% A %1%  
A %1\$ A %-1\$ A %1% A %1\$

# 6.8

## 6.8.1 FROM

FROM (S1) (S2) (D) (S3)															
G%	=BH'														
G&	=BH'														
8	=BH'							8				J		F	
G	=BH'														

6: A

\$ +

: FCA

6: A

\$ '&+\*+

6: A

6: A

MO	[	FROM	0	3	997	D100	2	]	@8'' A \$	: FCA \$' 8%\$ \$&
----	---	------	---	---	-----	------	---	---	-----------	--------------------

A \$ CB \$

6: A

&

8%\$ 8%\$

6: A

% '&+\*+

6: A

6: A

### 6.8.2 DFROM

----- -----  [ DFROM (S1) (S2) (D) (S3) ]															
G%	=BH'	.	.	.	.	.	.	.	.	.	.	.	.	.	.
G&	=BH'	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8'	8=BH'	.	.	.	.	.	.	8'	.	.	.	.	J'	.	F'
G'	=BH'	.	.	.	.	.	.	.	.	.	.	.	.	.	.

6: A

\$ +

6: A

6: A

8: FCA

\$ '&+\*+

6: A

6: A

MO	[	DFROM	0	3	16580857	D200	1	]
----	---	-------	---	---	----------	------	---	---

@8' A \$'

8: FCA '\$' ' ' ' 8&\$ \$' %

A \$ CB \$

6: A

%

6: A

8&\$ \$ 8&\$ %

% '&+\*+

6: A

6.8.3 TO

----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----																
----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----																
----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----																
G%	=BH'															
G&	=BH'															
G'	=BH'								8'				J'		F'	
G(	=BH'															

\$ + 6: A

6: A HC

\$ '&+\*+  
6: A  
6: A

SMD	[	TO	0	8	1000	2	]
-----	---	----	---	---	------	---	---

@8 GA \$  
HC \$', , %\$\$\$ '&  
%\$\$\$

D@7 \$ 6: A , 6: A , -

6: A

% '&+\*+  
6: A  
6: A

6.8.4 DTO

[ DTO (S1) (S2) (S3) (S4) ]															
G%	=BH'														
G&	=BH'														
G'	8=BH'							8					J		F
G(	=BH'														

\$ + 6: A

6: A 8HC

\$ '&+\*+ 6: A

6: A

6: A

6: A

% '&+\*+ 6: A

6: A

6: A

SMD [ DTO 0 8 16711935 1 ]

@8 ' ' GA \$

8HC ' \$ ' , ' % + % ' ) ' %

D@7 \$ 6: A , -

% % + % ' )

6.8.5 VRRD

[ VRRD (S) (D) ]															
G'	K CF8'														
8'	K CF8'							8					J		

\$ &))

\$ &))

MO [ VRRD 0 78 D10 ]

@8 ' ' A \$

J FF8 ' \$ ' 8%

A \$ CB \$ 8%

### 6.8.6 REFF

---   ---  [ REFF (S) ]															
G	KCF8		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7	H	J	N	F

- A 7&\$\$ \$ \*(ag \*(
- A 7%\$\$ \$ , % ' & \*(



@8... A \$  
F9: ... \$

L\$ CB

' \$ag

L\$ L%+

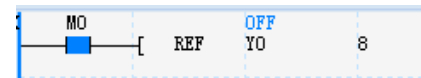
### 6.8.7 REF IO

---   ---  [ REF (D) (S) ]															
8	6CC@		L	M											
G	-BH														

- L#M
- L\$ L% L&\$
- M\$ M% M&\$
- \$
- % &)\*

% Lb Mb  
&  
' :CFIB9LH 7>  
F9:  
(

D@7

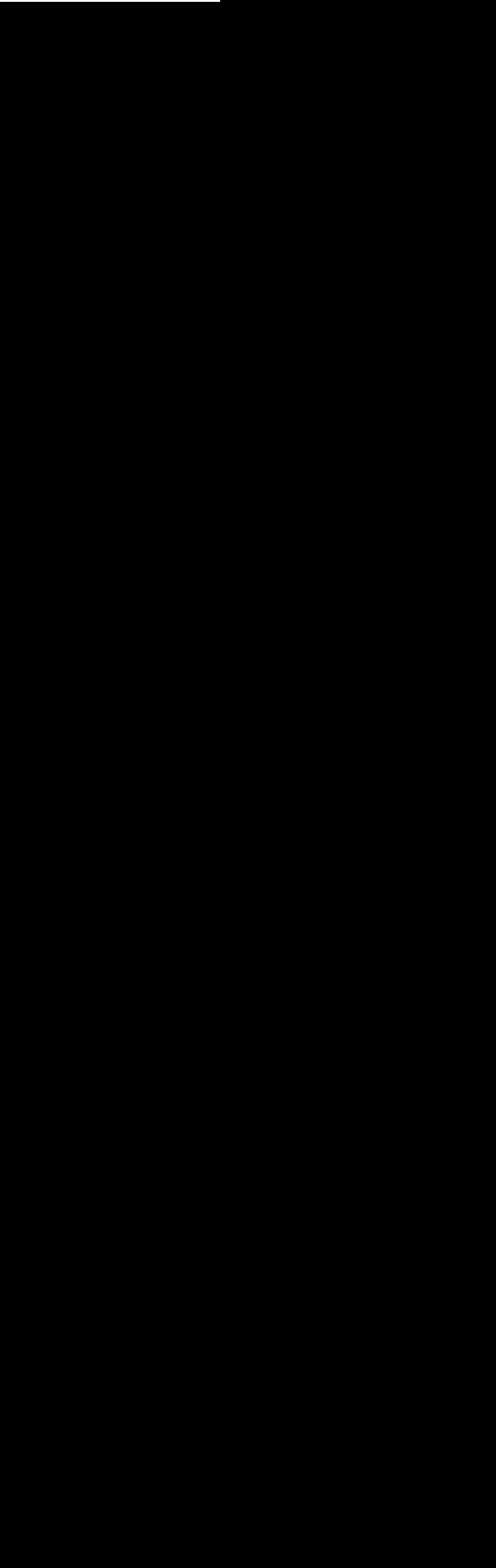


@8... A \$  
F9: ... M\$

A \$ CB M\$ M+

### 6.8.8 EROMWR EEPROM

G%	K CF8								8					F	
G&	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F



6.8.9 PR

[ <b>PR</b> ]														
G	K CF8								8		7	H		F
8	6CC@			M										

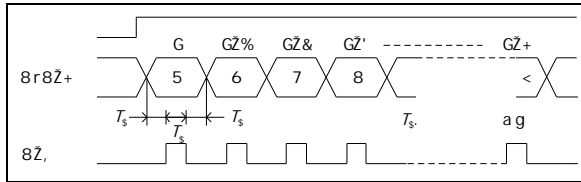
M

% G GZ+ , %  
& GA +%

8 8Z+

M

GA +%

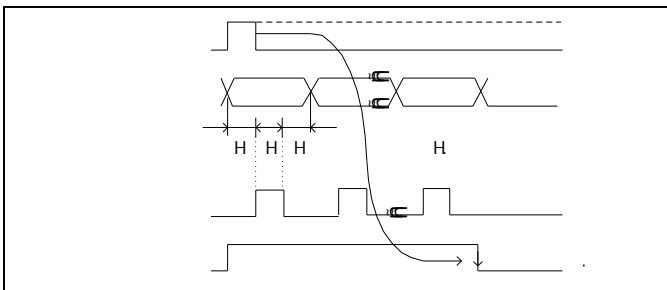


GA +\$ C: :

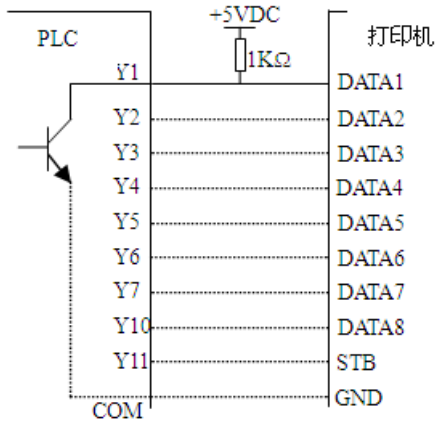
CB % %

<\$ \$ BI @

GA +\$ CB



%  
&



% Ω                    \$                    )J 87                    %                    M0%

::: M\$M+

8\$8+

5G7=

```

/*打印前数据取反*/
SM1 |-----| [ MOV 0 Z0 ]
SM1 |-----| [ FOR 8 ]
SM0 |-----| [ WINV DOZO DOZO ]
      |-----| [ INC Z0 ]
[ NEXT ]

/*由MO控制打印*/
MO |-----| [ PR DO Y1 ]

```

%  
&

GA +%    "

%\*

6.8.10 TKY

----- -----  [ TKY (S) (D1) (D2) ]																			
H? M S D1 D2																			
G	6CC@	L	M	A	G	GA	@A												
8%	BH							?bM	?bA	?b@A	8	G8	7	H	J	N	F		
8&	6CC@		M	A	G	GA	@A												

fl %\$ Ł

CB#C: : fl

% Ł

% G GZ- ž 8% Z&

8&Z- Z&Z% ž

CB ž

% 8%

8% 8% \$

& 8&8&Z- 8&8&Z% CB#C: :

\$!- 8&Z% CB

8(J)	SI	99	2%	Z&	Z'	Z(	+	+	+	+	+
------	----	----	----	----	----	----	---	---	---	---	---

# 6.9

## 6.9.1 TRD

---   ---  [ TRD (D) ]																
8	K CF8									8				J		F

HF 8

+

8

MO	2000
[ TRD D10 ]	

@8... A \$  
HF 8... 8%

A \$ CB

8% +

	G8%\$\$			&\$\$\$ &\$-		8%\$
	G8%\$%			% %&		8%&
	G8%\$&			% ' %		8%'
	G8%\$'			\$ &'		8%&'
	G8%\$(			\$ )-		8%('
	G8%\$)			\$ )-		8%)'
	G8%\$*			\$ *		8%*

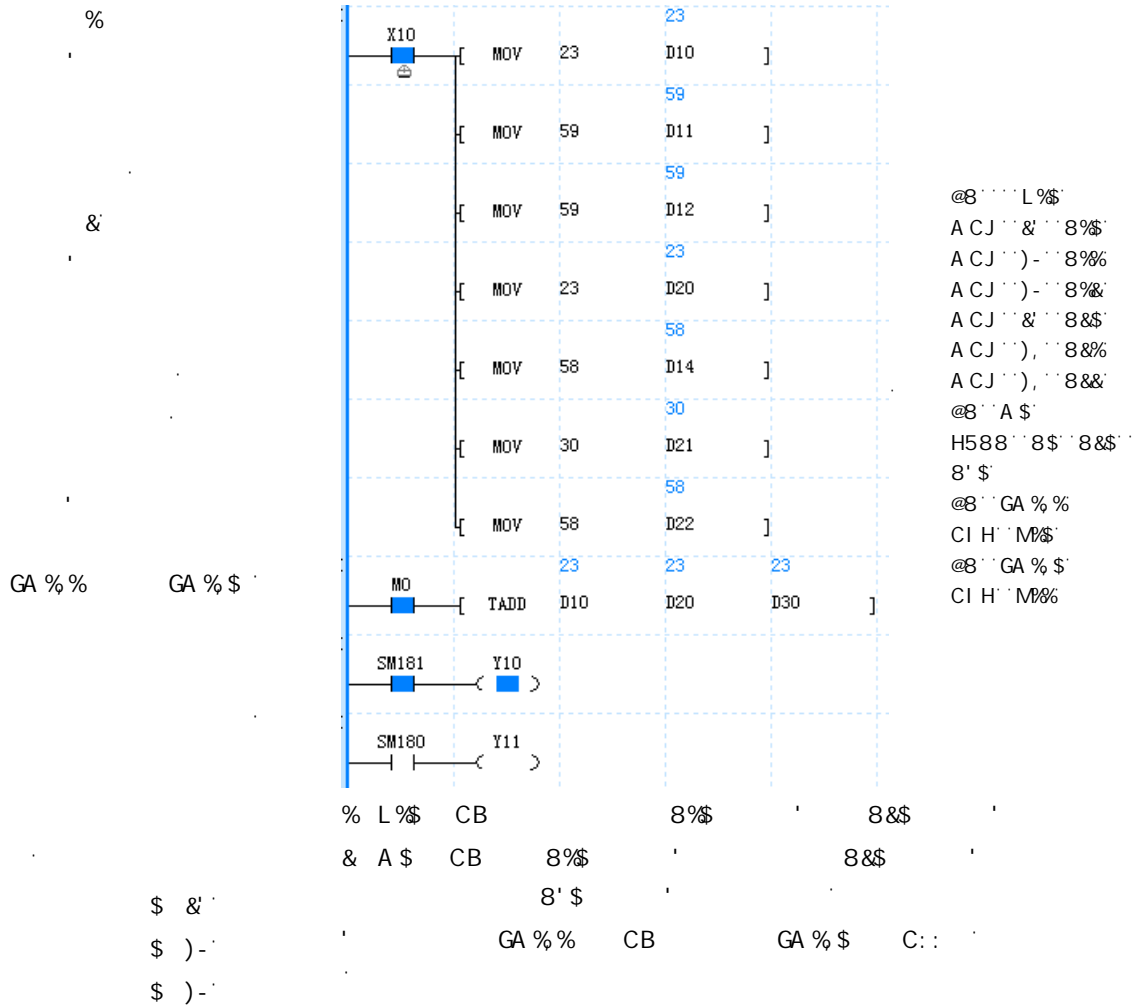
### 6.9.2 TWR

[ TWR (S) ]		
	U A	

6.9.3 TADD

TADD (S1) (S2) (D)													
G%	K CF8									8	G8	J	F
G&	K CF8									8	G8	J	F
8	K CF8									8		J	F

8&	)-		8&&	),		8' &	)+
----	----	--	-----	----	--	------	----



G%			G&			8	
8%	&		8&\$	&		8' \$	&
8%%	)-		8&&	),		8' %	),

6.9.4 TSUB

[ TSUB (S1) (S2) (D) ]										<b>M280</b>										
G%	K CF8									8	G8							J		F
G&	K CF8									8	G8							J		F
8	K CF8									8								J		F

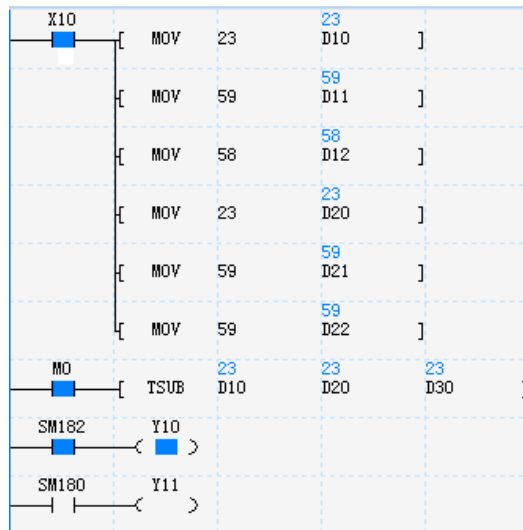
%

G%		G&		8	
8%\$	&	8&\$	&	8' \$	&
8%&	)-	8&%	)-	8' %	)-
8%&	)	8&&	)-	8' &	)-

&

GA % &

GA % \$



@8' L%\$  
 ACJ' &' 8%\$  
 ACJ' )- 8%&  
 ACJ' ) 8%&  
 ACJ' &' 8&\$  
 ACJ' )- 8&%  
 ACJ' )- 8&&  
 @8' A \$  
 HGI 6' 8%\$ 8&\$ 8' \$  
 @8' GA % &  
 CI H' M%\$  
 @8' GA % \$  
 CI H' M%&

% L%\$ CB 8%\$ 8&\$  
 & A \$ CB 8%\$ 8&\$  
 8' \$

\$ &  
 \$ )-  
 \$ )-

GA % & CB GA % \$ C::

6.9.5 HOUR

[ HOUR (S) (D1) (D2) ]										<b>M280</b>					
G	=BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7	H	J	N	F
8%	=BH								8				J		F
8&	6CC@			M	A	G	@A								

D@7

FI B GHCD

\$ & CB

' &+\*+' % ' &+\*+' \$

%

CB

M0	[ MOV 1000 D100 ]	1000	D100
M1	[ HOUR D100 D200 M10 ]	1000	0 OFF
M10	YO		

@8 A \$  
 A C J %\$\$\$ 8%\$  
 @8 A %  
 <CI F 8%\$\$\$ 8&\$\$\$ A %  
 @8 A %  
 CI H M\$

CB

% A \$ CB <CI F

& A % CB <CI F

' A % CB %\$\$\$ A % CB

%

D@7

.....

6.9.6 DCMP = < > <> >= <=

										<b>M280</b>				
[	—	[	DCMP=	(S1)	(S2)	(D)	]							
[	—	[	DCMP<	(S1)	(S2)	(D)	]							
[	—	[	DCMP>	(S1)	(S2)	(D)	]							
[	—	[	DCMP<>	(S1)	(S2)	(D)	]							
[	—	[	DCMP>=	(S1)	(S2)	(D)	]							
[	—	[	DCMP<=	(S1)	(S2)	(D)	]							
G%	-BH'							8	G8			J		F
G&	-BH'							8	G8			J		F
8	6CC@			M	A	G	@A			7	H			

%

&

8 CB

C: :

6-B

&\$\$(-

'% &\$\$' & &-

SMO	[	MOV	2004	2004	D0	]			
	[	MOV	10	10	D1	]			
	[	MOV	25	25	D2	]			
	[	MOV	2004	2004	D10	]			
	[	MOV	10	10	D11	]			
	[	MOV	24	24	D12	]			
X0	[	DCMP=	2004	2004	D0	D10	OFF	M0	]
	[	DCMP<	2004	2004	D0	D10	OFF	M1	]
	[	DCMP>	2004	2004	D0	D10	ON	M2	]
	[	DCMP<>	2004	2004	D0	D10	ON	M3	]
	[	DCMP>=	2004	2004	D0	D10	ON	M4	]
	[	DCMP<=	2004	2004	D0	D10	OFF	M5	]

@8' GA \$

A CJ &\$\$('8\$

A CJ %\$' 8%

A CJ &' 8&

A CJ &\$\$('8%\$

A CJ %\$' 8%&

A CJ &' 8%&

@8' L\$

87A D1 8\$8%A \$

87A D0 8\$8%A %

87A D2 8\$8%A &

87A D02 8\$8%A '

87A D21 8\$8%A (

6.9.7 TCMP = < > <> >= <=

										<b>M280</b>						
----- -----  TCMP= (S1) (S2) (D) ]																
----- -----  TCMP< (S1) (S2) (D) ]																
----- -----  TCMP> (S1) (S2) (D) ]																
----- -----  TCMP<> (S1) (S2) (D) ]																
----- -----  TCMP>= (S1) (S2) (D) ]																
----- -----  TCMP<= (S1) (S2) (D) ]																
G%	=BH	.	.	.	.	.	.	.	.	8	G8	.	.	J	.	F
G&	=BH0	.	.	.	.	.	.	.	.	8	G8	.	.	J	.	F
8																

6.9.8 HTOS

----- -----  HTOS (S) (D)													
G	K	CF8		?bL	?bM	?bA	?bG	H	7	8	G8		

# 6.10 IO

## 6.10.1 HCNT

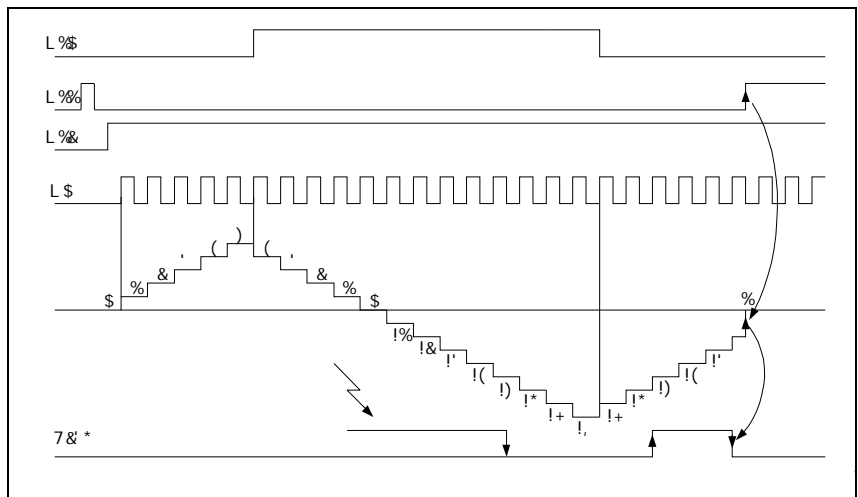
HCNT (D) (S) ]															
8	8-BH										7				
G	8-BH	?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7		J		F	

7&\* 7&)-

&%(, '\* (, &%(, '\* (+

X10	SM236		
X11	RST	OFF	C236
X12	HCNT	0	C236 -5

@8'''' L%\$  
 CI H'' GA &\*  
 @8'''' L%%  
 FGH'' 7&\*  
 @8'''' L%&  
 <7BH'' 7&\*''!



<7BH  
 <7BH GD8

€  
 €

% L%& C:: CB 7&\* L\$ L%& C:: L\$ 7&\*  
 7&\* L\$ L%& C:: L\$ 7&\*  
 L\$  
 & 7&\* 7&\* \* ) 7&\*  
 7&\* ) \* 7&\*  
 L%& CB FGH 7&\* 7&\*  
 (

		L \$	L %	L &	L (	L )	L *	L +	_<n		
									A 7&	A 7&\$	A 7%\$
									\$	\$	\$
7& *	#								%\$\$	)\$	
7& +	#									%\$	
7& ,			#							#	
7& -				#						%\$	
7&(\$					#					#	
7&(%						#				%\$	
7' \$%							#			#	
7' \$&								#		%\$	
7&(&	#									%\$	
7&( '				#						%\$	
7&( (	#									%\$	
7&()				#						%\$	
7&(*										)\$	
7&(+									%\$		
7' \$									#		
7&(,									%\$		
7&(-									%\$		
7&)\$									%\$		
7&)%	5	6							)\$		
7' \$(			5	6					#		
7' \$)					5	6			)\$		
7' \$*							5	6	#		
7&)&	5	6							)\$		
7&)'				5	6				#		
7&)(	5	6							)\$		
7&))				5	6				#		
7&)*	5	6							)\$		
fL %\$	£								#		
7&)+			5	6					#		
fL %&	£				5	6			#		
7&),									#		
fL %)	£						5	6	#		
7&)-									#		
fL %	£								#		
GDB									%\$\$	%\$	
									#	#	
#	\$#/\$	%#/%	&#/#	' #/	( #/(	) #/)	* #/	+ #/+	#	#	

### 6.10.2 DHSCS

-----   -----  [ DHSCS (S1) (S2) (D) ]															
G%	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F
G&	8-BH										7				
8	6CC@			M	A	G									

' & 8-BH  
 &%(+,'\*(, &%(+,'\*(+

7&\* 7&)-  
 M A

G

% 8<G7G  
 <7BH  
 <7BH  
 8<G7G  
 & 8<G7G

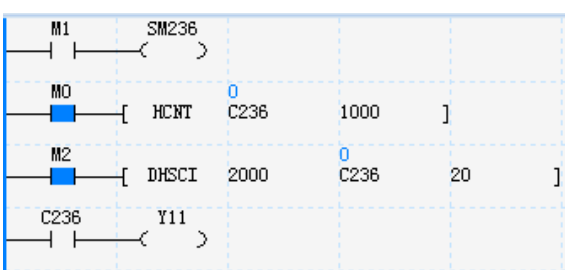
ñ(7 C,2\0, }s &G •X TMđ TM€ PC,2 %o€ø p1 26 TMđ A Ÿ TM~ U 8# sW › ÿ #a' Ÿ TM~ U 8# p › ÿ ~ O

6.10.3 DHSCI

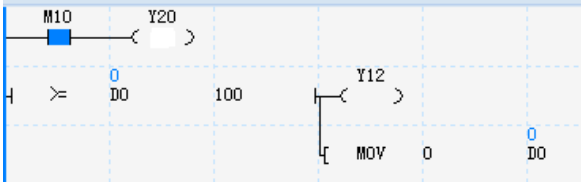
----- -----  DHSCI (S1) (S2) (S3) ]																
G%	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F	
G&	8-BH										7					
G	K CF8															

( D@7 8<G7G 8<G7= 8<G7F 8<GN  
 8<GD 8<GH €  
 ' & 8-BH  
 &%(+, '\* (, &%(+, '\* (+

7&\* 7&)-  
 &\$  
 &)  
 <7BH  
 C:: CB  
 8<G7=



@8 ..... A %  
 CI H ... GA & \*  
 @8 ..... A \$  
 8<G7= \$\$\$ 7&\* &\$  
 @8 ..... 7&\*  
 CI H ... M%%



@8 ..... A %  
 CI H ... M&\$  
 @821 ... 8\$ %%\$  
 CI H ... M%%  
 A C J ... \$ 8\$

% 8<G7=  
 <7BH  
 <7BH  
 8<G7=  
 & 8<G7=  
 8A C J A C J  
 8<G7=  
 ' 8<G7= 8<G7G 8<G7F  
 8<GN 8<GD 8<GH  
 \*  
 \*

% A % CB 7&\* L\$ C:: CB L\$  
 € 7&\* --- \$\$\$ 7&\* \$\$\$  
 \$\$\$ 7&\* 7&\* M%% M%%  
 & A & CB 8<G7=  
 7&\* \$\$\$ &\$  
 ' A \$ CB GA & \* 7&\* A \$ C:: GA & \*  
 7&\*  
 ( 7&\* 7&\* \$\$\$ &\$  
 A %\$ CB M&\$ M&\$  
 8\$ \$\$\$ M%% 8\$

6.10.4 DHSPI

---   ---  [ DHSPI (S1) (S2) (S3) ]														
G%	8-BH'		? bL'	? bM'	? bA'	? bG'	? b@A'	? bGA'	8'	G8'	7'		J'	F'
G&	8-BH'									G8'				
G'	K CF8'													

' & 8-BH  
 &%(+,'\*(, &%(+,'\*(+  
 ž  
 G8&\$\$G8' &\$\$G8' (\$G8') \$G8' \*\$G8' +\$  
 )' ž(ž) ž \*ž +ž, '"

8<GD5 s G8' (G8') 8&\$ i <GD ),"

### 6.10.5 DHSCR

---   ---  [ DHSCR (S1) (S2) (D) ]														
G%	8-BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7		J	F
G&	8-BH										7			
8	6CC@			M	A	G					7			

& 8<G7F 8A CJ A CJ

8<G7F

' & 8-BH 8<G7F 8<G7= 8<G7G 8<GN 8<GD 8<GH

8%+(,'\*(, 8%+(,'\*(+ \* \*

7&\* 7&)- ( D@7 8<G7G 8<G7= 8<G7F 8<GN

M A 8<GD 8<GH -€

G 7

7

<7BH

C:: CB

8<G7F

M

8<G7F

<7BH

<7BH

8<G7F

SM255	Y0			
M1	[ HCNT	0	C255	1000 ]
C255	Y20			
M2	[ DHSCR	2000	0	C255 OFF Y1 ]

@8 ' GA &))

CI H ' M%\$

@8 ' A %

<7BH ' 7&)) ' %\$\$\$

@8 ' 7&))

CI H ' M%\$

@8 ' A &

8<G7F ' &\$\$\$ ' 7&)) ' M%

% A % L+ CB 7&)) L' L(

€ 7&)) --- %\$\$\$ 7&))

M %\$\$\$ %\$\$\$ 7&)) 7&)) M&\$ M&\$

& A & CB 8<G7F

7&)) &\$\$\$ M%

8<G7F ' L' L( GA &)) CB L( L' GA &))

C::

( L+ 7&)) C:: 7&))

) A % L+ CB L) CB 7&)) \$ 7&))

### 6.10.6 DHSZ

—   —[ DHSZ (S1) (S2) (S3) (D)														
G%	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J	F
G&	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J	F
G	8-BH										7			
8	6CC@			M	A	G								

},», 0 0

% ' & 8-BH  
 &%(, ' \*(,  
 &%(, ' \*(+

& ' & 8-BH™ IRQH™ ty  
 &%(, ' \*(,  
 &%(, ' \*(+

7& \* 7&)-

6.10.7 DHST

---   ---  [ DHST (S1) (S2) (S3) ]																
G%	8-BH								8							F
G&	-BH															
G	8-BH										7					

8  
 8  
 M  
 8  
 % %&  
 7&\* 7&-

% 8<GH <7BH  
 & 8<GH <7BH 8<GH  
 8A C J A C J  
 8<GH  
 ' 8<GH 8<G7= 8<G7G 8<G7F 8<GD 8<GN

% <7BH \* \*

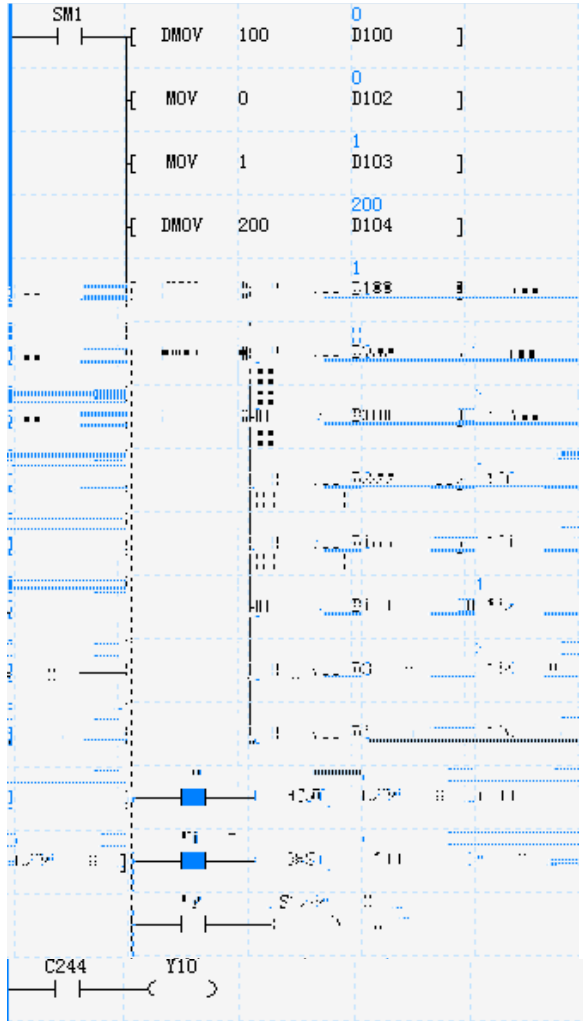
C: : CB

& 8<GH 8<GD 8<GH  
 8<GH 8<GD  
 8<GH 8<GD

( D@7 8<G7G  
 8<G7= 8<G7F 8<GN 8<GD 8<GH  
 #C

( 8<GH

		Y	/	
8%\$\$1\$	8%\$%1%\$\$	8%\$\$1\$	8%\$ 1%	%
8%\$(1\$	8%) 1&\$\$	8%\$* 1%	8%\$+1\$	&
8%\$, 1\$	8%\$- 1' \$\$	8%\$\$1&	8%\$\$1%	
8%&1\$	8%\$ 1' \$\$	8%\$( 1'	8%\$\$ 1%	( %



```

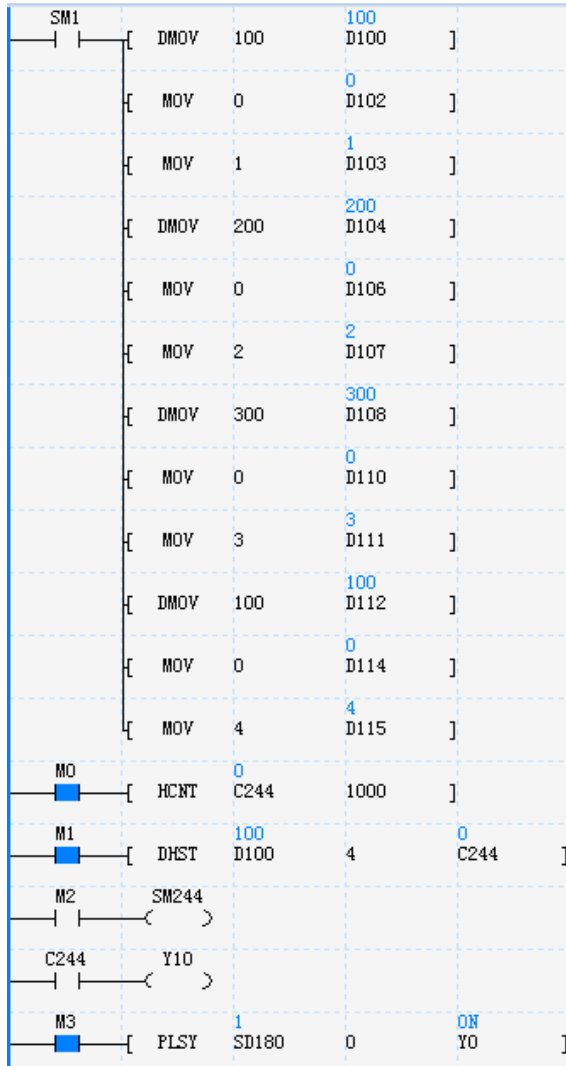
@8'''' GA %
8A CJ'' '$$ 8%$$
A CJ'' '$ 8%$$
A CJ'' '% 8%$
8A CJ'' '&$$ 8%$(
A CJ'' '% 8%$*
A CJ'' '$ 8%$+
8A CJ'' '$$ 8%$,
A CJ'' '& 8%$$
A CJ'' '% 8%$$
8A CJ'' '$$ 8%$$
A CJ'' '' 8%$(
A CJ'' '% 8%$$
@8'''' A $
<7BH'' 7&(( '$$$
@8'''' A %
8<GH'' 8%$$'' 7&((
@8'''' A &
CI H'''' GA &((
@8'''' 7&((
CI H'''' M$
    
```

```

%
8%$$ 8%$$
& A $ L* CB 7&(( L$ C:: CB € 7&(( --- %$$$
7&(( %$$$ %$$$ 7&(( 7&(( M$ M$
' A % CB 8<GH % %
& %
GA %) G8%( G8%& G8%'
( A & CB GA &(( CB 7&(( A & C:: GA &(( C:: 7&((
) L* C:: 7&((
* A $ L* CB L& CB 7&(( $ 7&((
    
```



		SD180 SD181		
8%\$1\$	8%\$%1%\$	8%\$&1\$	8%\$' 1%	%
8%\$(1\$	8%\$) 1&\$	8%\$*1\$	8%\$+1&	&
8%\$, 1\$	8%\$- 1' \$\$	8%\$%1\$	8%\$%1'	'
8%\$&1\$	8%\$% 1' \$\$	8%\$(1\$	8%\$% 1(	(



```

@8 ..... GA %
8A CJ ... %$ 8%$
A CJ ... $ 8%$&
A CJ ... % 8%$
8A CJ ... &$ 8%$(
A CJ ... $ 8%$*
A CJ ... & 8%$+
8A CJ ... $$ 8%$,
A CJ ... $ 8%$%
A CJ ... 8%$%
8A CJ ... %$ 8%$&
A CJ ... $ 8%$(
A CJ ... ( 8%$%
@8 ..... A $
<7BH ... 7&( ... %$
@8 ..... A %
8<GD ... 8%$ ( ... 7&(
@8 ..... A &
CI H ... GA &(
@8 ..... 7&(
CI H ... M/$
@8 ..... A '
D@GM ... G8% $ ' M/$
    
```

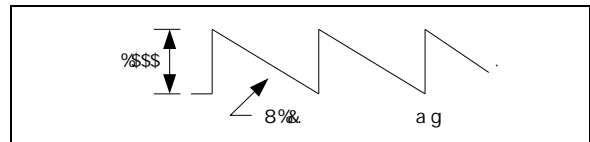
```

%                               8%$ 8%$
& A $ L*      CB  7&( L$ C:: CB      €      7&( --- %$$$
7&(          %$$$ %$$$ 7&(      7&(      M/$ M/$
'   A % CB    8<GD                                     %      %
&
      GA %)      G8%(      G8%& G8%'
      G8% $ G8% %
      G8% $ G8% %      $
(   A & CB    GA &( CB  7&(      A & C:: GA &( C:: 7&(
)   L* C::    7&(
*   A $ L*    CB      L& CB  7&(      $      7&(
    
```

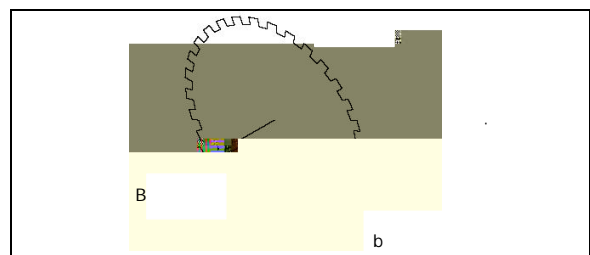
6.10.9 SPD

—   —  [ SPD (S1) (S2) (D) ]					
G%	6CC@	L			
G&	K CF8	? bL	? bM	? bA	? bG
8	K CF8				

L\$ L)  
ag G&2\$  
(\*)')')



L\$ L) ag

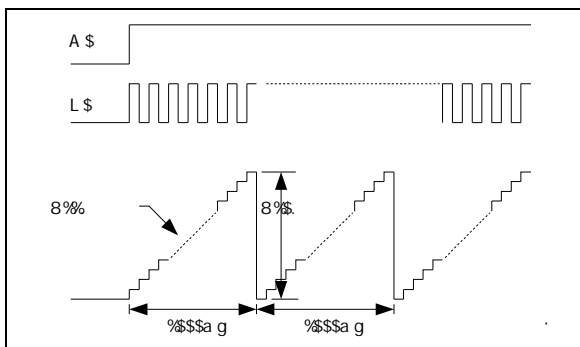


% GD8 <7BH  
610 IO  
& GD8 L\$ L)  
' GD8 %<n %<n  
( GD8

% A \$ CB L\$ \$\$\$a g  
8% 8%  
\$\$\$a g 8% \$\$\$a g  
& 8%  
' L\$ C:: CB \$\$\$a g  
8%

SMD	PLSY	10000	0	ON YO
MO	SPD	ON XO	1000	10000 D10

@8 ' ' GA \$  
D@GM ' ' ' ' M\$  
@8 ' ' A \$  
GD8 ' ' L\$ ' ' ' ' 8%



6.10.10 PLSY

\* D@GM

DK A D@GF

---   ---  [ PLSY (S1) (S2) (D) ]									+-----DK A-----D@GM-----D@GF-----						
G%	8-BH'		?bL'	?bM'	?bA'	?bG'	?b@A'	?bGA''	8<G8'	G8<7B'H	7<D@GM	8<G7G	8<G7F	8<GN	8<GD
G&	8-BH'		?bL'	?bM'	?bA'	?bG'	?b@A'	?bGA''	8<G8'	G8<7B'H	7<D@GM	J		F	
8'	6CC@			M											

<n  
 A 7%\$\$ A 7&\$\$ % %\$\$\$\$ <n A 7&,\$  
 % &\$\$\$\$ <n \$ %\$\$\$\$

M1	[ PLSY 1000 10000 OFF Y1 ]
	[ PLSY 1000 10000 OFF Y0 ]

D@G

\$ &%(,.'\*(+

\$

A 7%\$\$ A 7&\$\$ M\$

M% A 7&,\$ M\$ M% M& M M(  
 M) M\* M+

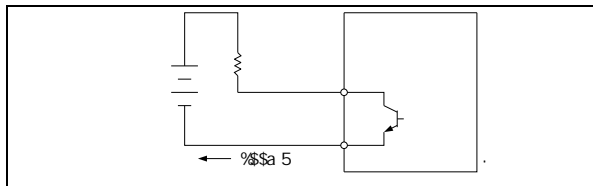
D@7

% D@7

& D@7

D@7

D@GM DK A D@GF



( C:: DK A D@GM  
 D@GF

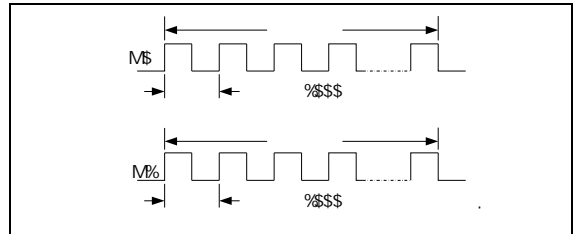
\$\$a 5

)

@B`A %

D@GM%\$\$\$%\$\$\$M%

D@GF %\$\$\$%\$\$\$M\$



% A % CB M\$ M% %\$\$\$

\$\$\$<n %\$\$\$

A \$ C:: CB

A \$ C:: C::

& )\$ CB )\$ C::

M

M\$

DCFH\$ M% DCFH%

' GA , \$ M\$ GA , % M%  
 %

( GA , & GA , ' M\$ M%

A \$ C::

) G8)\$ M\$ D@GM D@GF

G8)% M\$ D@GM D@GF

G8)& M% D@GM D@GF

G8)' M% D@GM D@GF

G8)( M\$ M% D@GM

D@GF

G8)) M\$ M% D@GM D@GF

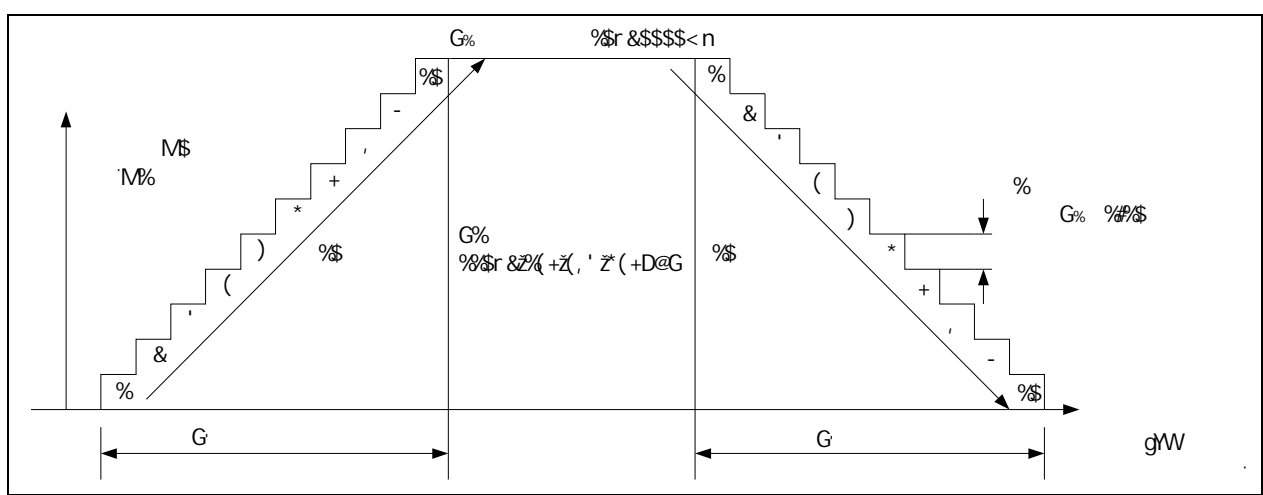
\* G8)\$ G8)) 8A CJ ... G8)  
 A CJ ... G8)  
 + D@GM  
 8 < GD

6.10.11 PLSR

—   —  PLSR (S1) (S2) (S3) (D)														
G%	K CF8	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G&	8-BH	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F
G	K CF8	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8%	6CC@		M											



<n %\$ &\$\$\$\$ <n A 7%\$\$ )\$ag  
 &\$\$\$\$ &\$\$\$\$ %\$  
 %\$ %\$ #/\$  
 D@G %\$ A 7%\$\$ A 7&\$\$z  
 M\$ M% A 7& \$z M\$ M% M& M  
 M( M) M\* M#  
 a g  
 0%\$\$\$\$ 1%\$\$\$\$#  
 D@GF  
 2G& -\$- 1G& -\$- #  
 D@GF



% %\$ &\$\$\$\$<n

% A \$ CB

M\$ M%

%\$

A \$

C::

CB

A \$ C::

& D@7

C::

M\$ DCFH\$

&

M% DCFH%

A \$ CB C::

CB

' GA , \$ M\$

GA , %

M%

GA , \$ GA , % %

( & D@GF

( GA , & GA , '

M\$

M%

A \$ C::

GA , & GA , '

C::

DK A D@GM

GA , & GA , ' CB

) G8)\$ G8))

) DK A D@GM D@GF

1 SD50 YO PLSY PLSR

\* 8<G7G 8<G7F 8<GN 8<GD  
8<GH <7BH D@GF

2 SD51 YO PLSY PLSR

3 SD52 Y1 PLSY PLSR

4 SD53 Y1 PLSY PLSR

5 SD54 YO Y1 PLSY PLSR

6 SD55 YO Y1 PLSY PLSR

MO	PLSR	10	110	1000	OFF Y1
	PLSR	10	110	1000	OFF Y0

@8 ' ' A \$

\* G8)\$ G8))

8A CJ ' ' G8)

D@GF ' '\$ ' '\$ ' '\$\$\$ ' M%

A CJ ' ' G8)

D@GF ' '\$ ' '\$ ' '\$\$\$ ' M\$

6.10.12 PLS

[ PLS (S1) (S2) (D1) ]															
G%	K CF 8		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G&	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F
8%	6CC@			M											

8  
\$ 8))  
A 7%\$\$ A 7&\$\$  
M\$ M% A 7& \$Z M\$ M% M& M  
M( M) M\* M+  
% D@G  
& \$  
GA, \$ GA, %  
( D@GSG9H b  
8 A  
LD SMO  
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

& P  
 $F_{au}$   $F_{ajb}$   $F_N$  B  
 $T_{down}$   
1 N N 1  
N  
P  $\frac{fF_N F_N \% \& fF_N F_N \% \& T_{up}}{\&\&\& fF_{au} F_{ajb} \&}$   
2 N N 1  
N  
P  $\frac{fF_N F_N \% \& fF_N F_N \% \& T_{down}}{\&\&\& fF_{au} F_{ajb} \&}$   
1 N=1 N 1  $F_{ajb}$   
2 1 1  
P  $\frac{fF_{\%} F_{ajb} \& fF_{\%} F_{ajb} \& fF_{up} T_{down} \&}{\&\&\& fF_{au} F_{ajb} \&}$   
3  
P  $\frac{fF_M F_M \% \& fF_M F_M \% \& fF_{up} T_{down} \&}{\&\&\& fF_{au} F_{ajb} \&}$   
4  
5 999 999  
( D@7  
)

% DHC D@G \* D@GMD@GF D@G  
D@G

6.10.13 PLSB

[ ]														
G%	K CF8	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G&	K CF8	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G	8-BH	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F
G(	K CF8	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8%	6CC@		M											

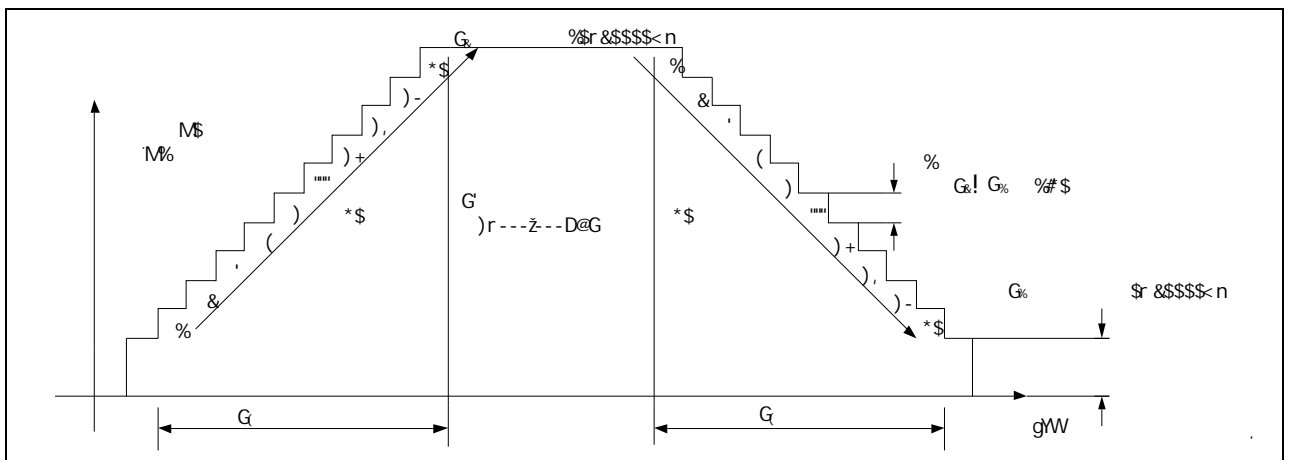
**S1** HZ  
\$ &\$\$\$<n

**S4** fa Gk  
\$!&\$\$\$

**S2** <N  
%&\$\$\$&fkrl

**D**  
A 7%\$ A 7&\$\$ M\$ M% A 7& \$z  
M\$ M% M& M M( M) M\* M+

**S3** fd@Gk  
)!-----



% %!&\$\$\$\$<n

MO	PLSB	100	10000	10000	1000	OFF Y1
	PLSB	100	10000	10000	1000	OFF Y0

&

@8 ' ' ' A \$

D@GF ' '\$\$ ' '\$\$\$\$ ' '\$\$\$\$ ' '\$\$\$ ' M%

D@GF ' '\$\$ ' '\$\$\$\$ ' '\$\$\$\$ ' '\$\$\$ ' M\$

% A \$ CB M\$ M%

\$\$\$\$ A \$ C::

CB A \$ C::

C::

&

A \$ CB C:: CB

(

' GA , \$ M\$ GA , % M%

GA , \$ GA , % %

)

fl t

( GA , & GA , ' M\$ M%

A \$ C:: GA , & GA , ' C::

GA , & GA , ' CB

\*

& D@G6

M\$\$\$ M\$\$%

DK A D@GM

) G8)\$ G8))

+

DK A D@GM D@G6

1 SD50 YO PLSB

2 SD51 YO PLSB

3 SD52 Y1 PLSB

,

8<G7G 8<G7F 8<GN 8<GD

4 SD53 Y1 PLSB

8<GH <7BH

D@G6

5 SD54 YO Y1 PLSB

-

M\$ M%

6 SD55 YO Y1 PLSB

\* G8)\$ G8))

8A CJ ' ' G8)

A CJ ' ' G8)

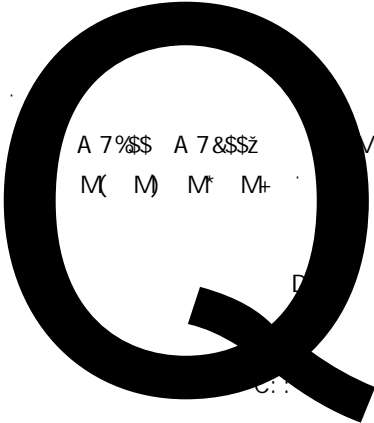
6.10.14 PWM

—   —  [ PWM (S1) (S2) (D) ]																
G%	=BH'		?bL'	?bM'	?bA'	?bG'	?b@A'	?bGA'	8'	G8'	7'	H'	J'	N'	F'	
G&	=BH'		?bL'	?bM'	?bA'	?bG'	?b@A'	?bGA'	8'	G8'	7'	H'	J'	N'	F'	
8'	6CC@'			M'												

ag# g  
 \$ '&+\*+ ag '&+\*+

GA , ( \$ GA , ( %  
 g  
 ag  
 % '&+\*+

GA , ( \$ GA , ( %  
 g  
 A 7%\$\$ A 7&\$\$z M\$  
 M% A 7&,\$z M( M) M\* M+  
 % \$




## 6.11

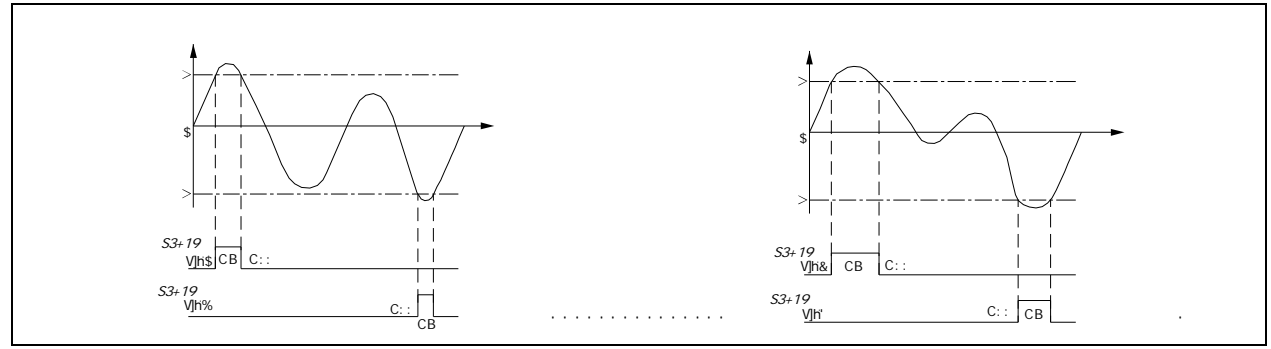
### 6.11.1 PID

—   —  [ PID (S1) (S2) (S3) (D)													
G%	≠BH								8				F
G&	≠BH								8				F
G	≠BH								8				F
8	≠BH								8				F

6+H&1CB 6+H&1CB 6+H)1C:: D-8

D-8

D-8



- D-8

PID	
$\Delta MV = KP \left\{ (EV_n - EV_{n-1}) + \frac{T_s}{T_i} EV_n + D_n \right\}$ $9J_b \quad DJ_{bz} \% \quad GJ$ $8_b \quad \frac{H_b}{H_c} \quad \frac{8}{s} \quad \frac{H_b}{H_b} \quad DJ_{bz} \quad DJ_{bz} \quad \& \quad DJ_{bz} \% \quad \frac{8}{H_c} \quad \frac{8}{s} \quad \frac{H_b}{H_b} \quad 8_b \%$ $A J_b \quad A J$	
$\Delta MV = KP \left\{ (EV_n - EV_{n-1}) + \frac{T_s}{T_i} EV_n + D_n \right\}$ $9J_b \quad GJ \quad DJ_{bz} \%$ $8_b \quad \frac{H_b}{H_c} \quad \frac{8}{s} \quad \frac{H_b}{H_b} \quad \& DJ_{bz} \% \quad DJ_{bz} \quad DJ_{bz} \quad \& \quad \frac{8}{H_c} \quad \frac{8}{s} \quad \frac{H_b}{H_b} \quad 8_b \%$ $A J_b \quad A J$	

9J <sub>b</sub>		8 <sub>b</sub>	
9J <sub>b</sub> %	%	8 <sub>b</sub> %	%
GJ		? D	
DJ <sub>bz</sub>		H <sub>c</sub>	
DJ <sub>bz</sub> %	%	H <sub>-</sub>	
DJ <sub>bz</sub> &	&	H <sub>b</sub>	
A J		8	
A J			

#D-8

@8 GA % #

A CJ %\$\$\$ 8)\$\$ #

A CJ )\$\$ 8)%\$ # Hg % '&+\*+ ag

A CJ + 8)%% #

A CJ +\$ 8)%& # \$ --O Q \$

A CJ %\$\$\$ 8)% " # ?d % '&+\*+O Q

A CJ &) 8)%(" # H= \$ '&+\*+ %\$\$\$ ag \$

#

```

A CJ    $    8)% "  #    ? 8    $ %$O Q    $
A CJ    *    8)% "  #    H8    $ ' &+*+    %$a g    $
      #
: A CJ  $    8)%+ "  #    D-8
A CJ    &$ $$    8) & "  #    $ ' &+*+
A CJ    &$ $$    8) &* "  #    $ ' &+*+
A CJ    &$ $$    8) &+ "  #    $ ' &+*+
A CJ    &$ $$    8) & "  #    $ ' &+*+
#D-8
@8      A $    #    D-8
: FCA   $ )    8) $ %    %    #
D-8     8) $ $ 8) $ % 8) $ % 8) $ &    #D-8    D-8 G%G&G ' 8
HC      $    8) $ &    %    #D-8
      #    D-8
    
```

SM1	[	MOV	1000	1000	D500	]				
	[	MOV	500	500	D510	]				
	[	MOV	16#7	7	D511	]				
	[	MOV	70	70	D512	]				
	[	MOV	100	100	D513	]				
	[	MOV	25	25	D514	]				
	[	MOV	0	0	D515	]				
	[	MOV	63	63	D516	]				
	[	FMOV	0	26	D517	8	]			
	[	MOV	2000	2000	D525	]				
	[	MOV	2000	2000	D526	]				
	[	MOV	2000	2000	D527	]				
	[	MOV	2000	2000	D528	]				
MO	[	FROM	0	5	631	D501	1	]		
	[	PID	1000	631	500	D501	D510	24349	D502	]
	[	TO	0	8	24349	D502	1	]		

```

%
$ @8 GA $ ' ' A CJ $ 8| | | |
& D-8 &$
' HG % %a g
% HG D-8
( D-8 D-8
) D-8
* 6+H& 6+H) CB
6+H& 6+H) C::
+ D-8 D-8
% D-8
- D-8
D-8
    
```

L & 1CB

5#8

8#5

D-8

D-8

D-8

D-8

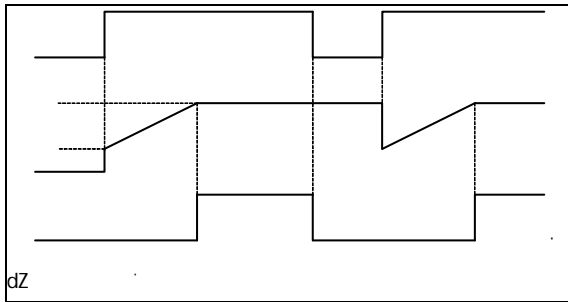
D-8

### 6.11.2 RAMP

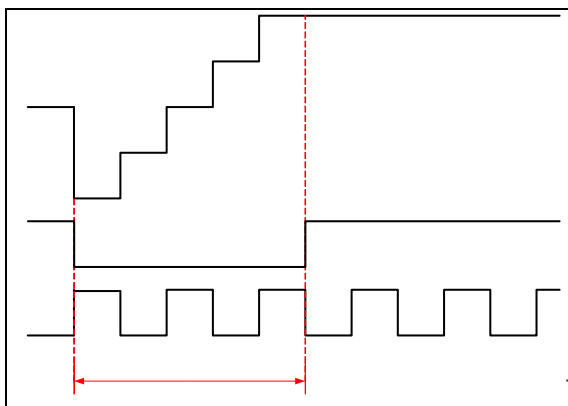
G%	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G&	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8%	=BH								8				J		F
G	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8&	6CC@			M	A	G	@A				7	H			

%  
 &  
 ' G%G& 8%G& 8&1CB  
 ( F5A D <57?@9 HF =5B; @9  
 %\$\$  
 )"F5A D <57?@9 HF =5B; @9  
 \$  
 \$  
 CB

CB C: :



1)



#  
 @8 GA %  
 A C J \$8\$  
 A C J \$\$\$8%  
 #L \$1CB  
 @8 L \$  
 F5A D 8\$8%8%\$\$\$A \$  
 #L %1CB 85  
 @8 L %  
 HC \$\*8%\$%

SM1	[	MOV	0	0	DO	]
	[	MOV	2000	2000	D1	]
X0	[	RAMP	0	2000	2000	1000 ON MO
X1	[	TO	0	6	D10	1

% L \$1CB 8%\$  
 8%\$18\$1\$ & \$\$\$#\$\$\$ 8%\$18%&\$\$\$  
 8%\$ A \$1CB  
 C: :  
 8%\$18\$  
 &

### 6.11.3 HACKLE

--- ---  [ HACKLE (S1) (S2) (D1) (S3) (D2) ]															
G%	-BH'		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H'	J'	N'	F'
G&	-BH'		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H'	J'	N'	F'
8%	-BH'								8				J'		F'
G	-BH'		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H'	J'	N'	F'
8&	6CC@			M	A	G	@A				7	H'			

%

```
& 1 1 1CB
F5AD <57?@9 HF-5B; @9
%$$
```

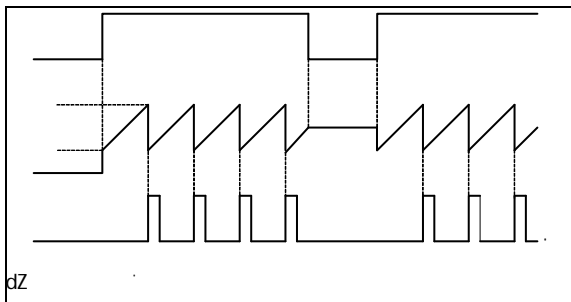
\$

##

```
@8 GA %
ACJ $8$
ACJ &$$$8%
##L $1CB
@8 L $
<57?@9 8$8%8%$$$A $
##L %1CB 85
```

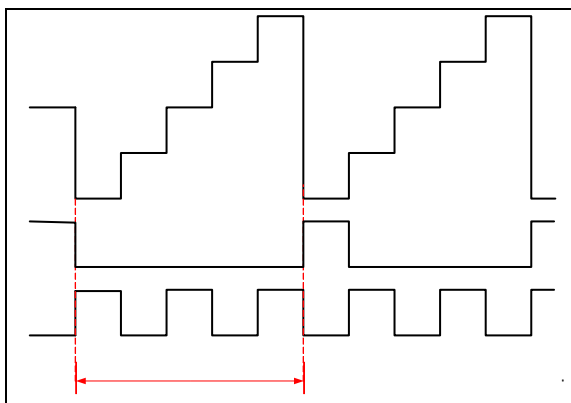
CB CB C:: C::

```
@8 L %
HC $%8%$%
```



1)

SM1	[	MOV	0	D0	]		
	[	MOV	2000	D1	]		
X0	[	HACKLE	D0	D1	D10	1000	OFF MO
X1	[	TO	0	1	D10	1	]



```
% L $1CB 8%
8%18$1$ & &$$$#$$$ 8%18%&$$$
A $1CB L $ CB
8%18$1$ A $1C::
C::
&
```

### 6.11.4 TRIANGLE

----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----															
----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----															
----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----															
----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----															
G%	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G&	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8%	=BH								8				J		F
G	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8&	6CC@			M	A	G	@A				7	H			

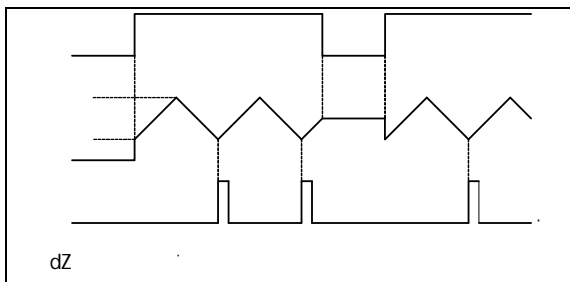
G \$

CB

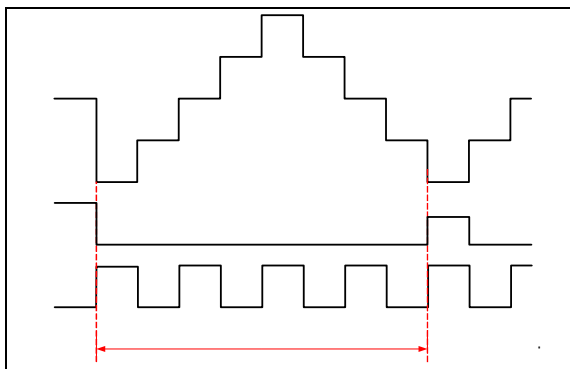
CB

C::

C::



1)



%

&

1 1 1CB

(

1

%

&

) F5A D <57?@9 HF-5B; @9

%%

##

@8 GA %

A CJ \$8\$

A CJ &\$\$\$8%

##L \$1CB

@8 L \$

HF-5B; @9 8\$8%8%\$%\$\$\$A \$

##L %1CB

85

@8 L %

HC \$%8%\$%

SM1	[	MOV	0	0	DO	]			
	[	MOV	2000	2000	D1	]			
X0	[	TRIANGLE	0	2000	1364	1000	OFF	MO	]
X1	[	TO	0	1	1364	1			]

% L \$1CB

8%

8%\$18\$1\$

& &\$\$\$#\$\$\$

8%\$18%&\$\$\$

8% &

8%\$18\$1\$

A \$1CB

L \$

CB

A \$1C::

C::

&

6.11.5 ABSD

<div style="text-align: center;"><b>ABSD</b></div>														
G%	-BH		?bL	?bM	?bA	?bG			8		7	H		F
G&	-BH										7			
8	6CC@			M	A	G								
G	K CF8													

b (

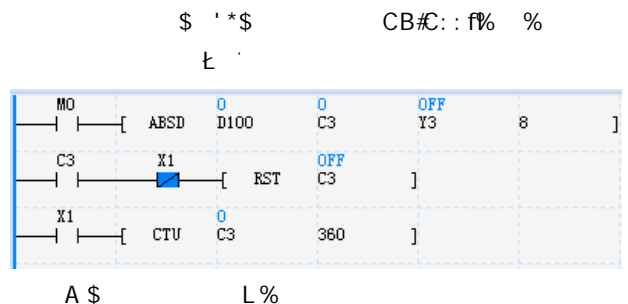
% \*

% b fl b & t

b CB#C::

& # b &

G% G% &b %

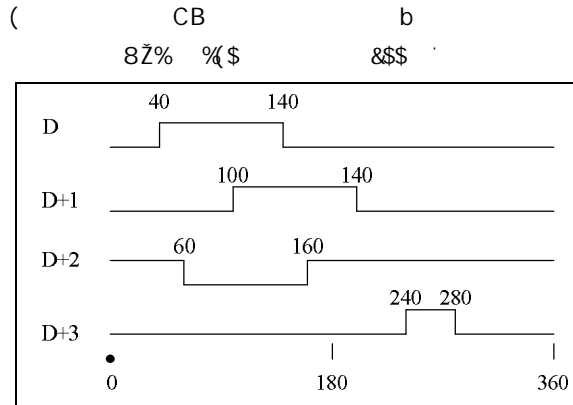


	(\$	Z%	%( \$	
Z&	%%\$	Z'	&\$ \$	Z%
Z(	%( \$	Z)	*\$	Z&
Z*	&(\$	Z+	& \$	Z'
A	A	A	A	A
Z&b		Z&bZ%		Zb!%

%

&      - (

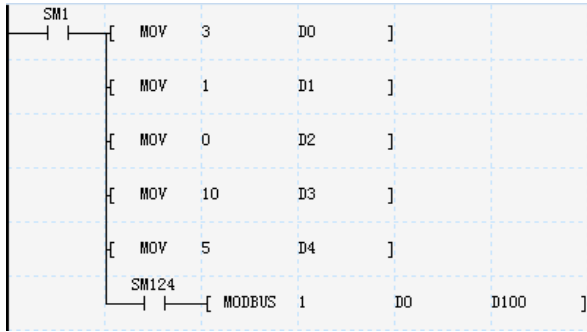
G&      7\$ 7%-





### 6.11.7 ŽALT


(



@8 GA %

A CJ 8\$

A CJ % 8%

A CJ \$ 8&

A CJ %\$ 8'

A CJ ) 8(

5B8 GA %&(

A cXVi g%8\$8%\$\$

% A cXVi g 8\$

& 8%\$\$

' A cXVi g 7F7

GA % \*

G8% -

( GA %& GA %&(

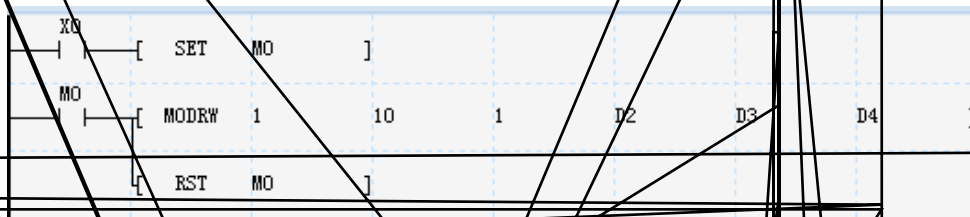
A C86I G A C86I G

A cXVi g

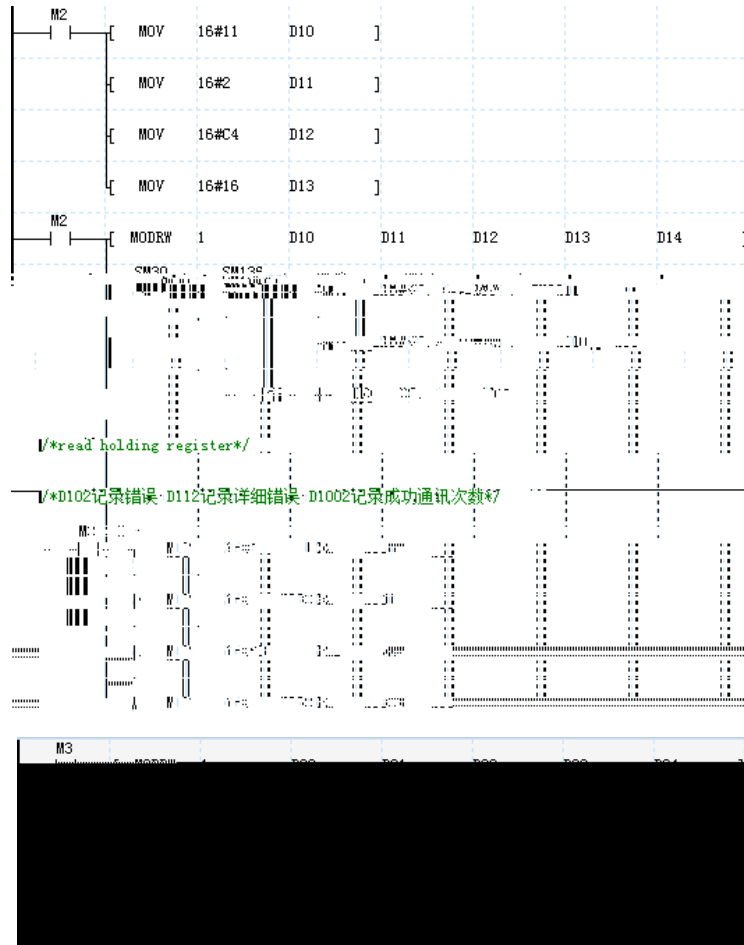
\$! \$%	
\$! \$&	
\$! \$'	
\$! %\$	
\$! %&	
\$! %&	#
\$! %'	

### 6.12.2 MODRW MODBUS

|—| —|







GA '\$ A C8FK A C8FK GA %\* G8% -  
 A C8FK GA '\$ A C8FK G8% ( GA %\* G8% - G8% (  
 GA '\$ & A C8FK  
 GA '\$ GA %) A C8FK  
 A C8FK GA '\$ A C8FK  
 A C8FK  
 GA '\$ A C8FK  
 GA '\$





& A 7%\$\$ A J \*\$\$

H\$

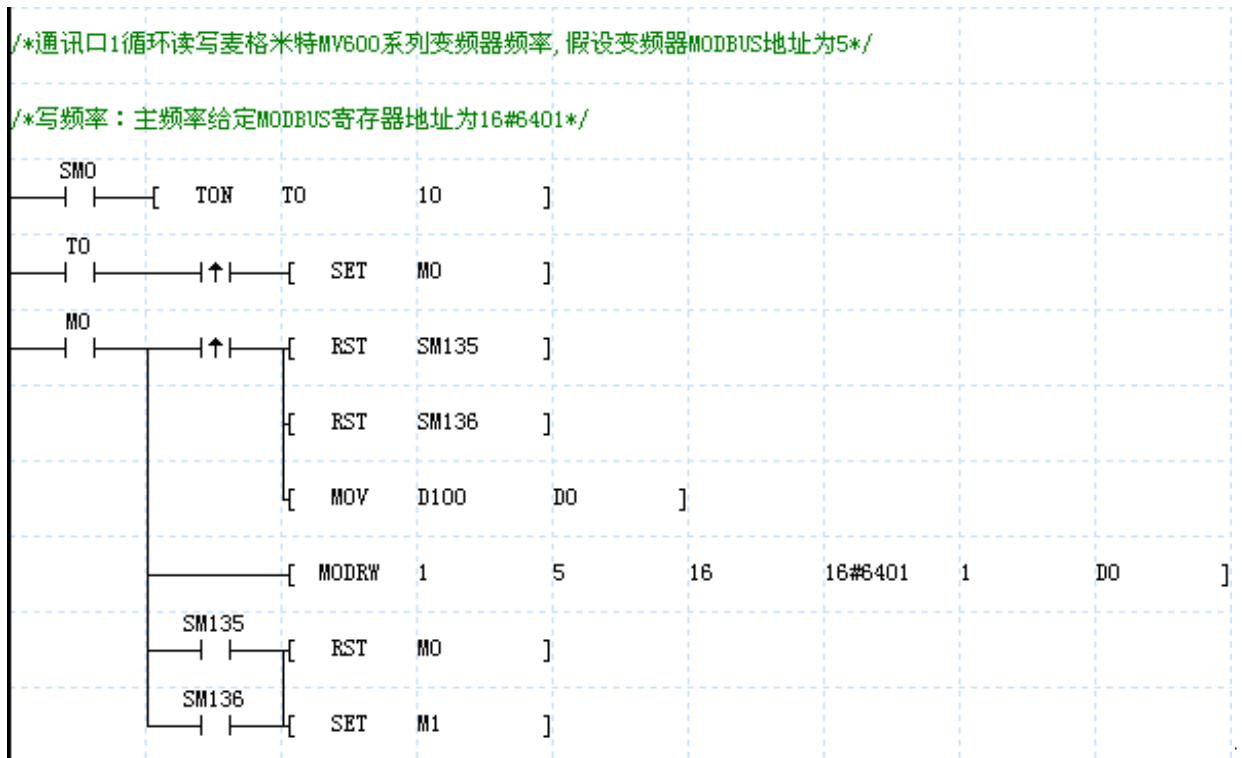
A 7%\$\$

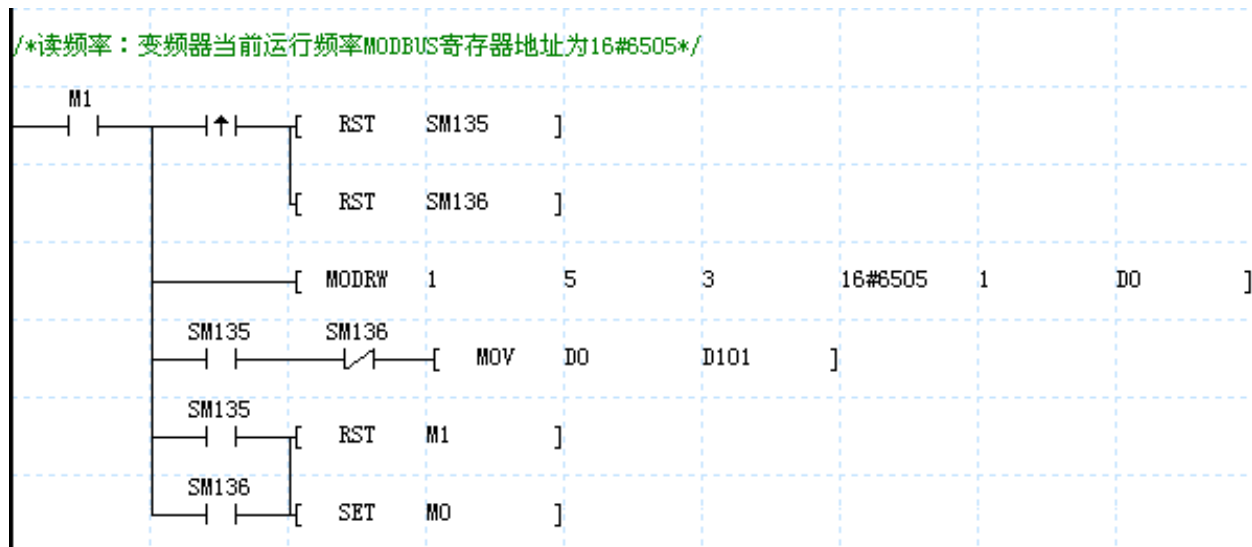
A J \*\$\$

GA %)

H\$

GA % \*



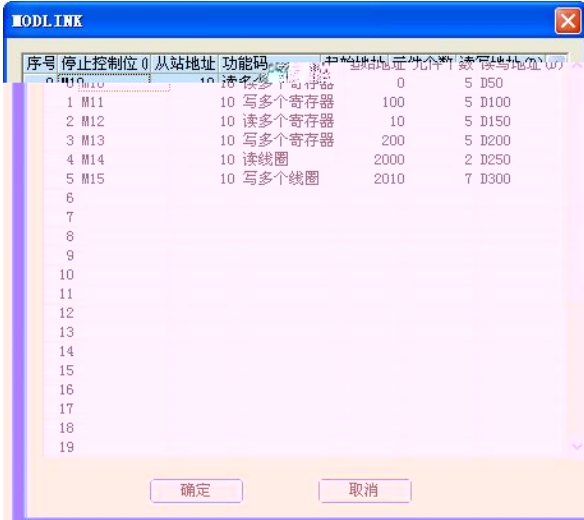


6.12.3 Modlink MODBUS

M90																
MODLINK 1 D200 D46 M114 M156																
G%	=BH'															
G&	=BH'	8'														
G	=BH'	8'														
G(	6CC@			A	G					7	H					
G)	6CC@			A	G					7	H					

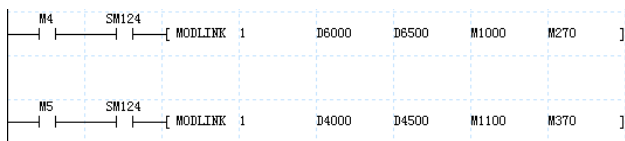
%

A C8@B?            A C86I G  
                   A C8@B?                    A C8@B?  
                   A C8@B?  
 A C8@B?                                A C86I G  
                   A C8@B?



8\*\$\$\$

G&		
G&Z%	A	
G&Z&		\$
G&Z'		
G&Z(		
G&Z)		
G&Z*		
G&Z+		
G&Z,		
G&Z-		%
G&Z%\$		
G&Z%%		
G&Z%&		
G&Z%'		
A		
A		



GA %&(

			8
\$%		% &\$\$\$	G) % #%
\$&		% &\$\$\$	G) % #%
\$'		% %&	G)
\$(		% %&	G)
\$)		\$fZl YXL	%
\$*		\$fZl YXL	%
%		% % *	G) % #%
%'		% %&	G)

A C8@B?

A C86I G

\$ B

G

G'	\$
G'Z%	%
G'Z&	&
A	
A	
G'ZB	B

G

A cXVi g

\$I \$%	
\$I \$&	
\$I \$'	
\$I %\$	
\$I %%	
\$I %&	#
\$I %'	

G'	\$
G'Z%	%
G'Z&	&
A	
A	
G'ZB	B

6.12.4 XMT

---   ---  [ XMT (S1) (S2) (S3) ]															
G%	≠BH														
G&	K CF8	8	J											F	
G	≠BH		? bL	? bM	? bA	? bG	? b@A		8	G8	7	H	J	N	F

\$ %

8

J

J\*

&

% GA %\$GA %&\$

LA H

& GA %&#GA %&&

' GA %&#GA %&(&

(

SMD			[	TON	TO	100	]
TO			[	RST	TO		]
			[	MOV	16#1	D0	]
			[	MOV	16#40	D1	]
			[	MOV	16#1	D2	]
			[	MOV	16#1	D3	]
			[	MOV	16#2	D4	]
			[	RST	SM122		]
			[	XMT	1	D0	5
SM122			[	INC	D100		]

@8 ..... GA \$

HCB .... H\$ ' %&\$

@8 ..... H\$

FGH .... H\$

A CJ .... % ' % ' 8\$

A CJ .... % ' \$ ' 8%

A CJ .... % ' % ' 8&

A CJ .... % ' % ' 8'

A CJ .... % ' & ' 8(

FGH .... GA %&&

LA H ' % ' 8\$)

@8 ..... GA %&&

≠B7 ..... 8%CC

%g

%

\$%	\$&	\$%	\$%	\$&
-----	-----	-----	-----	-----

%

%

&

6.12.5 RCV

[ RCV (S1) (D) (S2) ]															
G%	=BH'														
8'	K CF8'	8'	J'											F'	
G&	=BH'		? bL'	? bM'	? bA'	? bG'	? b@A'		8'	G8'	7'	H'	J'	N'	F'

&

\$ %

GA %%% GA %%%

F7J

GA %% GA %&

GA %%( GA %%(

%

8

G8%%& G8%%&

J

8+---

G8%%& G8%%&

J\*\*

G8%% G8%%

&

\$ %

G8%%( G8%%(

G8%%) G8%%)

SM1	[ RCV 1 D20 5 ]
SM123	[ INC D100 ]

\$	%	&	'	(	)	* %

@8 GA %

F7J % 8&\$')

@8 GA %&

=B7 8%\$\$

%

F7J

G8%\* G8%\*

G8%+ G8%+

GA %

## 6.13

### 6.13.1 CCITT

---   ---  [ CCITT (S1) (S2) (D) ]														
G%	K CF8								8				J	F
G&	=BH	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8	K CF8							8				J	F	

\$

%

77=HH

& 77=HH

LR%& LR) %

%

SM1	---	[	MOV	16#0	0	D0	]	
					17	D1		
					34	D2		
					51	D3		
					68	D4		
					85	D5		
					102	D6		
					119	D7		
					28097	D100		
					0	D100		
					0	8	28097	D100

@8' GA %

A C J ' % '\$8\$'

A C J ' % '%8%

A C J ' % '&&8&'

A C J ' % ' '8'

A C J ' % ' ((8('

A C J ' % ') )8'

A C J ' % ' \*\*8\*

A C J ' % ' ++8+

@8' L\$'

A C J ' '\$ 8\$8\$'

77=HH'8\$, 8%8\$'

L\$1CB      8\$      ,      77=HH

8%8\$

6.13.2 CRC16

---   ---  [ CRC16 (S1) (S2) (D) ]														
G%	K CF8								8				J	F
G&	=BH	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8	K CF8							8				J	F	

\$

%

7F7%

& 7F7%

LR% LR%

LR& %

%

&

8

A cXVI g7F7

% : : : :

SM1	[	MOV	16#0	0	D0	]	
	[	MOV	16#11	17	D1	]	
	[	MOV	16#22	34	D2	]	@8 ..... GA %
	[	MOV	16#33	51	D3	]	A CJ ..... % \$ \$ ' 8 \$
	[	MOV	16#44	68	D4	]	A CJ ..... % , % ' 8 %
	[	MOV	16#55	85	D5	]	A CJ ..... % , & & ' 8 &
	[	MOV	16#66	102	D6	]	A CJ ..... % , ( ( ' 8 (
	[	MOV	16#77	119	D7	]	A CJ ..... % , ) ) ' 8 )
X0	[	MOV	0	57708	D100	]	A CJ ..... % , * * * ' 8 *
	[	CRC16	D0	8	57708	D100	A CJ ..... % , + + ' 8 +

L \$1CB 8\$ 7F7%

8%\$

### 6.13.3 LRC

---   ---  [ LRC (S1) (S2) (D) ]														
G%	K CF8								8			J	F	
G&	=BH	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8	K CF8							8				J	F	

\$

@F7

%

&

SM1	[	MOV	16#0	0	D0	]	
	[	MOV	16#11	17	D1	]	
	[	MOV	16#22	34	D2	]	@8 GA %
	[	MOV	16#33	51	D3	]	A CJ % \$ 8%
	[	MOV	16#44	68	D4	]	A CJ % % 8%
	[	MOV	16#55	85	D5	]	A CJ % & 8%
	[	MOV	16#66	102	D6	]	A CJ % ( ( ( 8(
	[	MOV	16#77	119	D7	]	A CJ % ) ) 8)
MO	[	MOV	0	36	D100	]	A CJ % * 8%
	[	LRC	D0	8	D100	]	A CJ % ++ 8+

L \$1CB 8\$ , @F7

8%\$

### 6.14

#### 6.14.1 ZRST

---   ---  [ ZRST (D) (S) ]														
8	6CC@			M	A	G	@A				7	H		
G	=BH	? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F

% 7 7

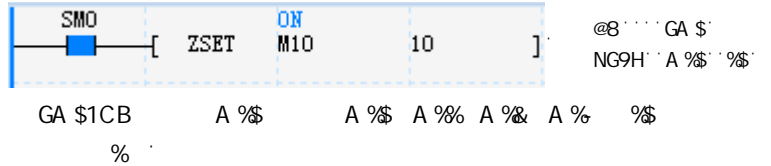
& H H

SMD	[	ZRST	OFF	M10	10	]	@8 GA \$
							NEGH A % %

GA \$1CB A % A % A % A % A % %

### 6.14.2 ZSET

[ ZSET (D) (S) ]															
8	6CC@		M	A	G	@A			7	H					
G	=BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7	H	J	N	F

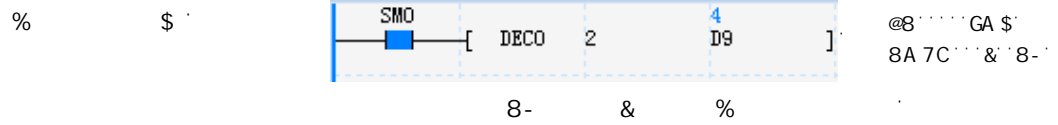


%

### 6.14.3 DMCO

[ DECO (S) (D) ]															
G	K CF8		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7	H	J	N	F
8	=BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7	H	J	N	F

\$ %  
% \$

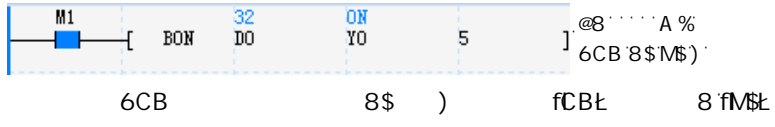


6.14.4 ENCO

A																
G	⊖BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F	
8	⊖BH		? bM	? bA	? bG	? b@A			8	G8	7	H	J	N	F	

6.14.7 BON ON

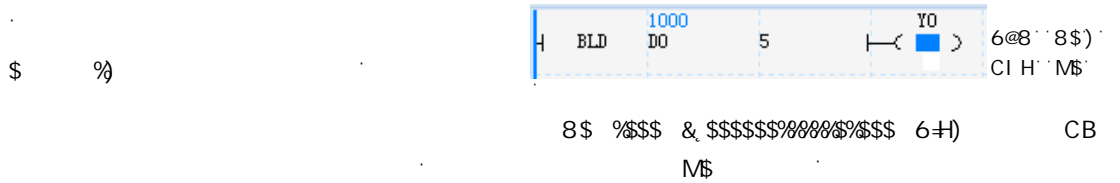
----- -----  [ BON (S1) (D) (S2) ]															
G%	=BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7		J		
8	6CC@		M	A	G										
G&	=BH								8				J		F



6.15

6.15.1 BLD LD

----- -----  BLD (S1) (S2)  -----  )															
G%	KCF8		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7	H	J	N	F
G&	=BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7	H	J	N	F



6.15.2 BLDI LDI

-----  BLDI (S1) (S2)  -( )															
G%	K CF8		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G&	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F

\$ %

| BLDI 1000 DO 5 |-( Y0 )
 
 6@8= 8\$) CI H M\$

8\$ %\$\$\$ & \$\$\$\$\$%0000\$%\$\$\$ 6+) CB

C:: M\$

6.15.3 BAND AND

-----  BLD (S1) (S2)  -( )															
														65B8	
														6@8	
G%	K CF8		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G&	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F

\$ %

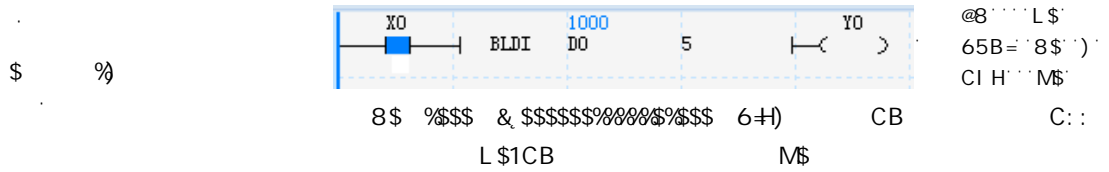
| BLDI 1000 DO 5 |-( Y0 )
 
 @8 L\$ 65B8 8\$) CI H M\$

%\$\$\$ & \$\$\$\$\$%0000\$%\$\$\$ 6+) CB L \$1CB

M\$

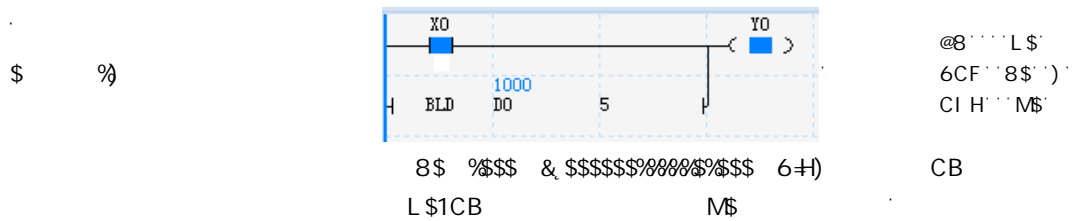
6.15.4 BANI ANI

G%	K CF 8		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G&	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F



6.15.5 BOR OR

G%	K CF 8		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G&	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F

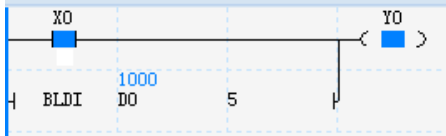


6.15.6 BORI ORI



μ+P +ó' Ÿ δ ™€ O!fRB ¿éó' Ÿ ™ E`

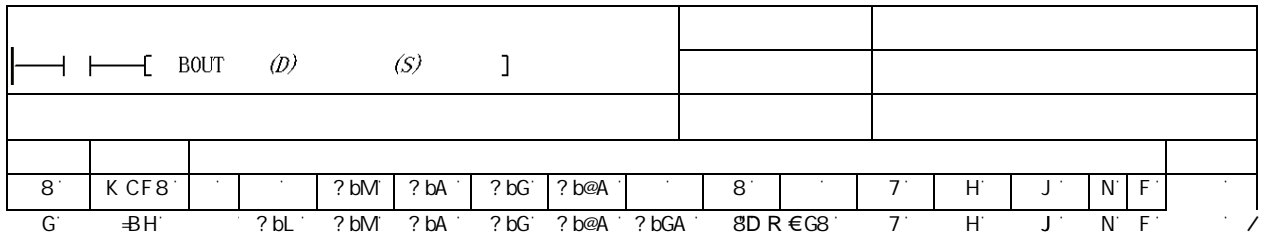
\$ %



@8 L\$  
6CF= 8\$ )  
CI H M\$

8\$ %\$\$\$ & \$\$\$\$\$%\$\$\$ 6+) %CB \$\$\$ C: :  
L \$1CB M\$

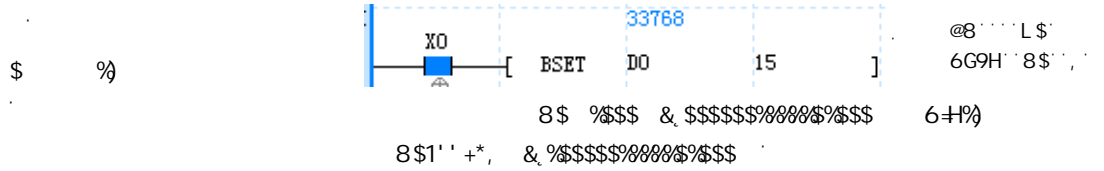
6.15.7 BOUT



ü

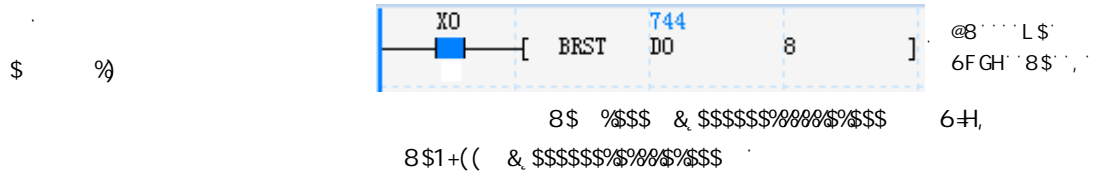
### 6.15.8 BSET

[ BSET (D) (S) ]																			
8	K CF8			? bM	? bA	? bG	? b@A		8		7	H	J	N	F				
G	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F				



### 6.15.9 BRST

[ BRST (D) (S) ]																			
8	K CF8			? bM	? bA	? bG	? b@A		8		7	H	J	N	F				
G	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F				



# 6.16

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

G%	-BH'	? bL' ? bM' ? bA' ? bG' ? b@A' ? bGA' 8' G8' 7' H' J' N' F'
G&	-BH'	? bL' ? bM' ? bA' ? bG' ? b@A' ? bGA' 8' G8' 7' H' J' N' F'

%  
&

6-B

H	=	1000 D0	-2000 D1	Y0
H	<	1000 D0	-2000 D1	Y1
H	>	1000 D0	-2000 D1	Y2
H	<>	1000 D0	-2000 D1	Y3
H	>=	1000 D0	-2000 D1	Y4
H	<=	1000 D0	-2000 D1	Y5

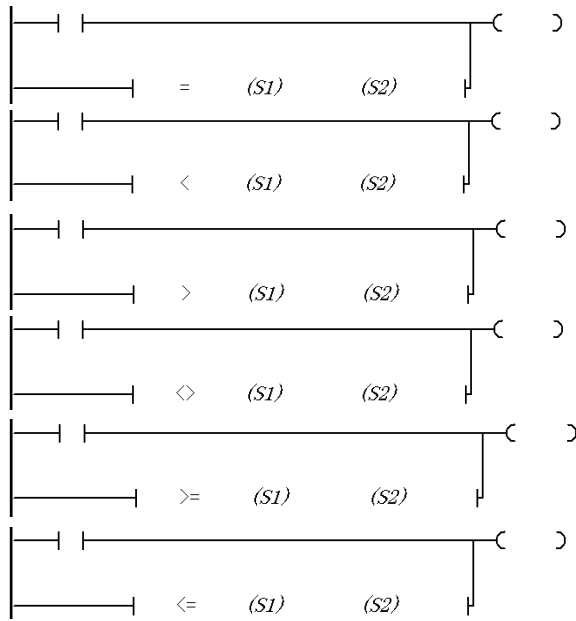
8\$ 8%

6-B


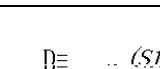
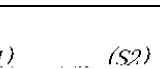
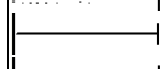
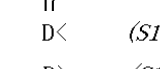
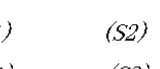
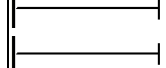
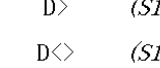
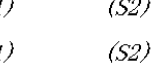

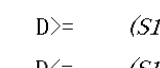
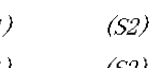

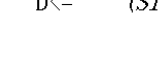
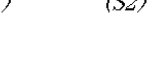



@81'' 8\$8%  
CI H'' M\$  
@80'' 8\$8%  
CI H'' M%  
@82'' 8\$8%  
CI H'' &  
@802'' 8\$8%  
CI H'' M''  
@821'' 8\$8%  
CI H'' M(  
@801'' 8\$8%  
CI H'' M)



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


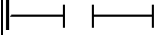

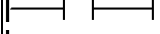
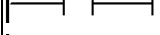
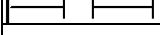

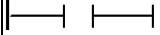

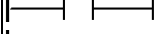
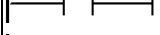
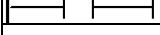


6.16.4 LDD = < > <> >= <= LDD

	D=	(S1)	(S2)				
	D<	(S1)	(S2)				
	D>	(S1)	(S2)				
	D<>	(S1)	(S2)				
	D>=	(S1)	(S2)				
	D<=	(S1)	(S2)				

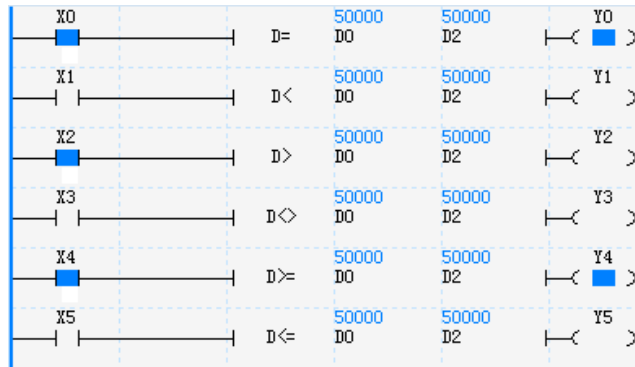
6.16.5 ANDD = < > <> >= <=

ANDD

						(S1)	(S2)		)		
											

G%	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F	
G&	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F	

%  
&



@8 ..... L\$  
 @881 ..... 8\$8&  
 C I H ..... M\$  
 @8 ..... L%  
 @880 ..... 8\$8&  
 C I H ..... M%  
 @8 ..... L &  
 @8802 ..... 8\$8&  
 C I H ..... M&  
 @8 ..... L'  
 @8802 ..... 8\$8&  
 C I H ..... M'  
 @8 ..... L(  
 @8821 ..... 8\$8&  
 C I H ..... M(  
 @8 ..... L)  
 @8801 ..... 8\$8&  
 C I H ..... M)

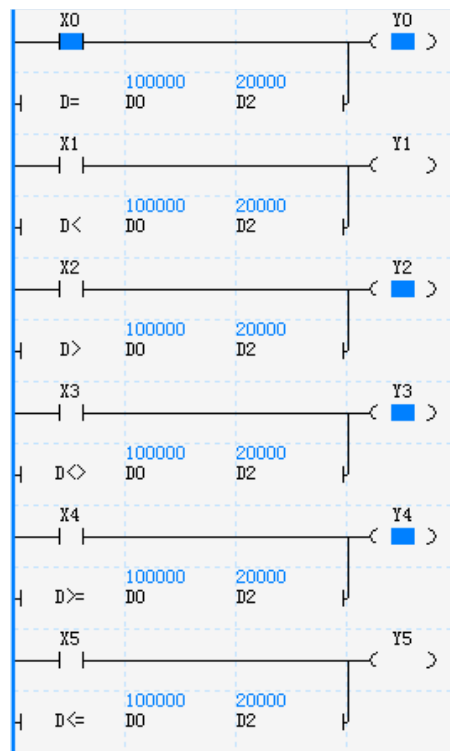
8\$8% 8&8'

6.16.6 ORD = < > <> >= <=

ORD

G%	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F
G&	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F

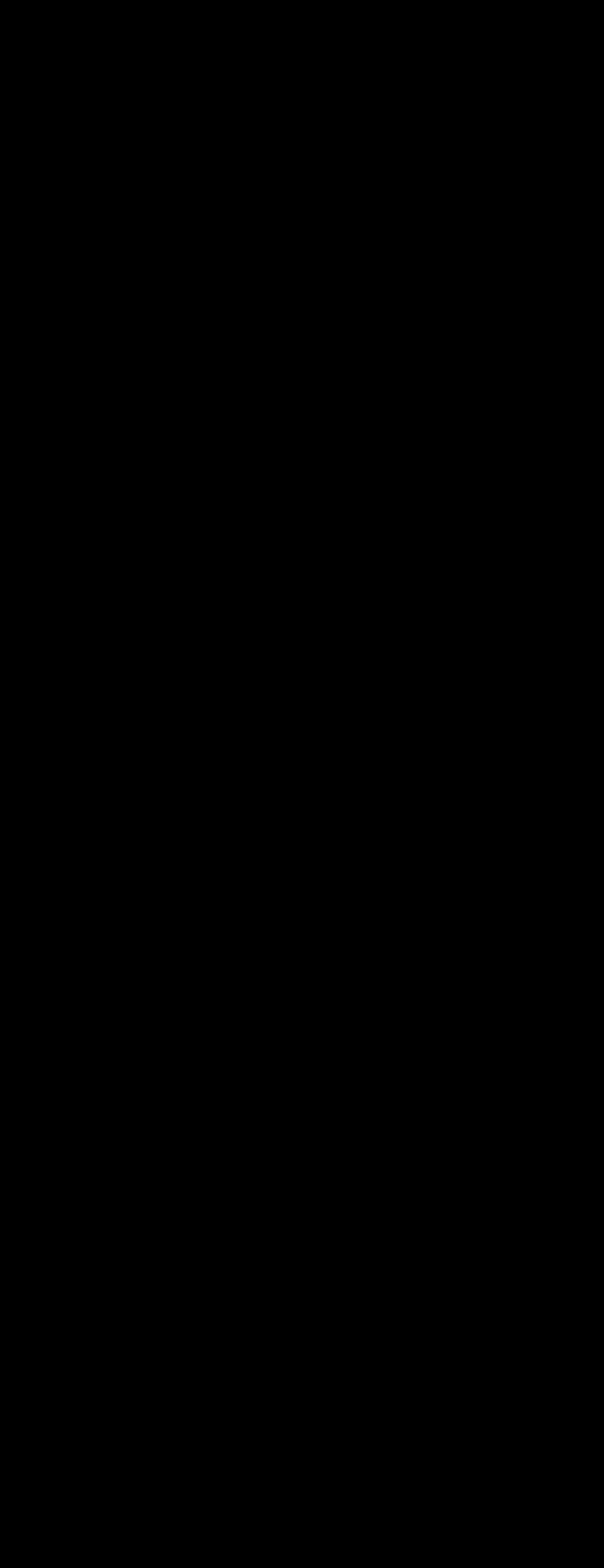
%  
&



8\$8% 8&8'

```

@8 ..... L$
CF81 ..... 8$8&
CI H ..... M$
@8 ..... L%
CF80 ..... 8$8&
CI H ..... M%
@8 ..... L&
CF802 ..... 8$8&
CI H ..... M&
@8 ..... L'
CF821 ..... 8$8&
CI H ..... M'
@8 ..... L(
CF821 ..... 8$8&
CI H ..... M(
@8 ..... L)
CF801 ..... 8$8&
CI H ..... M)
    
```



---

--	--

---

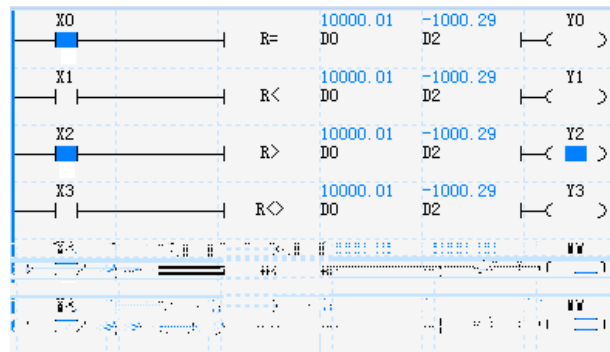
---

---

6.16.8 ANDR

		R=	(S1)	(S2)	HC	)		
		R<	(S1)	(S2)	HC	)		
		R>	(S1)	(S2)	HC	)		
		R<>	(S1)	(S2)	HC	)		
		R>=	(S1)	(S2)	HC	)		
		R<=	(S1)	(S2)	HC	)		
G%	F95@						8	J F
G&	F95@						8	J F

%  
&

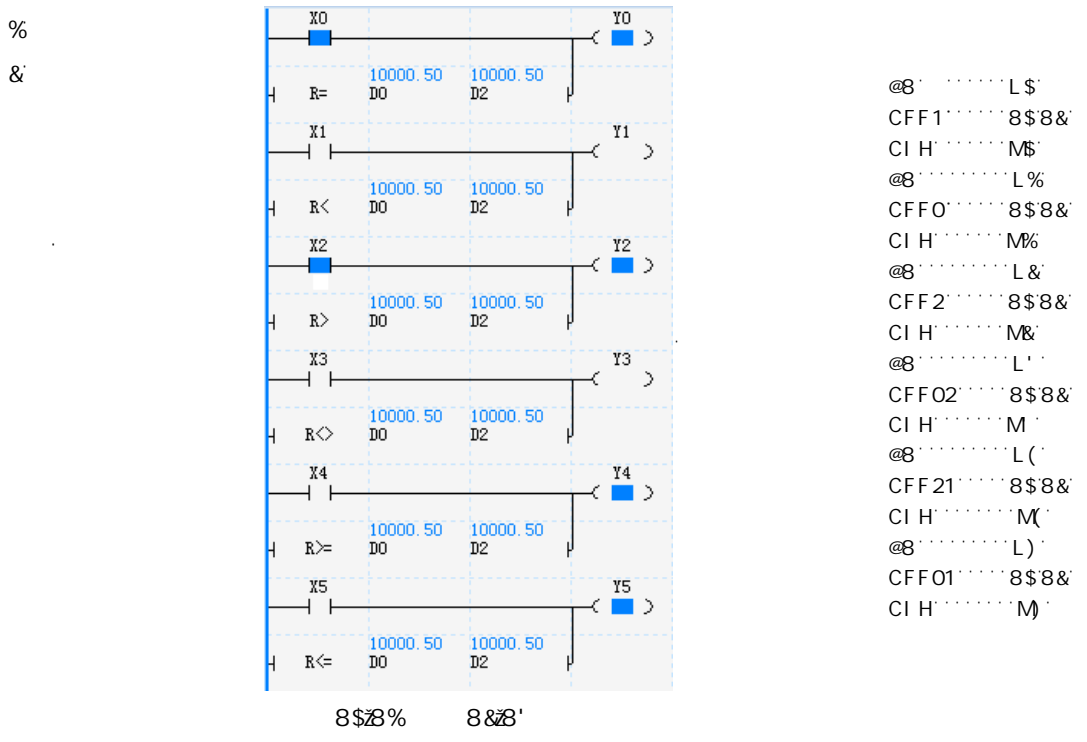


@8 L\$  
5B8F1' 8\$8&  
CI H' M\$  
@8 L%  
5B8F0' 8\$8&  
CI H' M%  
@8 L&  
5B8F02' 8\$8&  
CI H' M&  
@8  
5B8F02' M  
@8 L(  
5B8F21' 8\$8&  
CI H' M  
@8 L)  
5B8F01' 8\$8&  
CI H' M)

8\$8% 8&8'

6.16.9 ORR

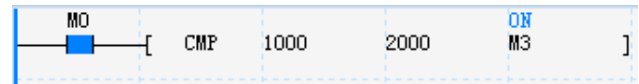
G%	F 95@		
G&	F 95@		



6.16.10 CMP

[ <b>CMP</b> ]															
G%	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
G&	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	N	F
8	6CC@			M	A	G									

Ž% Ž& CB

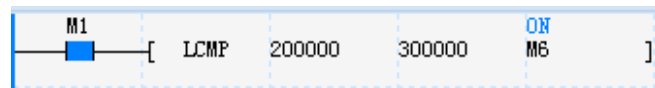


6.16.11 LCMP

[ ]															
G%	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J	N	F
G&	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J	N	F
8	6CC@			M	A	G									

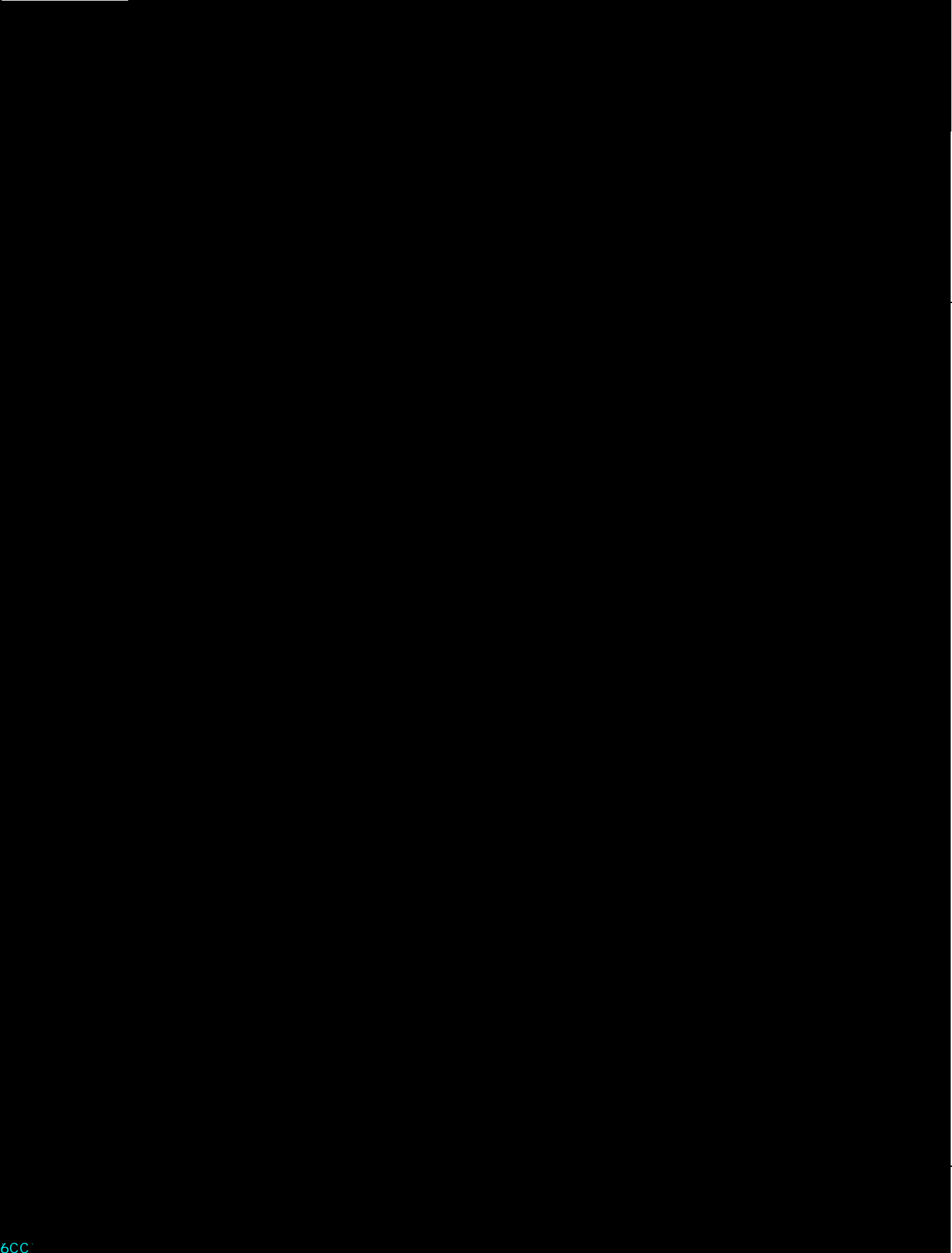
Ž% Ž& CB

%  
&



6.16.12 RCMP

[ RCMP ]		



6.17.2 BKSUB

----- -----  BKSUB (S1) (S2) (D) (S3)														
<b>BKSUB (S1) (S2) (D) (S3)</b>														
G%	=BH'	.	.	.	.	.	.	.	8'	G8'	7'	H'	J'	F'
G&	=BH'	.	.	.	.	.	.	.	8'	G8'	7'	H'	J'	F'
8'	=BH'	.	.	.	.	.	.	.	8'	G8'	7'	H'	J'	F'
G'	=BH'	.	.	.	.	.	.	.	8'	.	.	.	J'	F'

M1	[	BKSUB	1	30	-29	5	]
			D10	D100	D1000		

LD M1

BKSUB D10 D100 D1000 5

%

A %dCB 8%\$ ) 8%\$\$

)

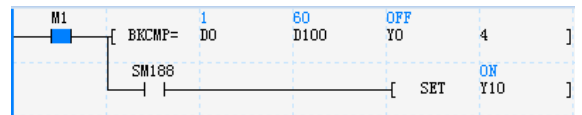
8%\$\$\$ ) 8%\$\$\$18%18%\$\$

&

8%\$\$\$18%18%\$ 8%\$(18%18%\$(

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

<p>[ BKCMP= (S1) (S2) (D) (S3) ]</p> <p>[ BKCMP&lt; (S1) (S2) (D) (S3) ]</p> <p>[ BKCMP&gt; (S1) (S2) (D) (S3) ]</p> <p>[ BKCMP&lt;= (S1) (S2) (D) (S3) ]</p> <p>[ BKCMP&gt;= (S1) (S2) (D) (S3) ]</p> <p>[ BKCMP&gt;= (S1) (S2) (D) (S3) ]</p>														
<b>BKMP</b>														
G%	-BH'								8'	G8'	7'	H'	J'	F'
G&	-BH'								8'	G8'	7'	H'	J'	F'
8'	6CC@'		M	A'	G'	@A'	GA'							
G'	-BH'								8'				J'	F'



%

@8' A %'

6? 7A D1' 8%\$' 8%\$\$' M\$' ('

@8' GA % ,'

G9HM/\$'

& G% %' zG%

G% G& g %

8 G

8 G' CB

GA % ,

A %CB 8%\$ ( 8%\$\$

( M\$

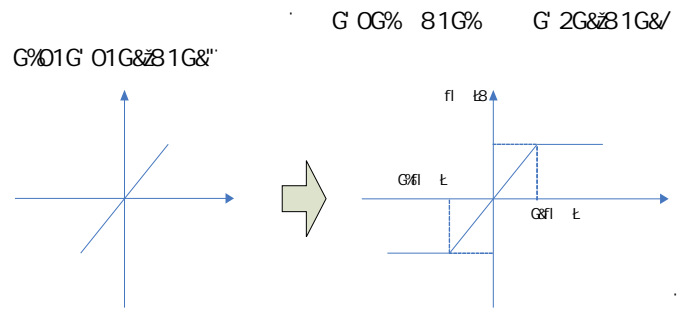
( CB M\$

CB

# 6.18

## 6.18.1 LIMIT

[ LIMIT (S1) (S2) (S3) (D) ]															
G%	≠BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	F	
G&	≠BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	F	
G	≠BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	F	
8	≠BH			? bM	? bA	? bG	? b@A		8	G8	7	H	J	F	

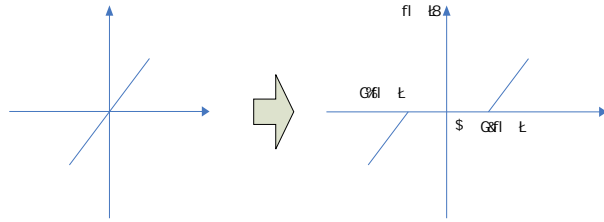


M1	[	LIMIT	10	100	30	30	]
			D0	D10	D100	D1000	

```
LD M1
LIMIT D0 D10 D100 D1000
```

### 6.18.2 DBAND

----- -----  [ DBAND (S1) (S2) (S3) (D) ]														
G%	-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	F
G&	-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	F
G	-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	F
8	-BH			? bM	? bA	? bG	? b@A		8	G8	7	H	J	F



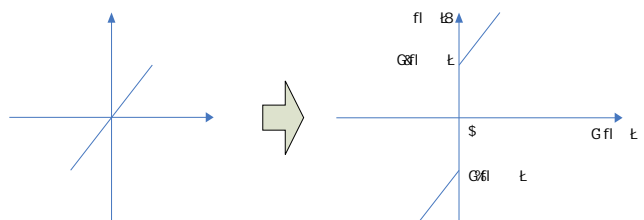
M1				
	-100	100	30	0
	D0	D10	D100	D1000

LD M1  
DBAND D0 D10 D100 D1000

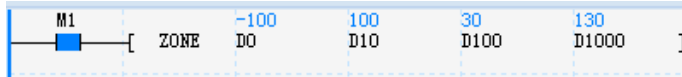
G OG% 81G IG%  
G 2G&81G IG&/ G%01G 01G&81G"

### 6.18.3 ZONE

----- -----  [ ZONE (S1) (S2) (S3) (D) ]														
G%	-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	F
G&	-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	F
G	-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	F
8	-BH			? bM	? bA	? bG	? b@A		8	G8	7	H	J	F



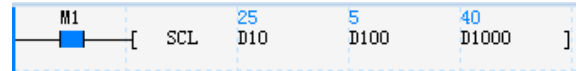
ZONE DO D10 D100 D1000



LD M1

### 6.18.4 SCL

G%	=BH'		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	F	
G&	=BH'								8				J	F	
8	=BH'			? bM	? bA	? bG	? b@A		8	G8	7	H	J	F	



LD M1

SCL D10 D100 D1000

A %CB 8%

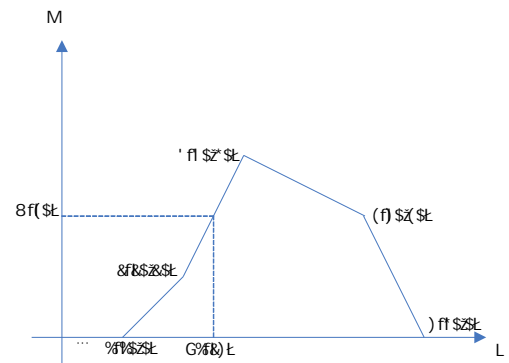
8%\$\$\$

% 8 G%  
& G&  
%

		D100	5
%	L	8%\$\$	%'
	M	8%\$\$	\$
&	L	8%\$	&\$
	M	8%(\$	&\$
...	L	8%\$)	' \$
	m	8%\$*	*\$
(	L	8%\$+	)\$
	m	8%\$,	(\$
)	L	8%\$-	*\$
	m	8%\$\$	\$

		S2
%	L	G&Z%
	M	G&Z&
&	L	G&Z'
	M	G&Z(
A	A	A
bfl t	L	G&Z &b!%
	m	G&Z &b'

% L  
& G%



6.18.5 SER

[ SER (S1) (S2) (D) (S3) ]															
G%	-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	F	
G&	-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	F	
8	-BH			? bM	? bA	? bG	? b@A		8	G8	7	H	J	F	
G	-BH								8				J	F	

% G% G ž G&  
ž 8ì 8Ž( "

&

%

&)\*

```
M1 [ SER 100 100 3 8 ]
      D10 D100 D1000
```

```
LD M1
SER D0 D10 D100 D1000 8
```

A %CB 8%\$ , ž 8%\$\$\$ ) "

S1		S2		D	
8%\$	%\$	%\$	\$	8%\$\$\$	
8%&	+		%	8%\$\$\$%	\$
8%&	-&		&	8%\$\$\$&	+
8%`	%\$			8%\$`	)
8%(	%\$		(	8%\$(	*
8%!	!&		)		
8%*	%(		*		
8%+	%\$		+		



### 6.19.2 STRLEN

----- -----  [ STRLEN (S) (D) ]		

### 6.19.3 STRRIGHT

STRRIGHT 01/01/2020 17														
G%	=BH'		? bL'	? bM'	? bA'	? bG'	? b@A'	? bGA'	8'	G8'	7'	H'	J'	F'
8'	=BH'			? bM'	? bA'	? bG'	? b@A'		8'	G8'	7'	H'	J'	F'
G&	=BH'								8'				J'	F'

% G% \$\$\$<

& G& \$  
' G& G%

% G% \$\$\$<  
G& 8  
& G& 8  
\$\$\$<

M1	12849	13363	
[ STRRIGHT	D10	D100	3 ]

LD M1  
STRRIGHT D10 D100 3  
A %CB 8%  
8%\$\$

(\$\$\$<  
(  
\$\$\$<

6%!!!V, V+!!!V\$	\$' &	\$' %
8%\$	\$' (	\$' )
8%\$	\$' *	\$' )
8%	\$' \$\$	\$' \$\$

→

6%!!!V, V+!!!V\$	\$' )	\$' (
8%\$	\$' \$	\$' *

### 6.19.4 STRLEFT

----- -----  [ STRLEFT (S1) (D) (S2) ]														
G%	-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H	J	F
8	-BH			? bM	? bA	? bG	? b@A		8	G8	7	H	J	F
G&	-BH								8				J	F

%

6.19.5 STRMIDR

----- -----  [ STRMIDR (S1) (D) (S2) ]															
G%	-BH'		? bL'	? bM'	? bA'	? bG'	? b@A'	? bGA'	8'	G8'	7'	H'	J'	F'	
8'	-BH'			? bM'	? bA'	? bG'	? b@A'		8'	G8'	7'	H'	J'	F'	



### 6.19.7 STRINSTR

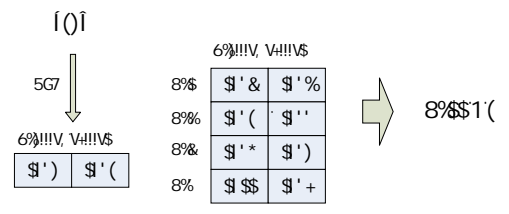
----- -----  [ STRINSTR (S1) (S2) (D) (S3) ]															
G%	=BH'									8'	G8'	7'	H'	J'	F'
G&	=BH'									8'	G8'	7'	H'	J'	F'
8'	=BH'									8'	G8'	7'	H'	J'	F'
G'	=BH'									8'				J'	F'

& G' G&  
 ' G% ' & z  
 ( G% \$\$< G&  
 \$\$< G&  
 \$\$<

% G& G'  
 G%  
 & 8 8 \$  
 ' G \$  
 ( \$\$<  
 % G% G&  
 \$\$<

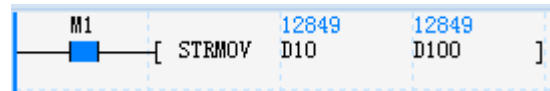
```
M1 [STRINSTR "45" D10 D100 2 ]
```

```
LD M1
STRINSTR "45" D10 D100 2
A %CB 8%$ & 8%$$
()
```



### 6.19.8 STRMOV

----- -----  [ STRMOV (S) (D) ]														
G	-BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7	H	J	F
8	-BH			?bM	?bA	?bG	?b@A		8	G8	7	H	J	F



```
LD M1
STRMOV D10 D100
A %CB 8% 8%$
```

```
% G $$$<
8 /
&
$$$<
% G
$$$<
& G $$$<
8
$$$<
G% ' & z
```


6%!!!V, V!!!V\$	8% \$' &	8% \$' %
8% \$' (	8% \$' '	8% \$' *
8% \$' *	8% \$' )	8% \$' \$
8% \$' \$	8% \$' \$	8% \$' \$

➔

6%!!!V, V!!!V\$	8%\$ \$' &	8%\$ \$' %
8%\$ \$' (	8%\$ \$' '	8%\$ \$' *
8%\$ \$' *	8%\$ \$' )	8%\$ \$' \$
8%\$ \$' \$	8%\$ \$' \$	8%\$ \$' \$

## 6.20

### 6.20.1 ZRN

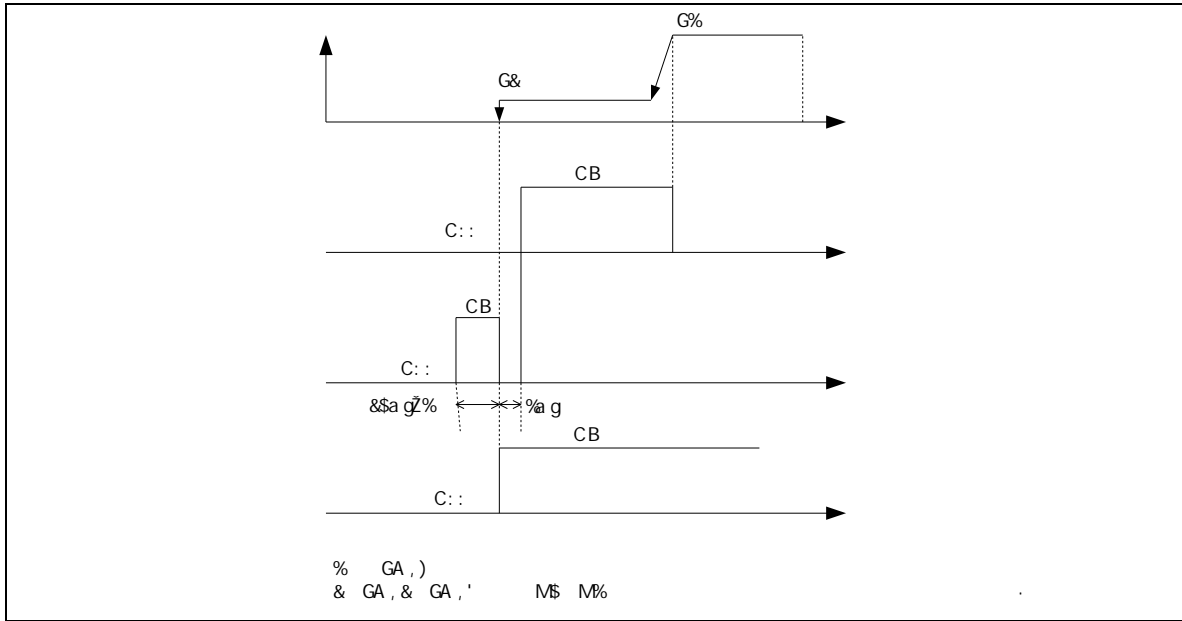
																
G%	8-BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7		J		F	
G&	8-BH		?bL	?bM	?bA	?bG	?b@A	?bGA	8	G8	7		J		F	
G	6CC@		L	M	A	G										
8%	6CC@			M												

$F_{a|bSacc}$

' & A 7%\$\$ A 7&\$\$ %\$ %\$\$\$\$\$ <n ( SD84 SD87  
A 7& \$ %\$ &\$\$\$\$\$ <n SD85 SD84  
8C; CB SD84  
L 0 0  
L 0  
D@7 SD84 PLC  
A 7%\$\$ A 7&\$\$z SD84 100  
M\$ M% A 7& \$z M\$ M% )  
M& M M( M) M\* M# SD80/SD82  
SD80/SD82  
GA , ) M\$ SD80/SD82  
M% M& M GA , ) SM82/SM83 SD80/SD82  
M& M YOY1  
( A 7&\$\$ A 7& \$ G8 A 7%\$\$ \* SD50/SD52 PLC  
z SD50/SD52  
) NFB SD80/SD82  
+ SD MC100 MC200/MC280  
& SD MC100

$$F_{a|bSacc} \sqrt{\frac{F_{au}}{T}}$$

$F_{au}$  G8, ) G8, \*  
 $T$  G8, +



6.20.2 PLSV

G	8-BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J		F	
8%	6CC@			M												
8&	6CC@			M	A	G										



6.20.4 DRVA

--- ---  DRVA (S1) (S2) (D1) (D2) ]															
G%	8-BH'		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J	F	
G&	8-BH'		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J	F	
8%	6CC@			M											
8&	6CC@			M	A	G									

' & -----  
 <n  
 ' & A 7%\$\$ A 7&\$\$ %\$ %\$\$\$\$\$ <n A 7& \$  
 %\$ &\$\$\$\$\$ <n  
 A 7%\$\$ A 7&\$\$  
 M\$ M% A 7& \$Z M\$ M% M&  
 M M( M) M\* M+  
 D@7  
 CB C: :  
 % SD84 SD87  
 SD85  
 SD84 0  
 0 0  
 ● M\$ G8, \$ G8, % ' &  
 ● M% G8, & G8, ' ' &  
 &  
 .  
 ( )  
 ) C: :  
 \* GA  
 GA, \$ GA, % CB  
 +'' GA (( \$ GA (( % GA (( ' M\$ M% M& M  
 M\* M+ 56 CB 56 C: :  
 C: :  
 + SD MC100 MC200/MC280  
 SD MC100  
 A 7&\$\$ A 7& \$ G8 A 7%\$\$ ž

$$F_{a|bSacc} \sqrt{\frac{F_{au}}{T}} \text{ ) } \$\$$$

$\frac{F_{au}}{T}$  G8, ) G8, \*  
 G8, +  
 $F_{a|bSacc}$

( SD84 SD87  
 SD85  
 SD84 0  
 0 0  
 SD84  
 PLC SD84  
 100  
 )  
 SD80/SD82  
 SD80/SD82 SD80/SD82  
 SM82/SM83  
 SD80/SD82  
 YOY1  
 \* SD50/SD52 PLC  
 SD50/SD52  
 SD80/SD82  
 + SD MC100 MC200/MC280  
 SD MC100

6.20.5 ABS

[ ABS (S) (D1) (D2) ]																
G	6CC@	L	M	A	G											
8%	6CC@		M	A	G											
8&	8-BH		?bM	?bA	?bG					8	G8	7			F	

) 56G CB 56G

G& %G & L

\* 56G

' & \*

8% 8% % 8% & M + 56GV] \$ V] % &

, \$

' &

8& 8& % &

56G

G8, \$ G8, & ' &

G8, \$ G8, &

% D@7

D@7

& 56G 8&

G8, \$

G8, &

' 56G 56G

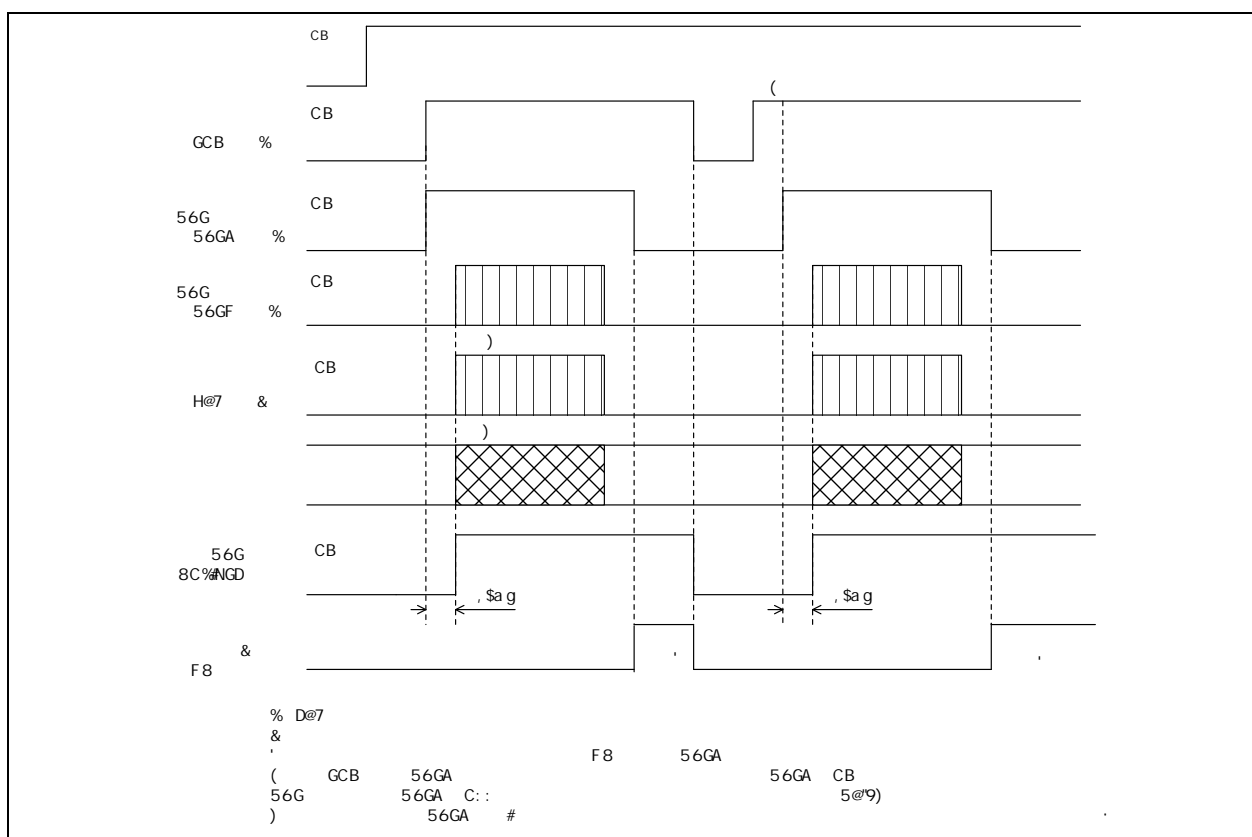
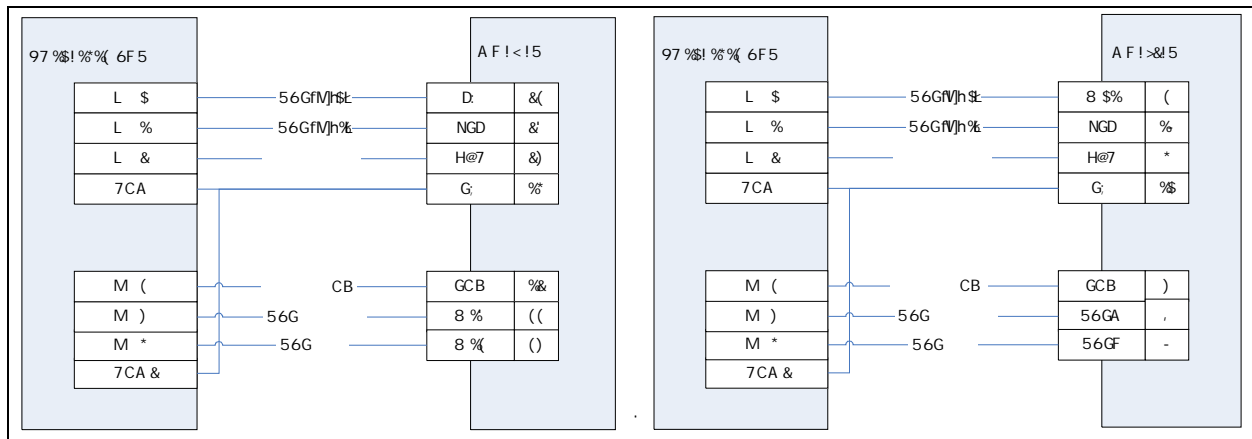
56G

CB C::

( GA, & GA, ' M\$ M%

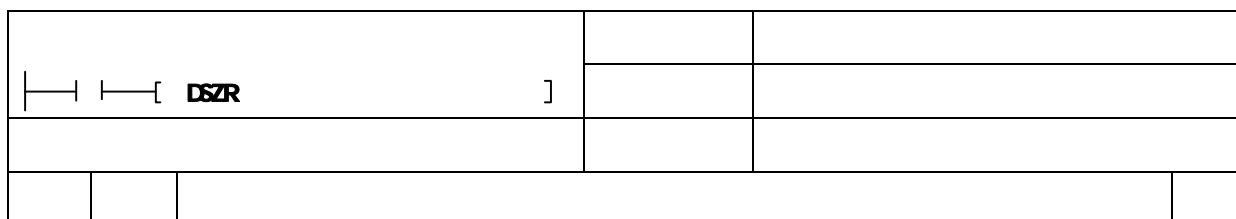
)'' A 7&\$ A 7& \$ G8 A 7%\$ ž

ABS



56G                    A F >& A F >&G                    56G  
 ' &  
 56G                    56G

6.20.6 DSZR DOG



G%	6CC@		L	M	A	G									
G&	6CC@		L												
8%	6CC@			M											
8&	6CC@			M	A	G									

S1

8C;

S2

L\$ L+

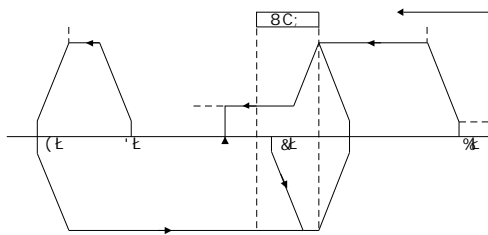
D1

A 7%\$\$ A 7&\$\$ž

M\$ M% A 7& \$ž

M\$ M%

M& M M( M) M\* M+



%

8C;

%

&

8C;

(

8C;

&

8C;

%

&

8C;

8C;

(

8C;

)

8C;

\*

8C;

C:;

8C;

%

&  
(  
) 8C;  
8C;  
\*  
+ 8C;  
, 8C;  
(  
%  
&  
, 8C;  
8C;  
(  
8C;  
) 8C;  
\* 8C;  
% A 7&\$\$ A 7& \$ G8 A 7%\$\$ ž  
M%

$$F_{a|bSacc} \sqrt{\frac{F_{au}}{T}}$$

$F_{au}$

$T$

G8,) G8,\*

G8,+

$F_{a|bSacc}$

SMD	[	DMOV	100000	100000	SD202	]
	[	MOV	100	100	SD204	]
	[	MOV	5000	5000	SD205	]
	[	MOV	2000	2000	SD207	]
	[	MOV	8000	8000	SD208	]

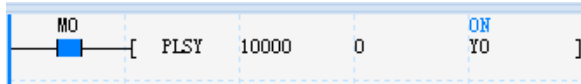
8C;

M8	[	DSZR	OFF	OFF	OFF	OFF	]
			M100	X0	Y0	Y4	

6.20.7 STOPDV

[ STOPDV ]														
G%	8-BH'		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J	
G&	8-BH'		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J	
G	8-BH'		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7		J	
8	6CC@			M										

S1 %  
 S2 &  
 S3  
 D M\$ gefh &  
 M% M& M M( M) M+ M+  
 %  
 & CB (\$ ( M\$ M% M& M M( M) M+ M+ M% M M\$ M& \* @B 7K 77K ( D@GM M\$ CB#C: A \$



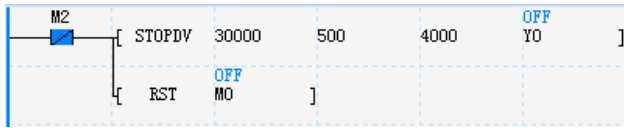
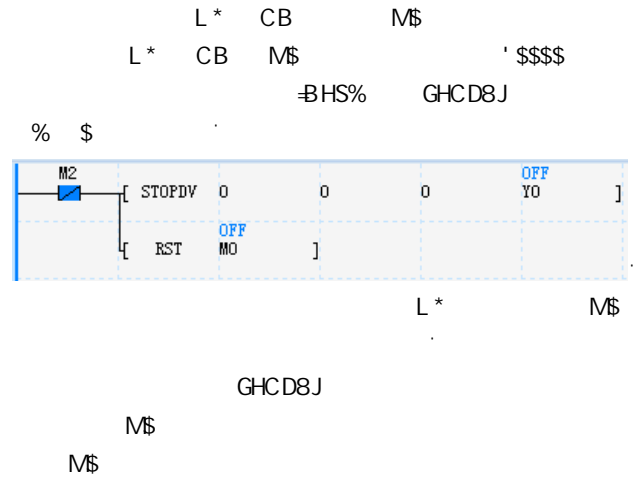
INT\_1

程序名称: INT\_1 作者: \_\_\_\_\_

中断事件: X6输入上升沿中断(中断号=6) ...

程序说明: \_\_\_\_\_

确定 取消



6.20.8 LIN

[ LIN ]			
G	8=BH		8
8%	6CC@	M	
8&	6CC@	M	
8'	6CC@	M	
8(	6CC@	M	

S

D1

D2

D3

D4

%

&

8	
G	

GZ%	%\$	
	\$%	CB# C:: Z
	%\$	CB# C:: Z
	%%	Z
GZ&	: a]b <n	
GZ'	: a]b <n	
GZ(	: aU <n	
GZ)	: aU <n	
GZ*	#	H ag
GZ+	#	H ag
GZ,	L	
GZ-	L	
GZ%\$	M	
GZ%%	M	

%

L M

&

L M

%

M\$ M& M% M M\$ M&

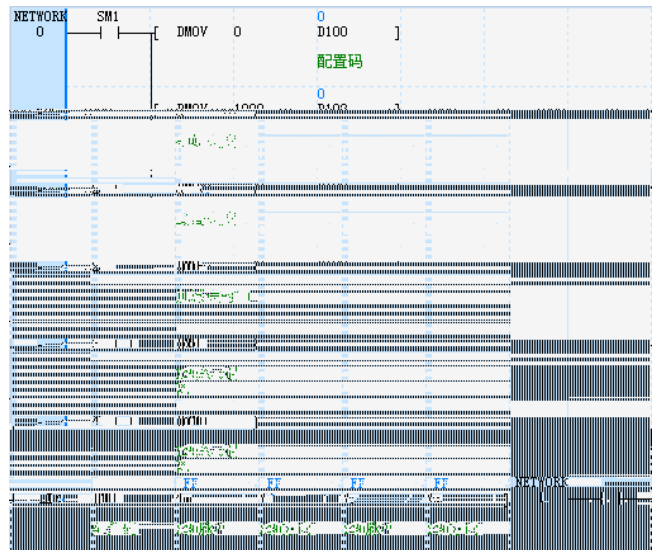
8% 8' M(AM) AM AM &

& M\$ M& Z  
Z %\$\$\_ M( M)

M\* M+ Z  
&\$ \_

' %\* Z++Z&%)

(



6.20.9 CW

[ <b>CW</b> ]															
G	8-BH									8					
8%	6CC@			M											
8&	6CC@			M											
8'	6CC@			M											
8(	6CC@			M											

**S**

**D1**

**D2**

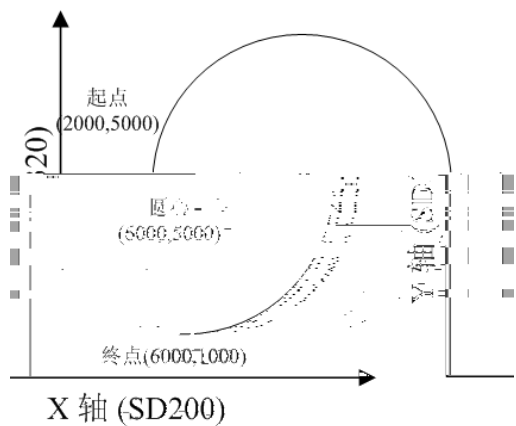
**D3**

**D4**

%

&

8			
G			
	\$		
	%		
GZ%	%\$		
	\$		CB# C::
	\$%		Z
	%\$		CB# C::
	%%		Z
GZ&			
GZ'			
GZ(			
GZ)			
GZ*			
GZ+			
GZ,	L		
GZ-	L		
GZ%\$	M		
GZ%%	M		
GZ%&	L	#	L
GZ%'	L	#	L
GZ%&	M	#	



NETWORK 0	SM1	[	DMOV	0	0	D100	]								
						配置码									
		[	DMOV	1000	0	D104	]								
		[	DMOV	4000	0	D108	]								
						X轴移动距离									
		[	DMOV	-4000	0	D110	]								
						Y轴移动距离									
		[	DMOV	4000	0	D112	]								
						圆心X轴相对位置									
		[	DMOV	0	0	D114	]								
						圆心Y轴相对位置									
NETWORK 1	MO	[	CW	0	OFF	OFF	OFF	OFF							
					D100	Y0	Y1	Y2	Y3						
					配置码	X轴脉冲	X轴方向	Y轴脉冲	Y轴方向						

6.20.10 CCW

[ CCW ]												
G	8-BH									8		
8%	6CC@			M								
8&	6CC@			M								
8'	6CC@			M								
8(	6CC@			M								

S  
D1  
D2  
D3  
D4  
%  
&

8	
G	
	\$
	%

8	%S		
GZ%	\$S		CB# C::
	\$%		Z
	%S		CB# C::
	%%		Z
GZ&			
GZ'			
GZ(			
GZ)			
GZ*			
GZ+			
GZ,	L		
GZ-	L		
GZ%S	M		
GZ%%	M		
GZ&S	L	#	L
GZ%'	L	#	L
GZ%(	M	#	M
GZ)%	M	#	M

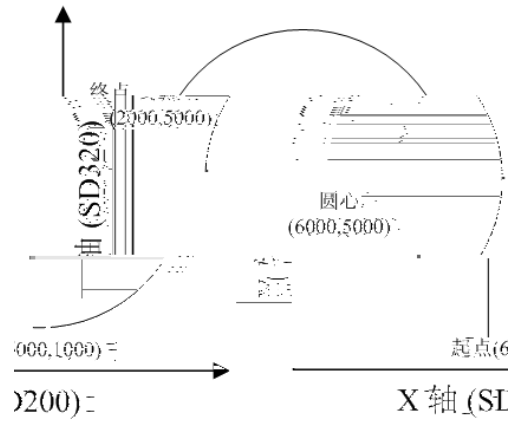
%  
L M  
&  
L M

%

G8

\*\$\$\$ %\$\$\$

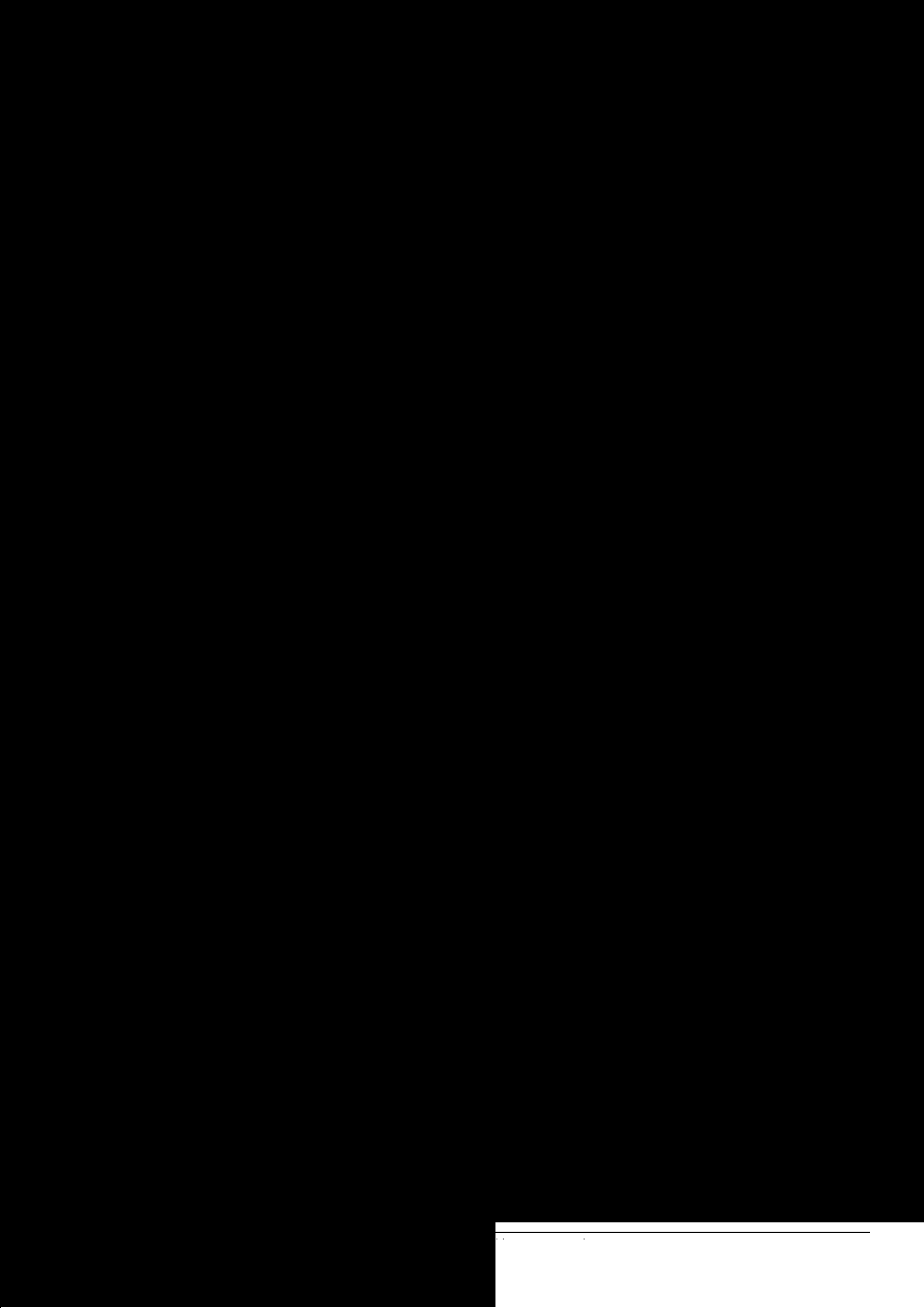
M\$ M& M% M M\$ M&  
 8% 8' M( M) M+ M+ &  
 & M\$ M& Z  
 M+ M+ Z %\$\_ M( M)  
 &\$ \_  
 ( % Z++ Z%)  
 )



SM1	[	DMOV	0	D100	]				
						配置码			
						1000			
						D108			
						-4000			
						D108			
						X轴移动距离			
						4000			
						D110			
						Y轴移动距离			
						0			
						D112			
						圆心X轴相对应位置			
						4000			
						D114			
						圆心Y轴相对应位置			
MO	[	CCW	0	OFF	OFF	OFF	OFF	OFF	OFF
			D100	Y0	Y1	Y2	Y3		
						配置码	X轴脉冲	X轴方向	Y轴脉冲
									Y轴方向

6.20.11 MOVELINK

— —  <b>MOVELINK</b> ]															
G%	8-BH'		? bL'	? bM'	? bA'	? bG'	? b@A'	? bGA'	8'	G8'	7'		J'		
G&	8-BH'		? bL'	? bM'	? bA'	? bG'	? b@A'	? bGA'	8'	G8'	7'		J'		
G'	8-BH'		? bL'	? bM'	? bA'	? bG'	? b@A'	? bGA'	8'	G8'	7'		J'		
G(	8-BH'		? bL'	? bM'	? bA'	? bG'	? b@A'	? bGA'	8'	G8'	7'		J'		
G)	6CC@'			M											
G*	6CC@'			M							7'				



6.20.13 DRVC

[ DRVC (S1) (D1) (S2) (D2) ]													
G%	6CC@									7			
8%	8-BH							8					
G&	6CC@			M									
8&	8-BH							8					

S1

D1

(D1+2

(D1+4

S2

D2

% M

L

& 8fj ]

% G8&\$) G8&\$) G8&\$&f1 &

Ł G8&\$ ( %

Z

h1 G8&\$) fZ g&\$ ( f G8&\$& G8&\$ ( Ł  
 f#&\$&\$Ł fZ G8&\$ ( Ł

M\$ GA , \$

M GA

(""  
 )" "

\*" M\$ GA , & CB

C: :

+ " M\$ r M\$

SM1	[	DMOV	100000	100000	DO		
	[	DMOV	100000	100000	D2		
	[	DMOV	150000	141072	D4		
SMD	[	HCNT	0	100000	DO		
M10	[	DRVC	OFF	100000	DO	OFF	OFF
	[		C236			Y0	Y4

6.20.14 CAMTABLE

[CAMTABLE (S1) (S2) (S3) (S4) (S5)]															
G%	-BH'								8'	G8'	7'		J'		
G&	8-BH'								8'	G8'	7'		J'		
G'	-BH'								8'	G8'	7'		J'		
G(	-BH'								8'	G8'	7'		J'		
G)	-BH'								8'	G8'	7'		J'		

**S1:**

**S2:**

**S3:**

**S4:**

**S5:**

M1	↑	[CAMTABLE	R10	D12	D14	D16	D18	]
M3		[CAMBOX	D0	X0	Y2	Y3	X10	]

6.20.15 CAMBOX

[ CAMBOX (S1) (D1) (D2) (D3) (D4) ]															
G%	=BH			M					8	G8	7		J		
8%	6CC@	L	M								7				
8&	6CC@		M												
8'	6CC@		M	A											
8(	6CC@		L												

**S1** 75A H56@9 %

**D1** L \$rL + M\$rM+ & 7 \Wdh  
 7& \*r7' \$+

**D2** M\$rM+

**D3** M\$rM+

**D4** L \$rL +

M1	[CAMTABLE R10	D12	D14	D16	D18
M3	[CAMBOX D0	X0	Y2	Y3	X10

%

HUYS

## 6.21

### 6.21.1 MEAN

[ MEAN (S1) (D) (S2) ]										MC280				
G%	=BH		? bL	? bM	? bA	? bG	? b@A	? bGA	8	G8	7	H		F
8	=BH			? bM	? bA	? bG	? b@A		8	G8	7			F
G&	=BH								8					F

%

&

M1	[ MEAN	32	10	4
	D0	D10		

@8 A %

A 95B 8\$ 8\$ (

A %CB 8\$ ( ž

8\$ 8\$1' & 8%1\$ 8&1% 8' 1!%

8\$1%

%

### 6.21.2 WTOB

[ WTOB (S1) (D) (S2) ]										MC280				
										7				
G%	=BH								8	G8	7	H		F
G&	=BH								8	G8	7	H		F
8	=BH								8					F

%

&

%

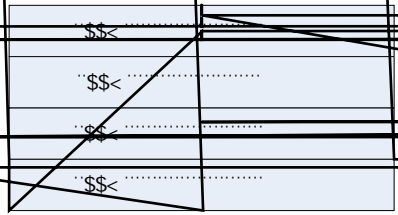
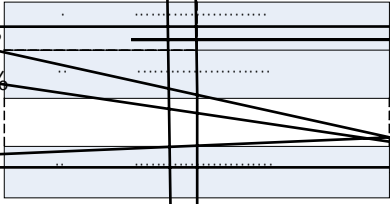
&.

V% !!!!!!!!! V, V+ !!!!!!!!! V\$

ž\$

ž%

b:&



žb!&

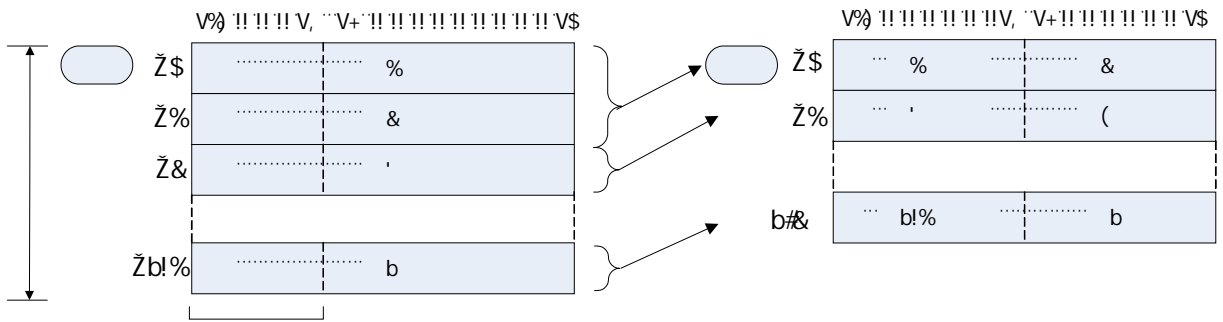
žb!%

6.21.3 BTOW

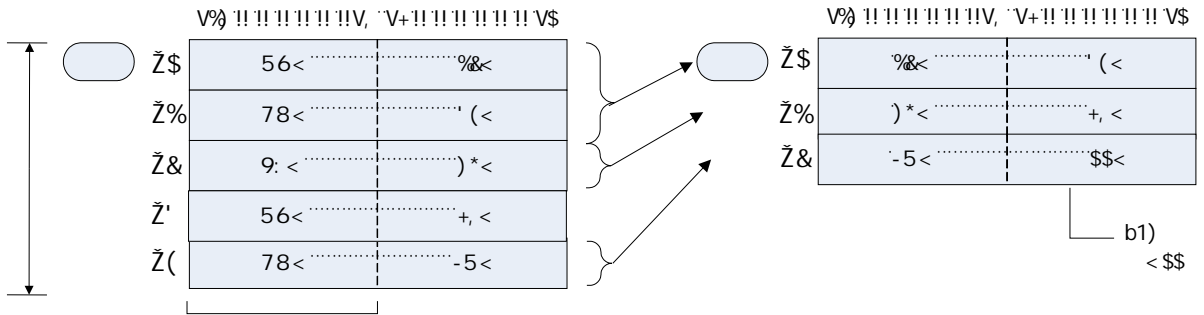
[ BTOW (S1) (D) (S2) ]													
G%	-BH							8	G8	7	H		F
G&	-BH							8	G8	7	H		F
8	-BH							8					F

%  
&

%



&



(

M1	[	BTOW	1	258	8	]
			D0	D10		

@8 A %

6HCK 8\$ 8%

A %CB 8\$ \* 8% 8\$1\$ %8%1\$ \$&Z

8&1\$ '\$ Z8' 1\$ \$(Z8(1\$ \$) Z8) 1\$ \$\* 8%1\$1\$ %&Z8%1\$ '\$ (Z8&1\$) \$\*

### 6.21.4 UNI

|—| |—| [ UNI (S1) (D) (S2) ]S



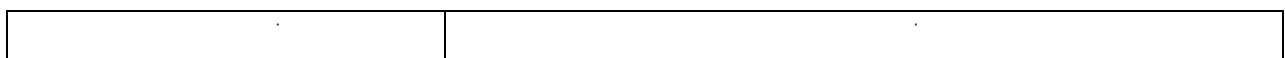
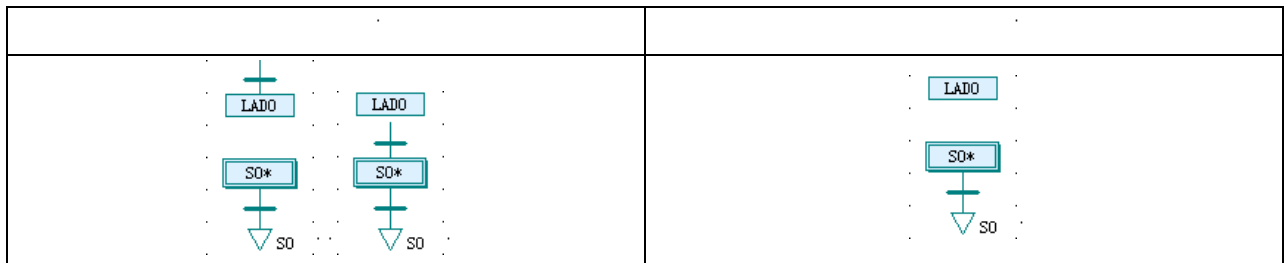
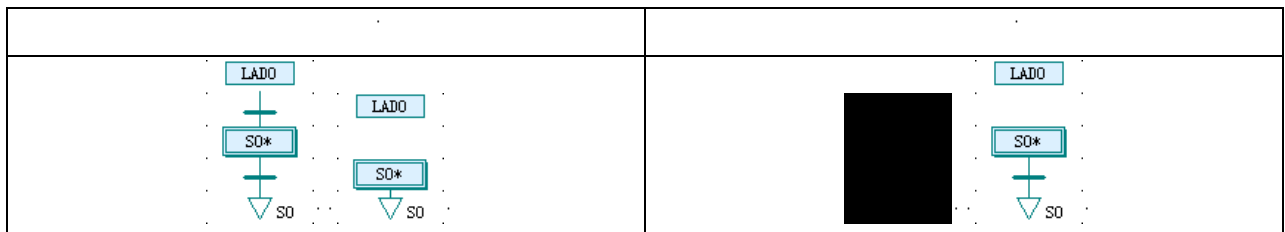


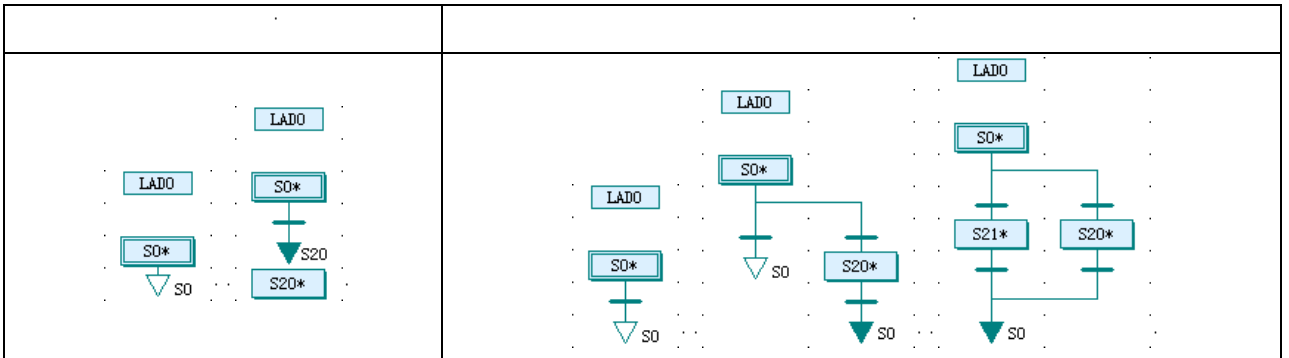
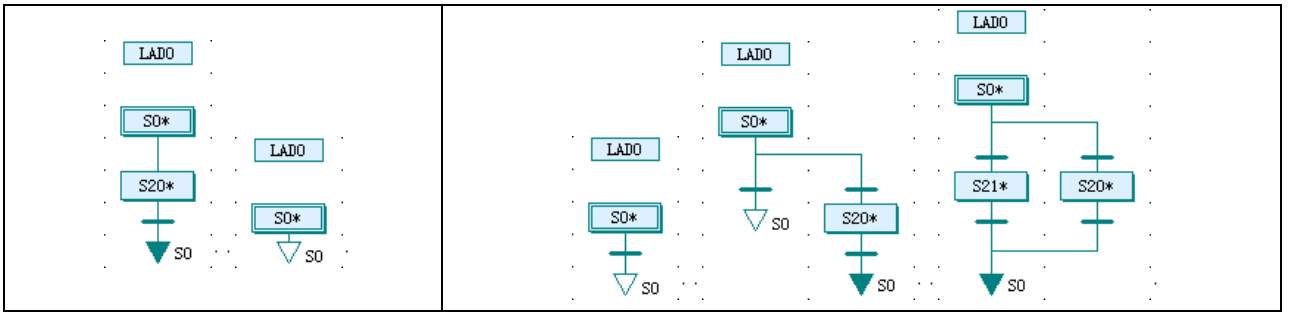


+ '% .....& )  
+ '%%' .....& )  
+ '%& A 7 D@7 .....& )  
+ '% .....& )  
+ '%( .....& )



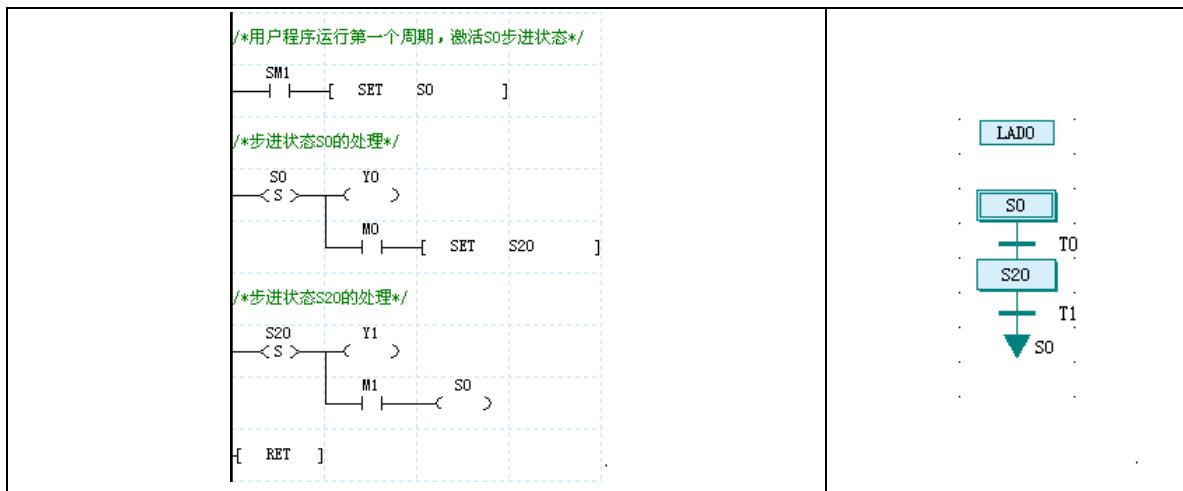
		G
		G    CB
		G    C::





7.1.5

G. 7



%

G CB

&"

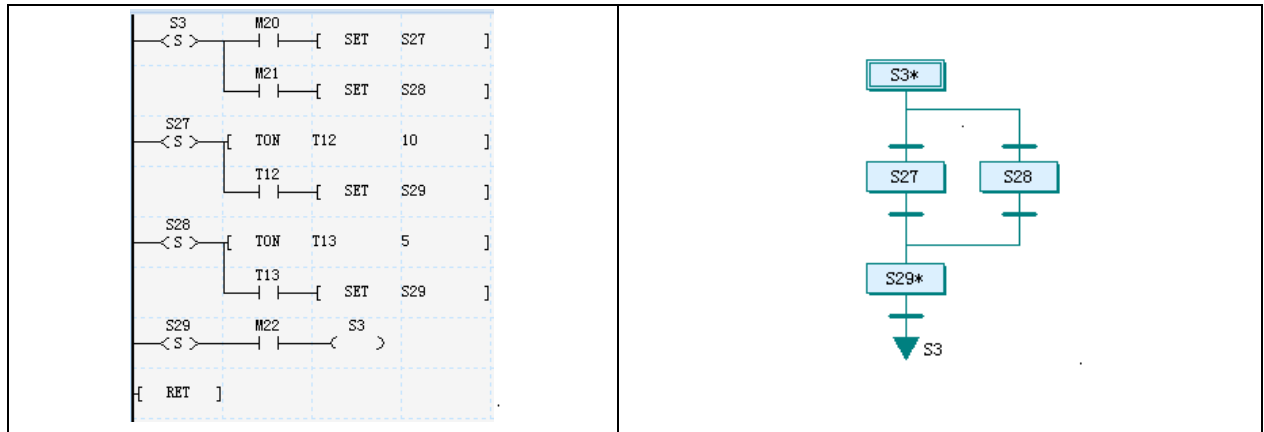
G \$ %

&)

G      &\$ --% A 7&\$

&\$ %&' A 7%&\$

("



%"

A &\$ A &%

A &\$ A &%

B\$      G&+ G&

G&+   G&

&"

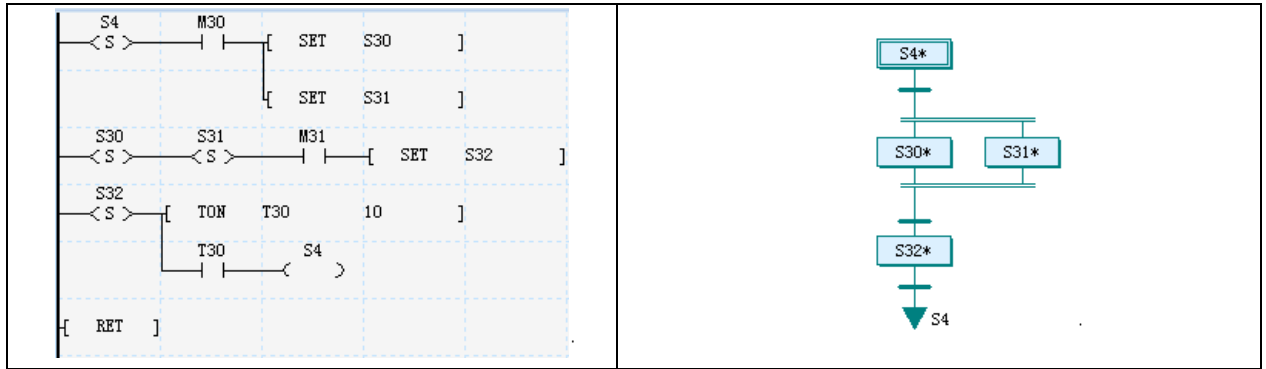
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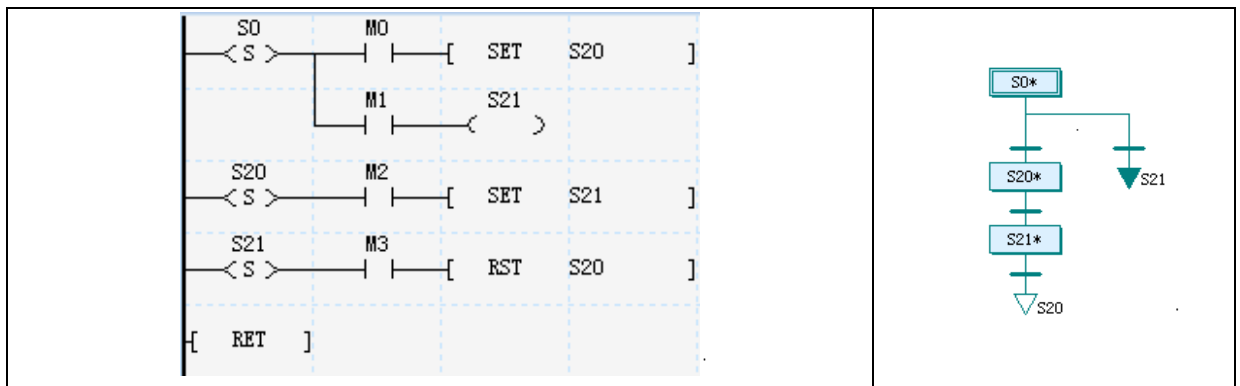
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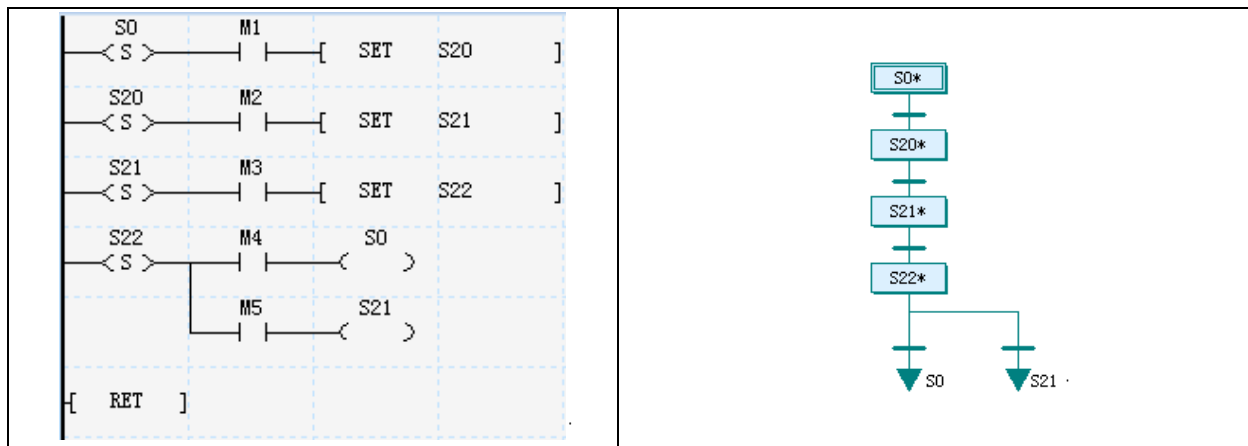
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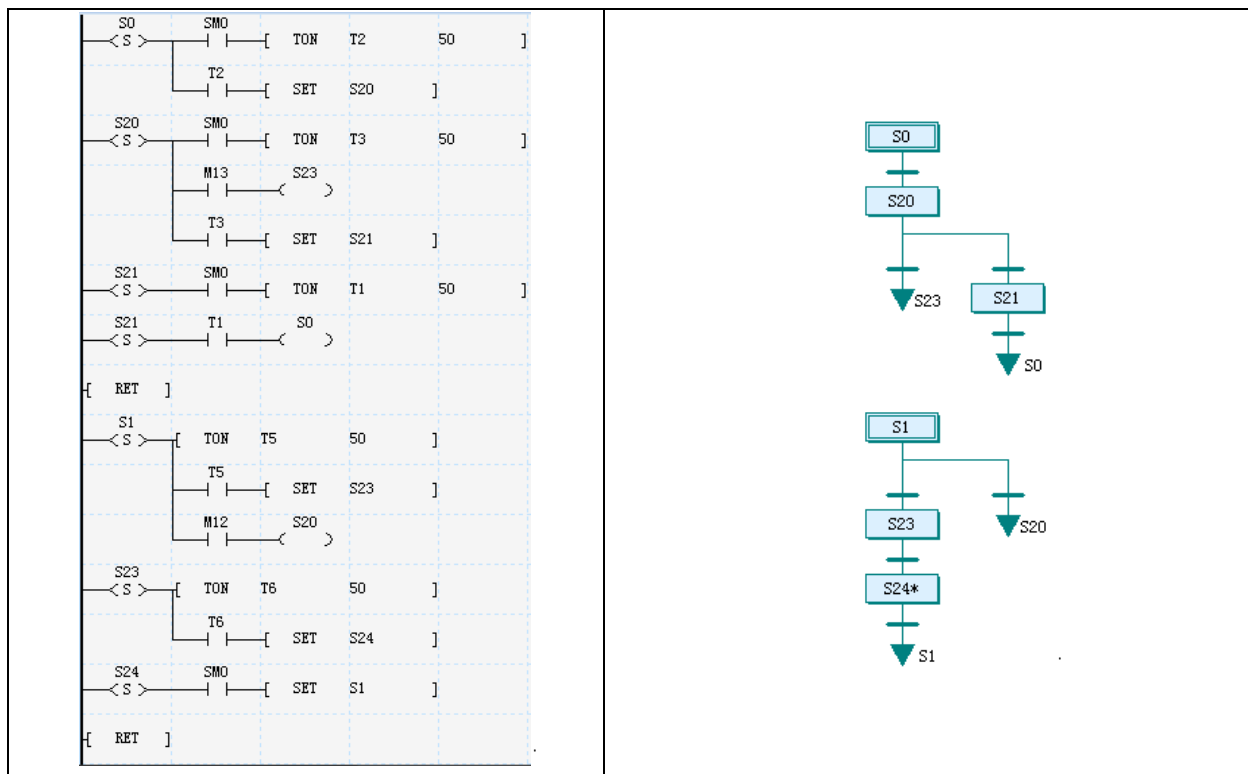
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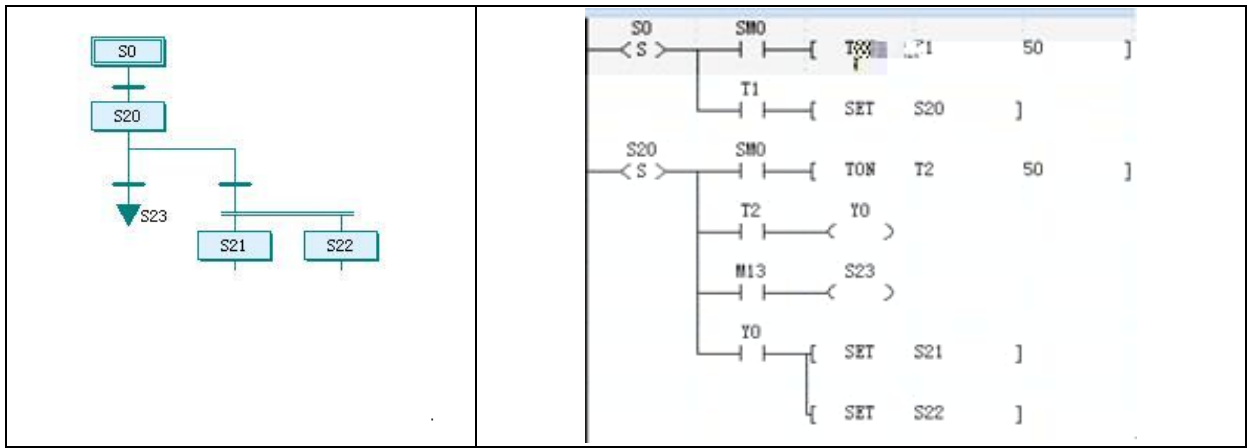
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7.1.6

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G CB C:: CB#C:: 5.31 STL SFC G



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7.4

7.2

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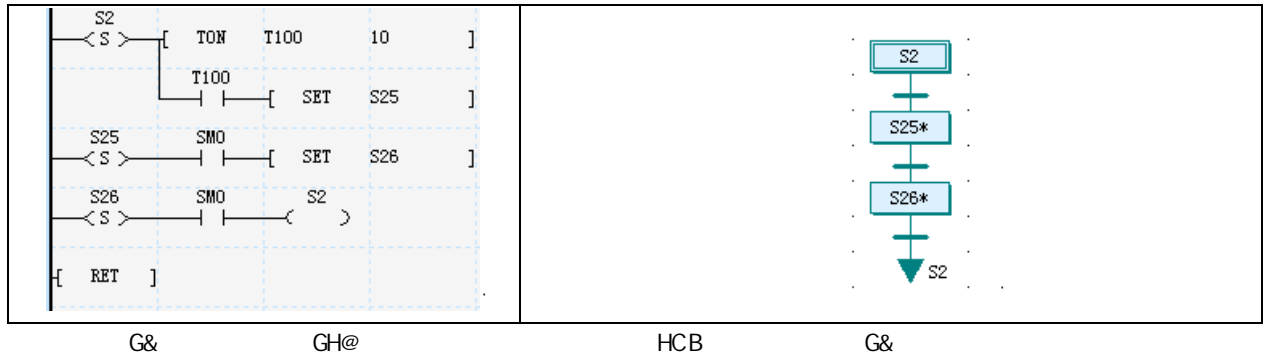
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7.2.1 STL

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GH@                      5.31 STL SFC                      CB C::

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7.2.2 SFC

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G9H

G 7

7.2.3 RET

SFC

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F9H

F9H

7.2.4 SFC

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7.2.5 SFC

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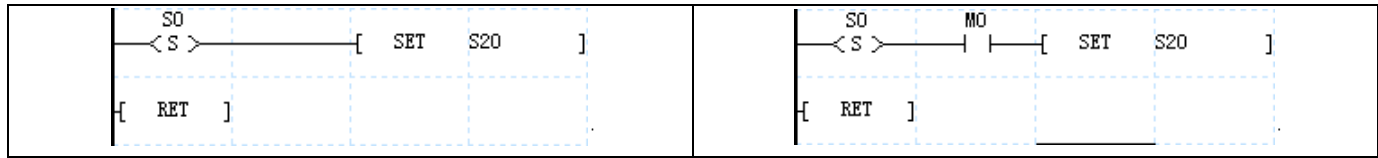
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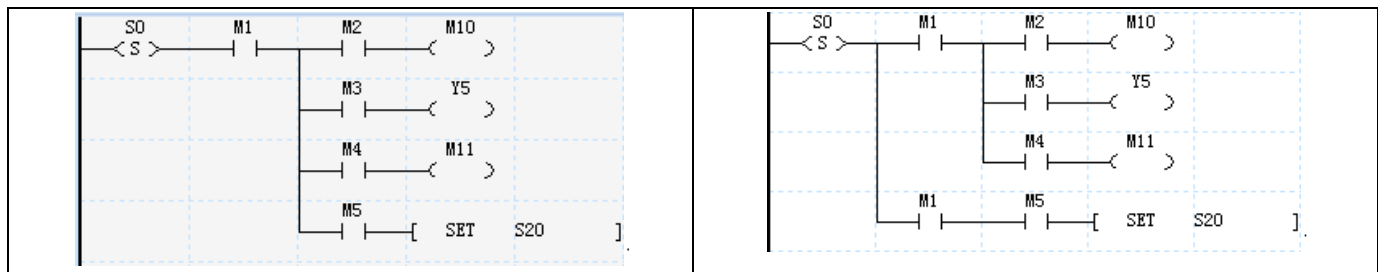
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 8<G7F 8<GN 8<GH 8<GD 6CI H )"

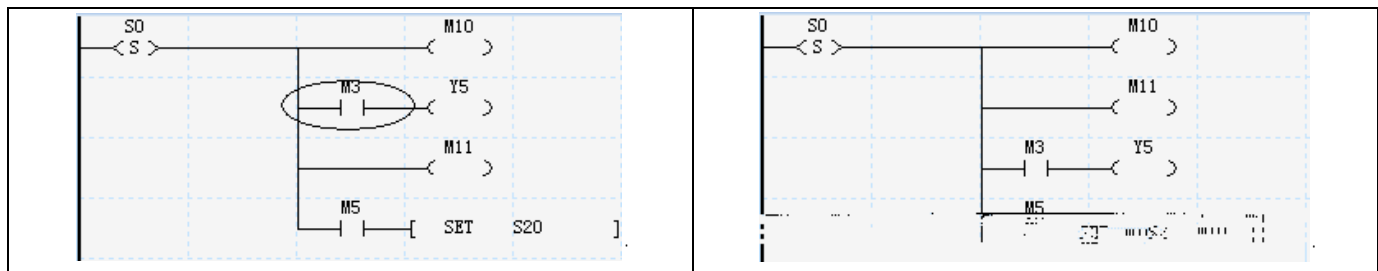


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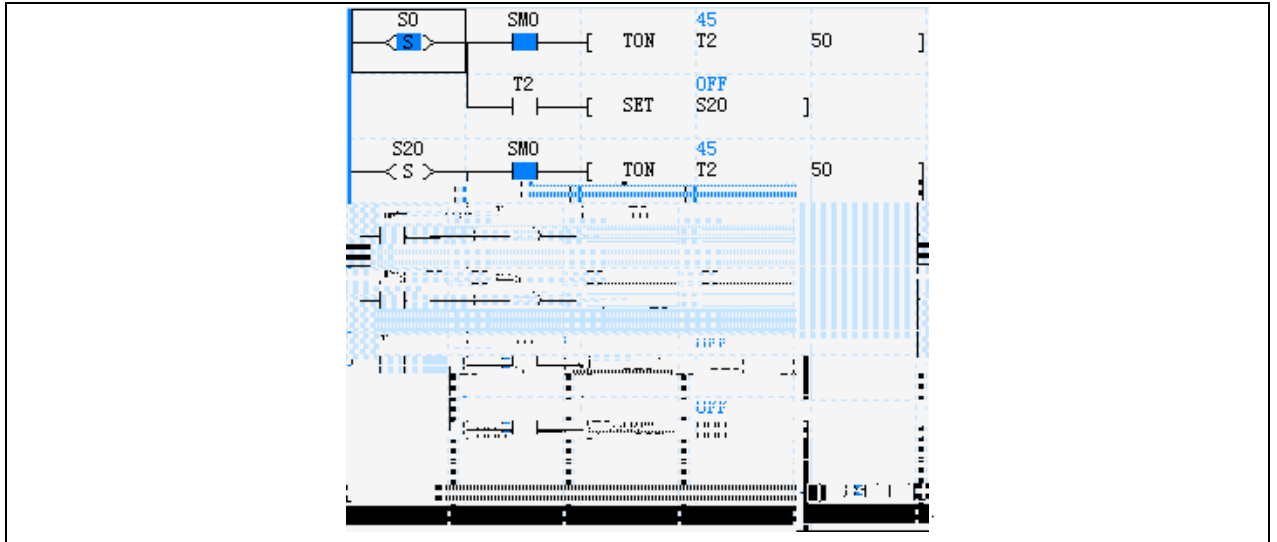
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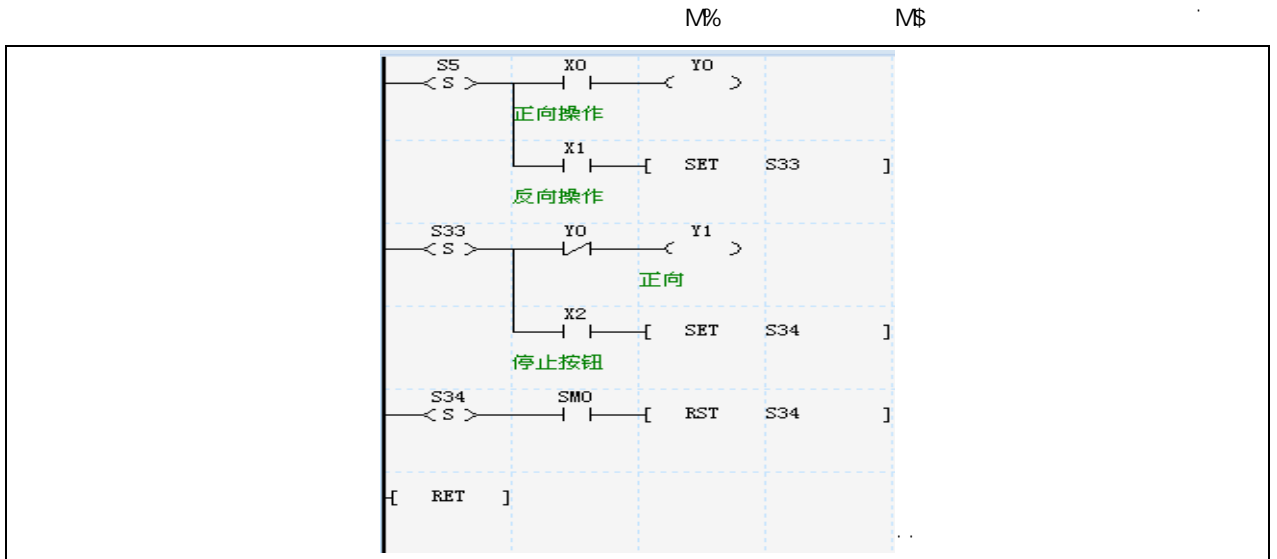
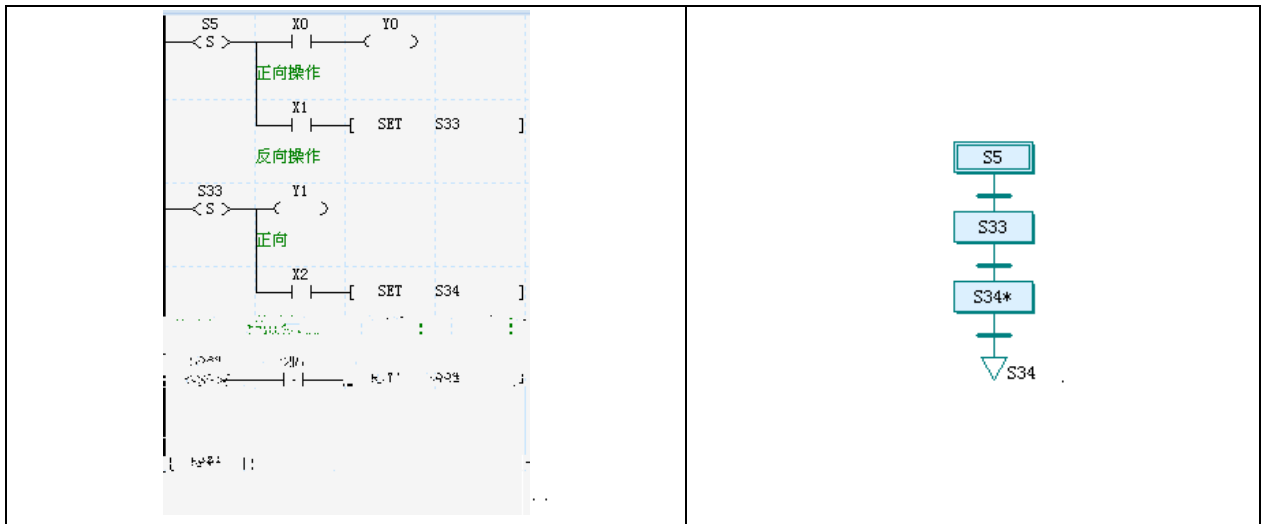
5.31 STL SFC

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G 7

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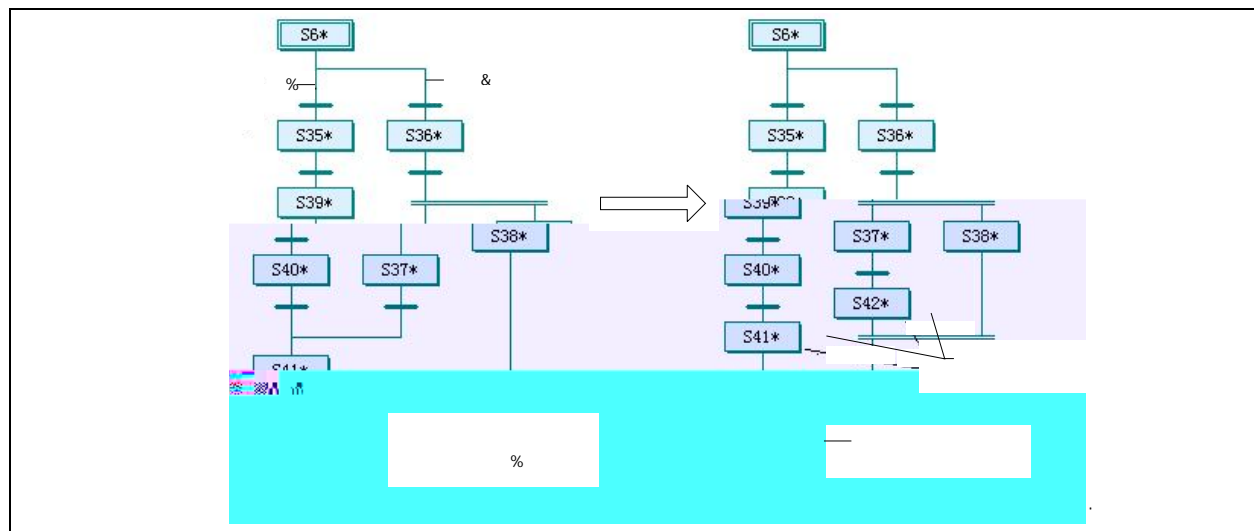
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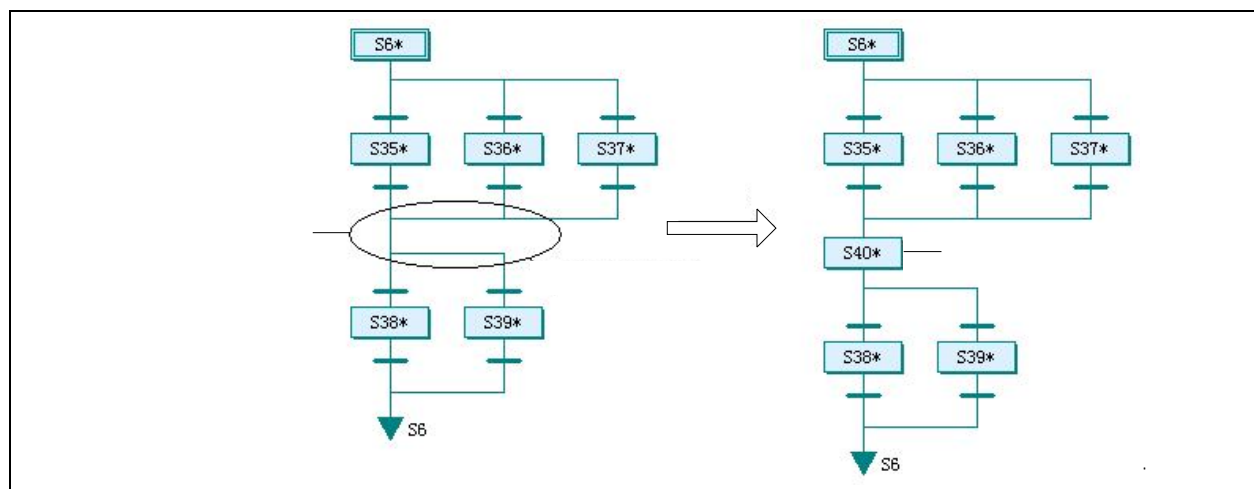
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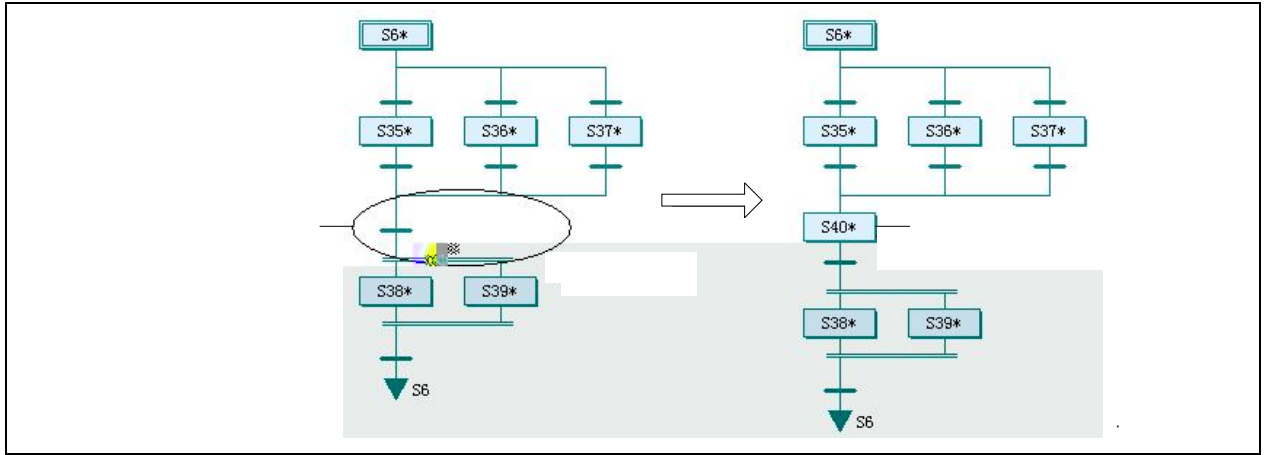
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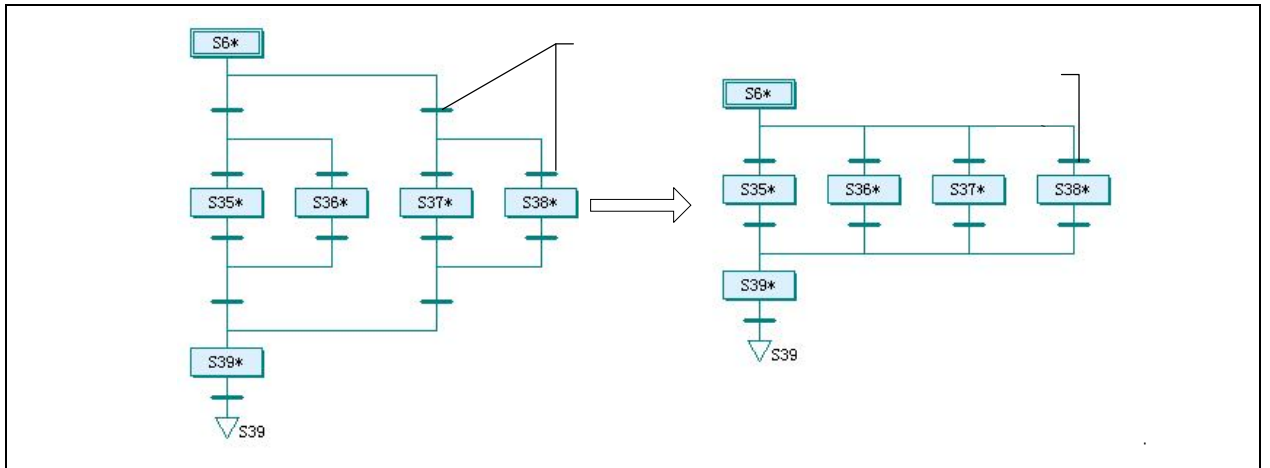
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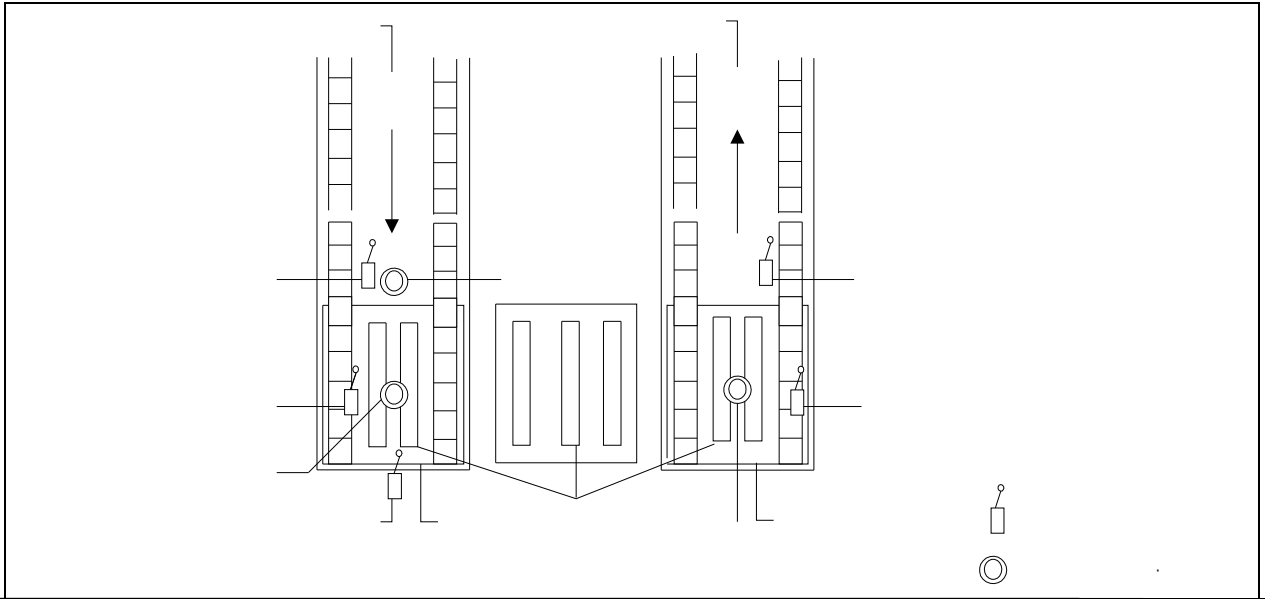
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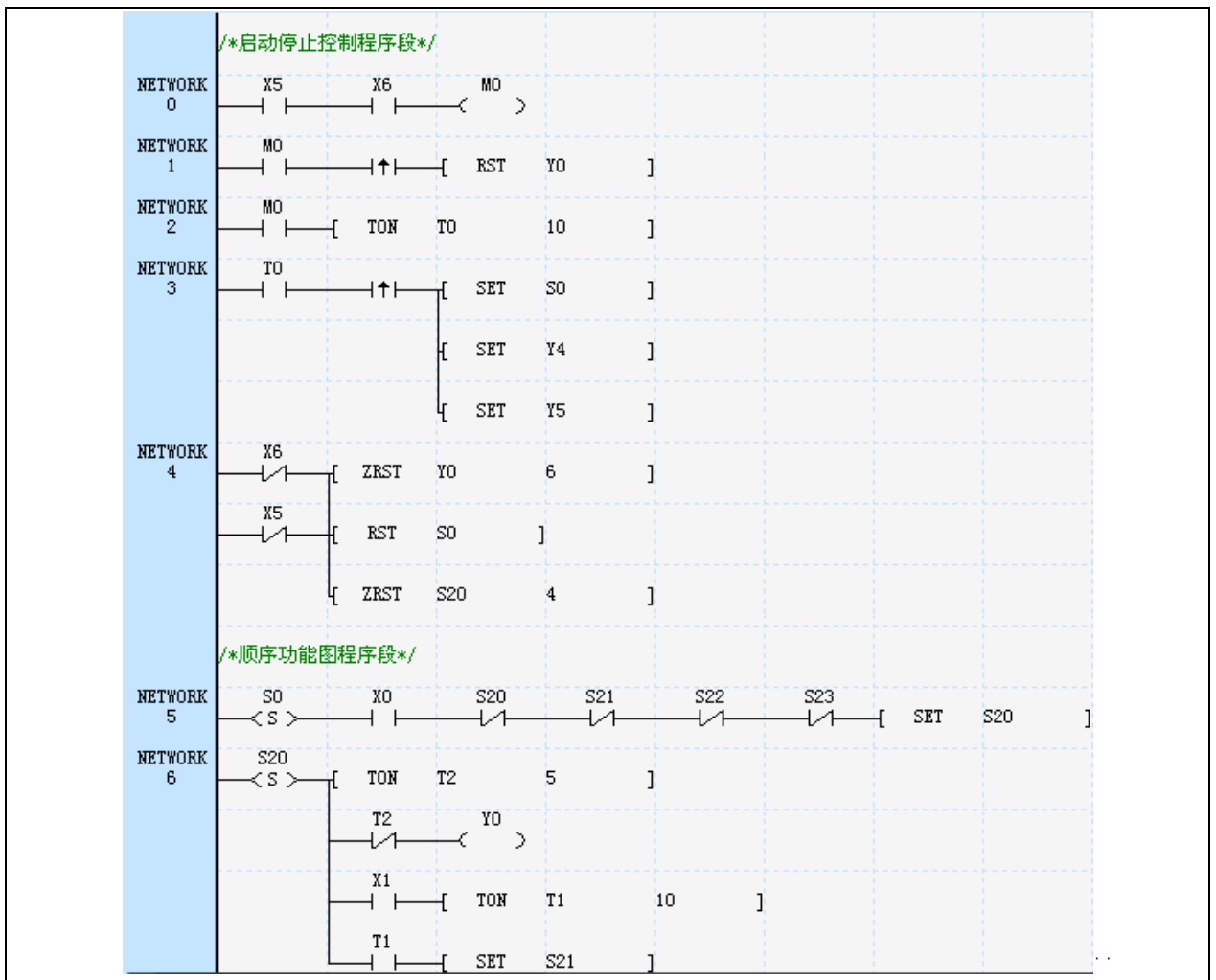
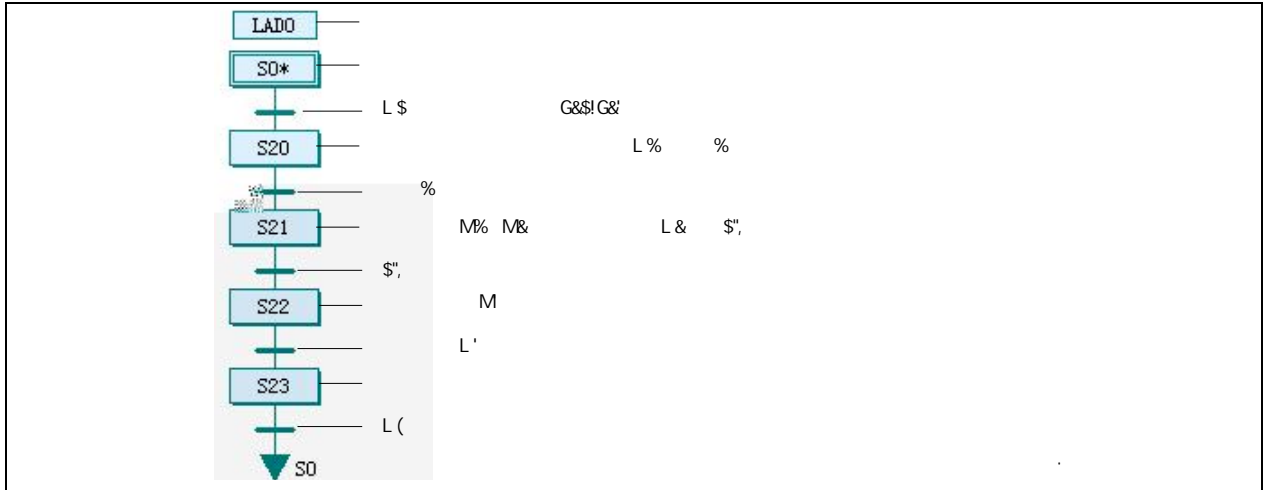


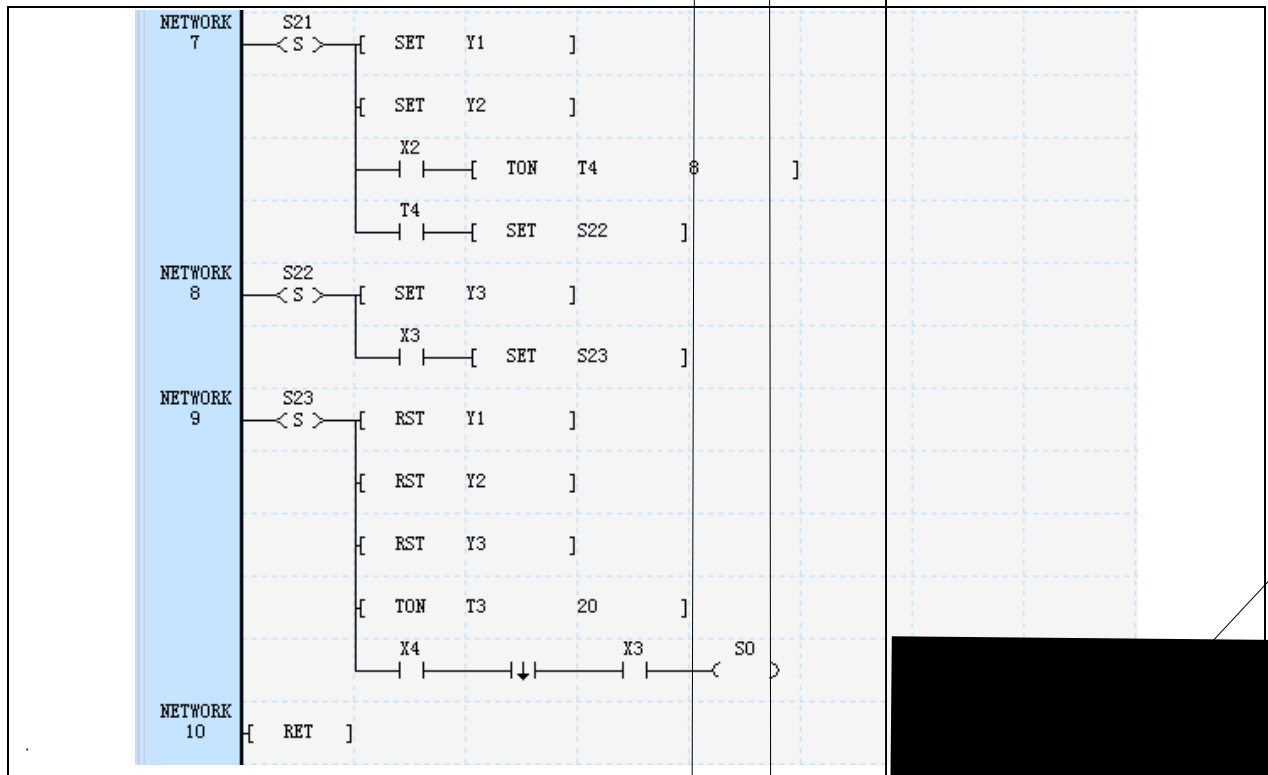
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7.5

7.5.1

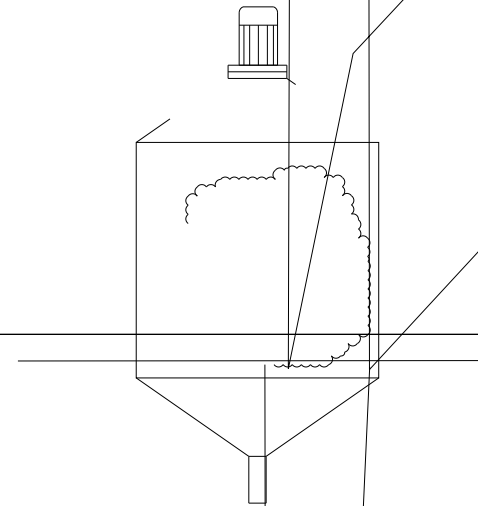






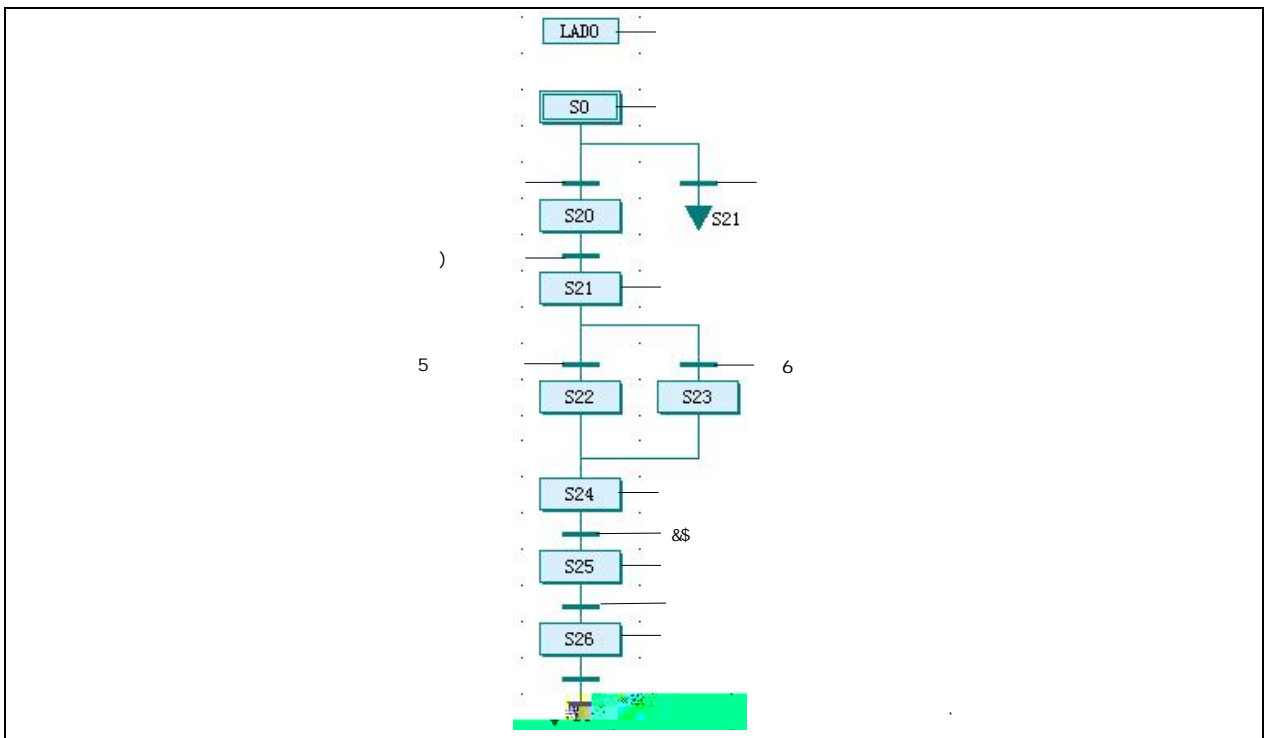
7.5.2

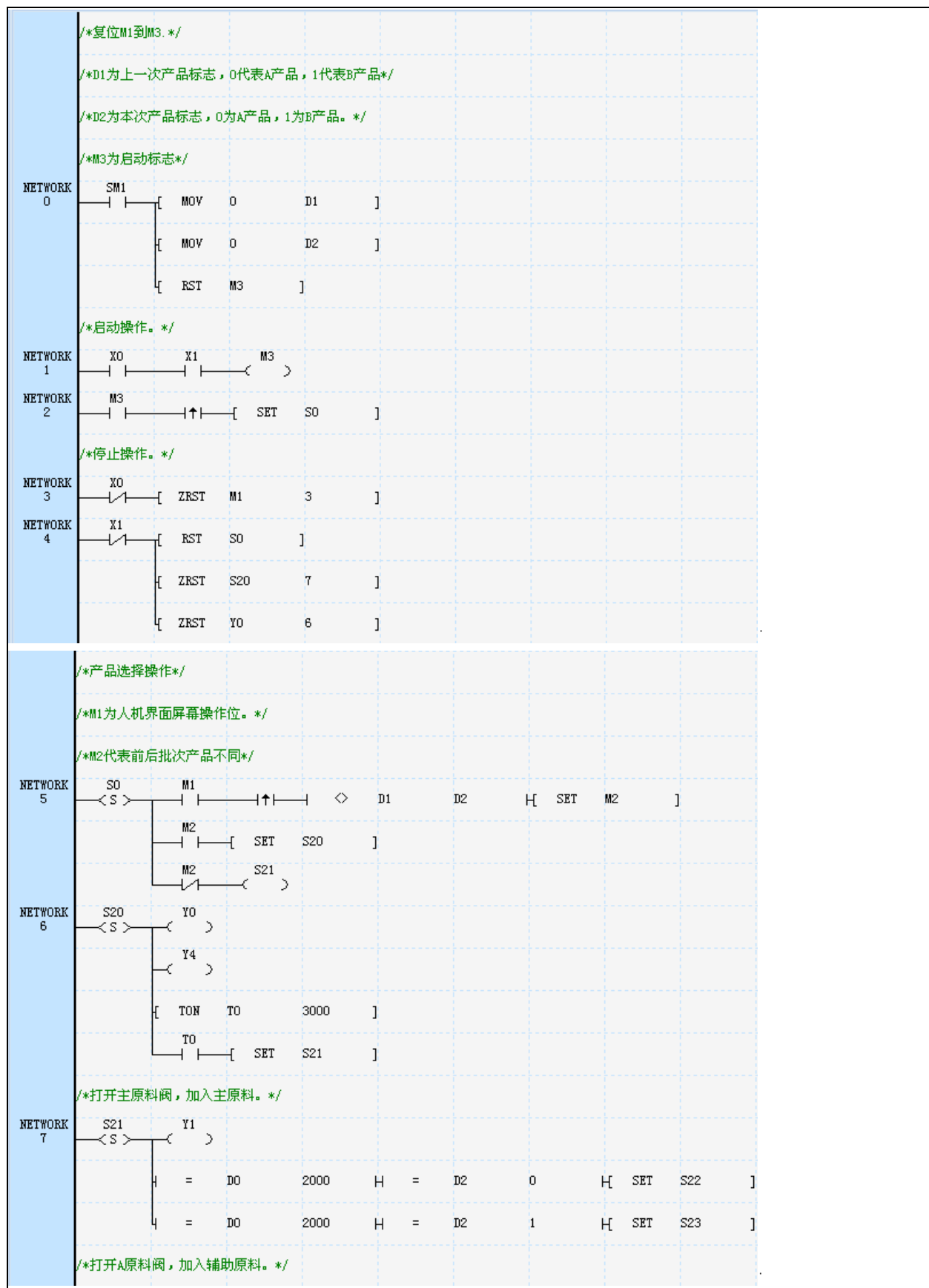
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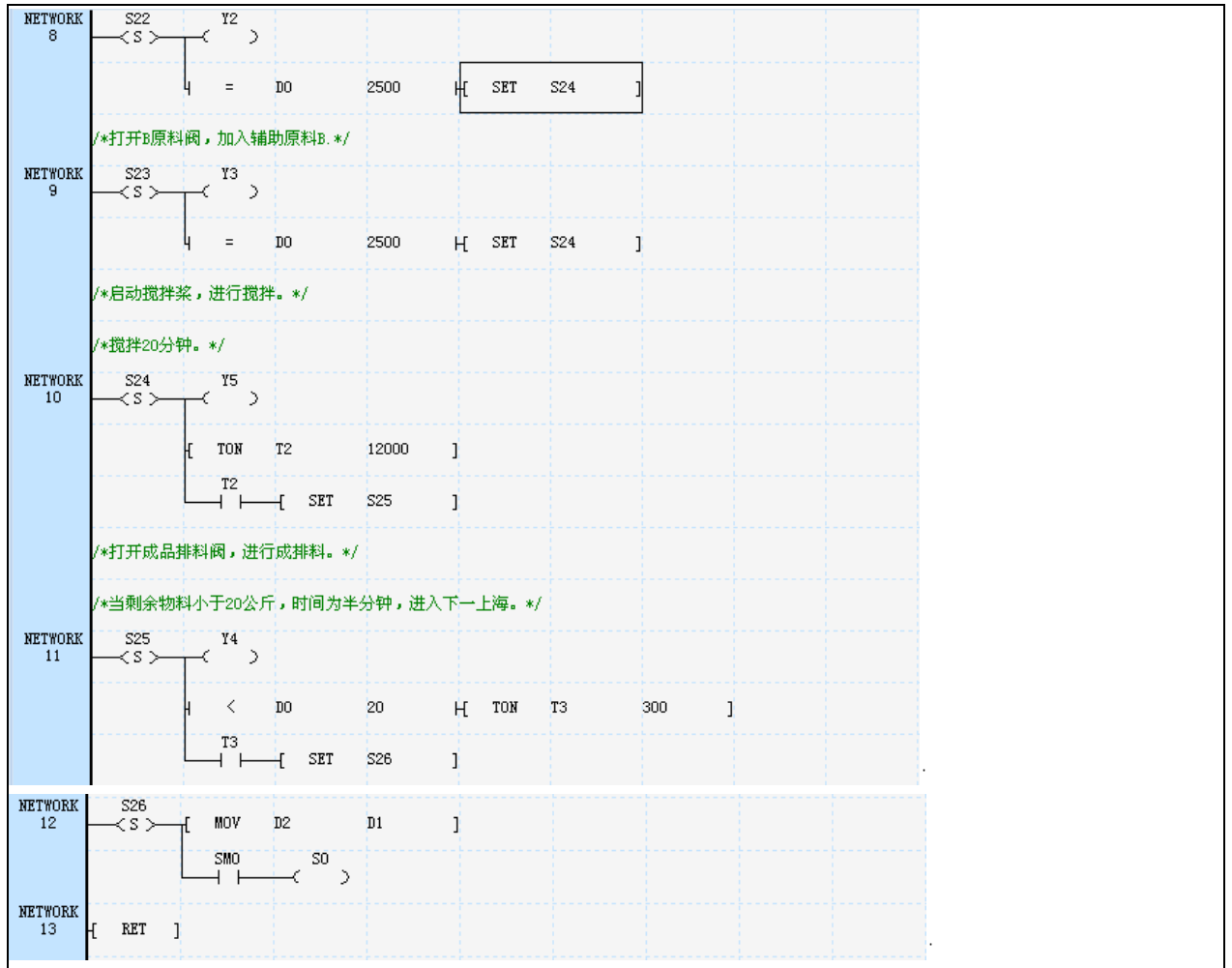


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7.5.3

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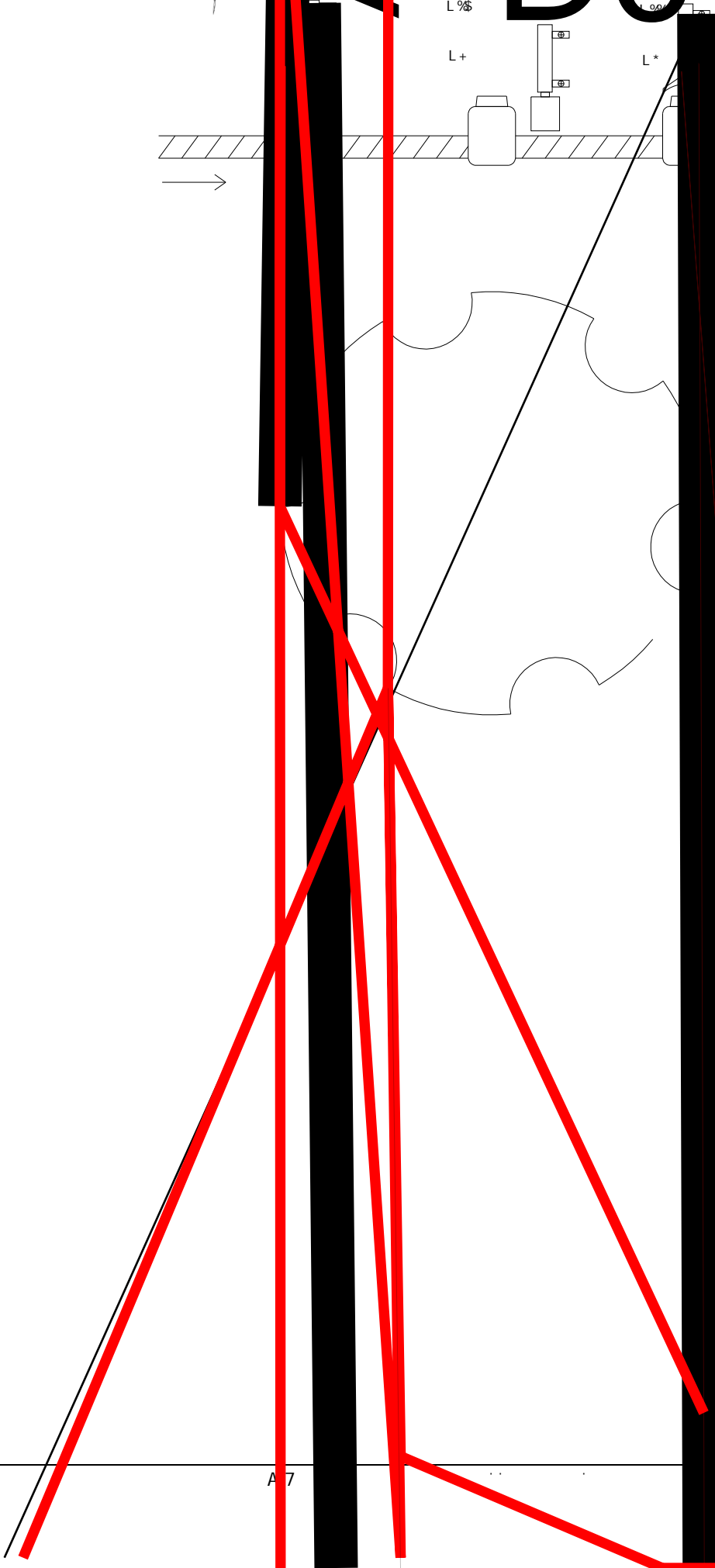
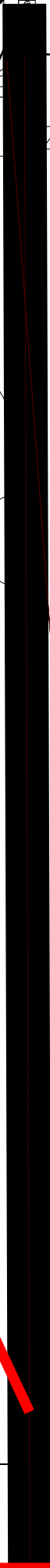
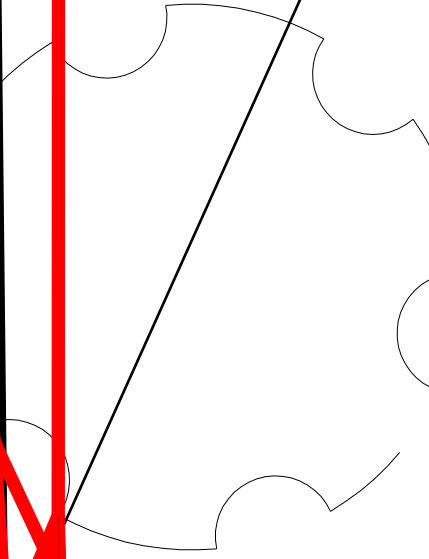
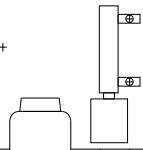
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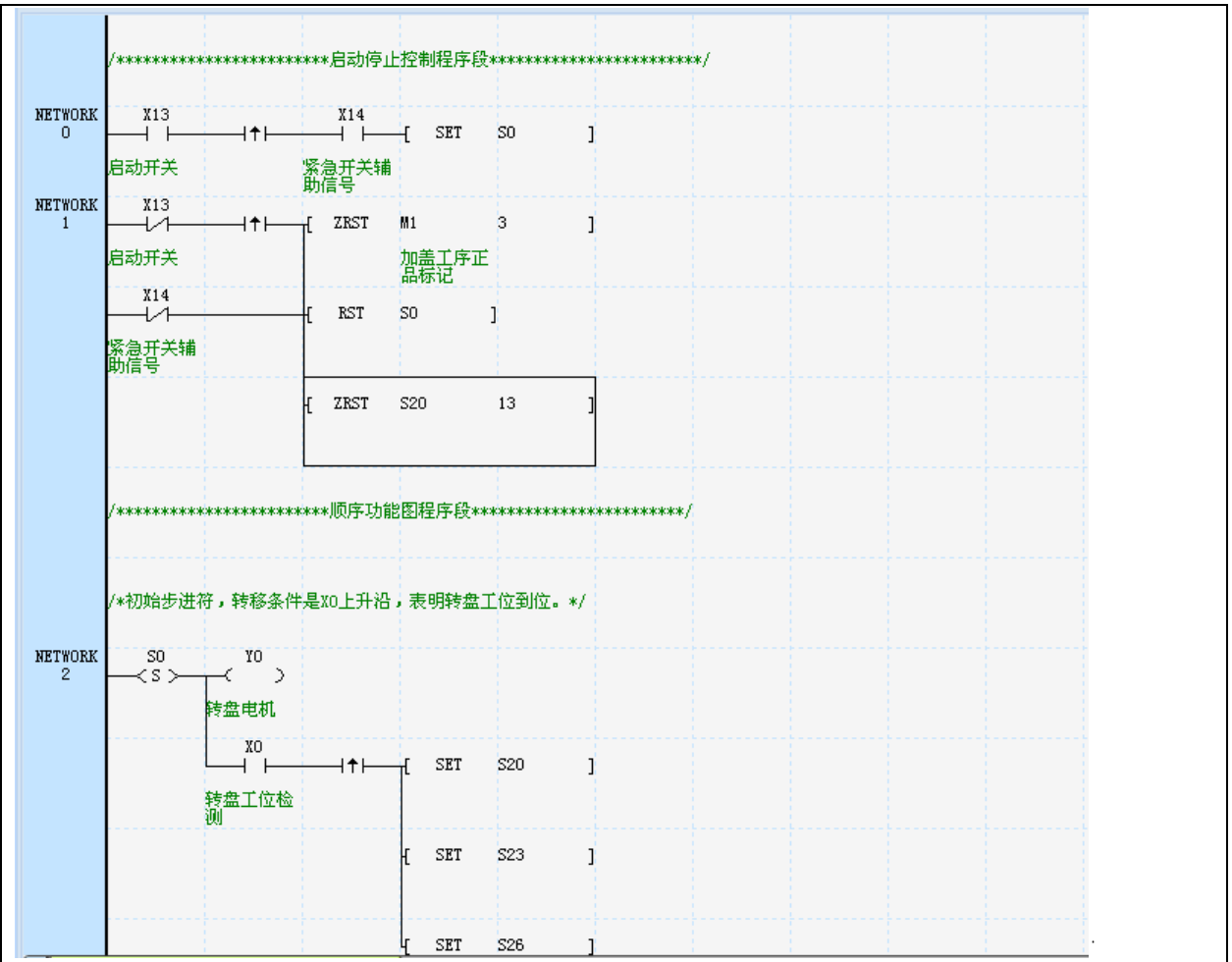
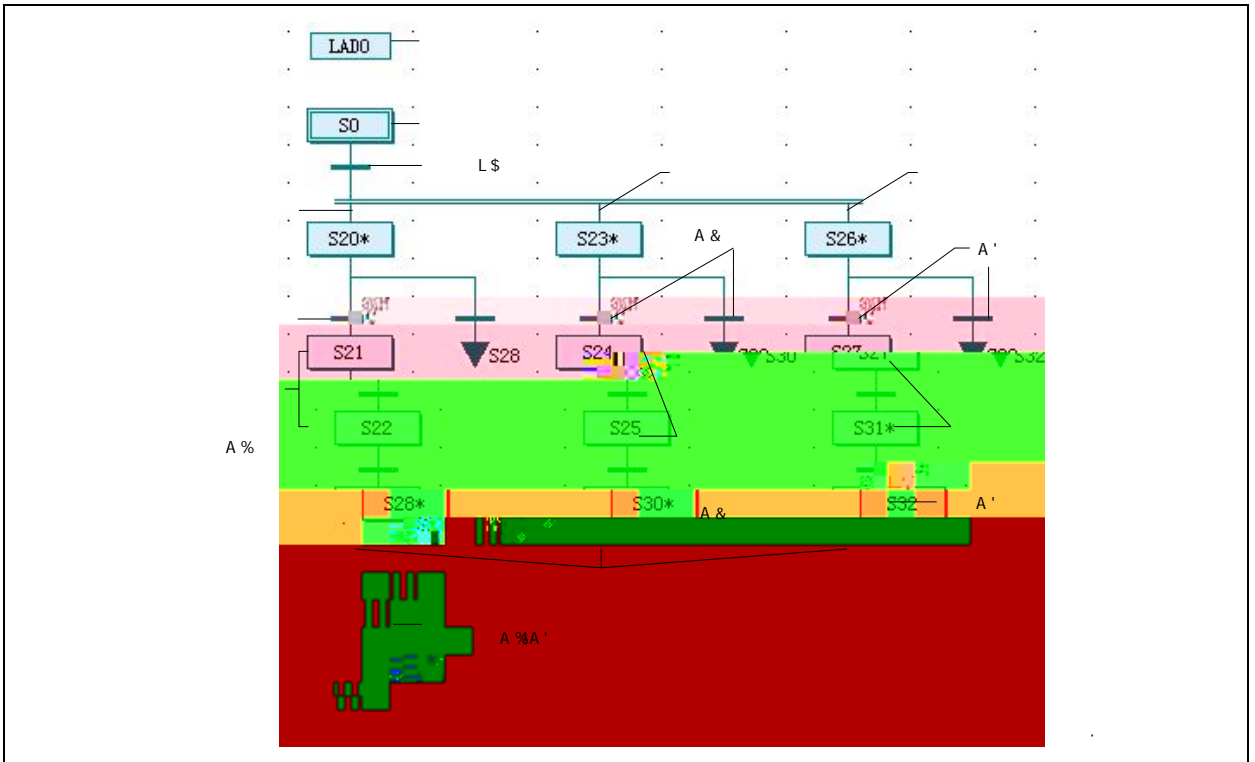
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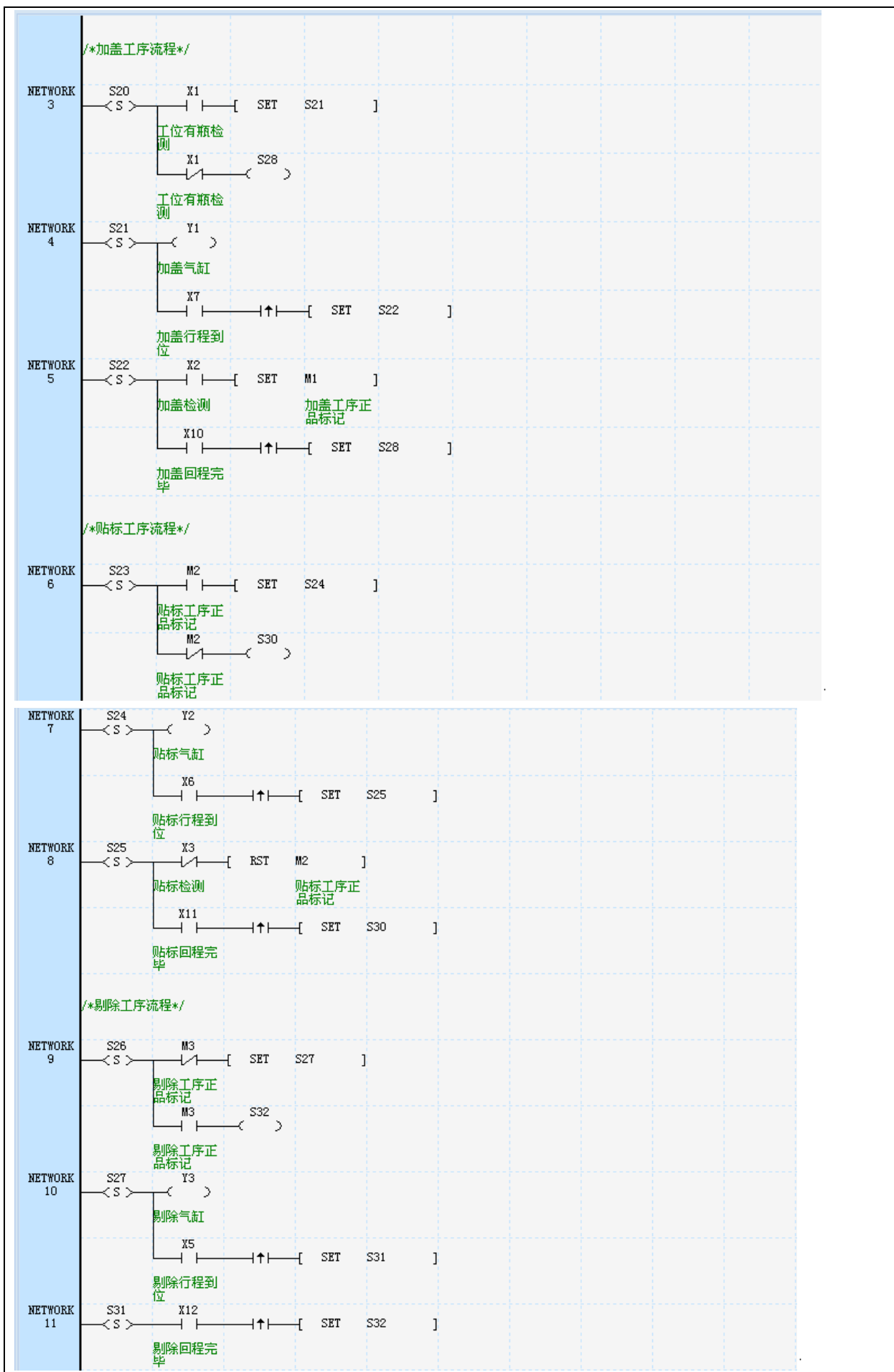
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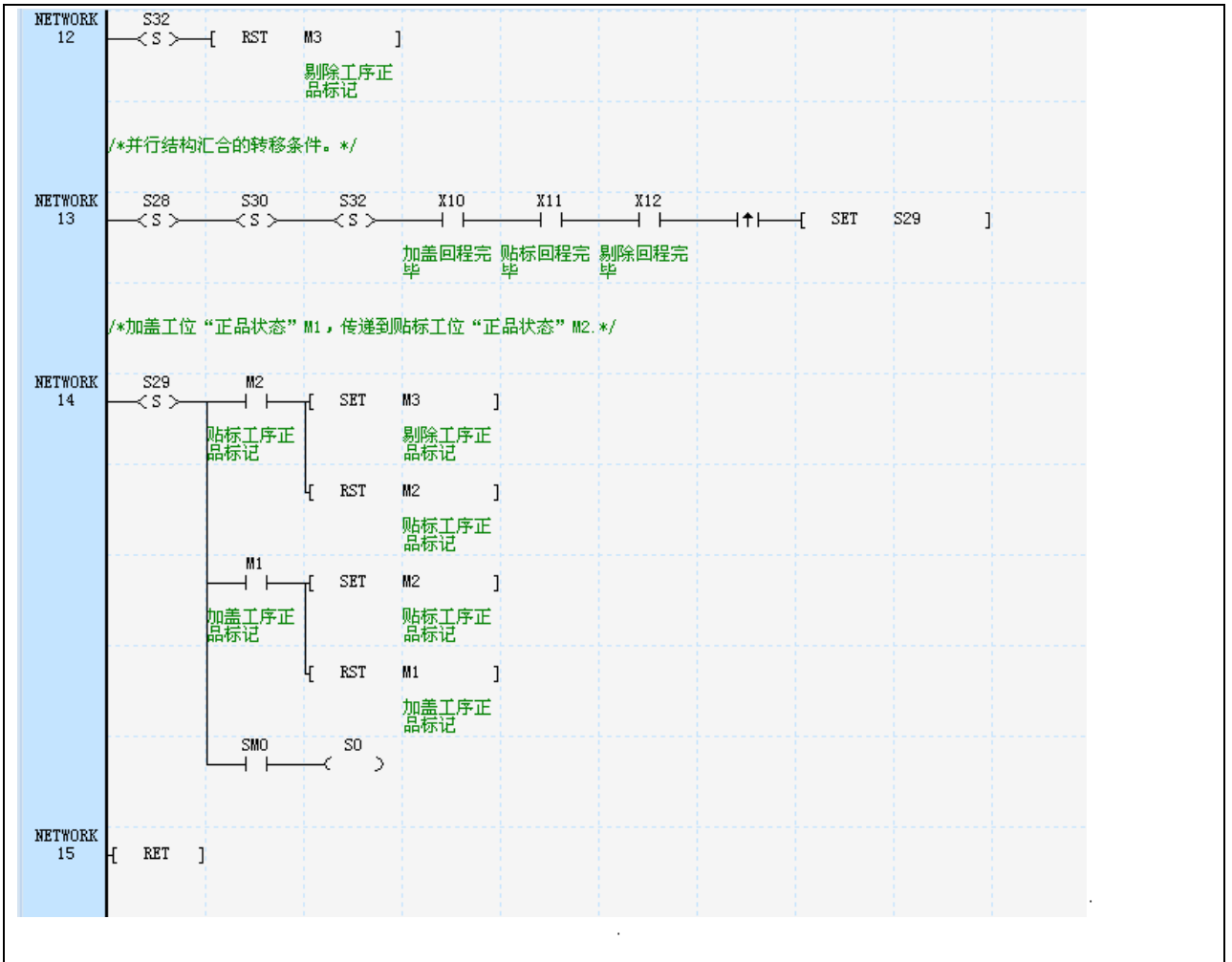
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8.1.1

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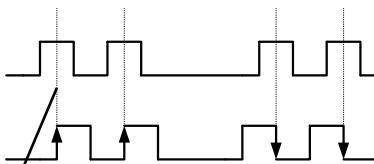
D@7

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GA '\$	GA C:: CB



GA %\$\$ GA %\$( C:: 7&)% 7&\$\* 7'\$( 7'\$\*  
GA &)% GA &)- GA '\$( GA '\$\* GA C:: CB



	7 & ) %	GA % \$ \$
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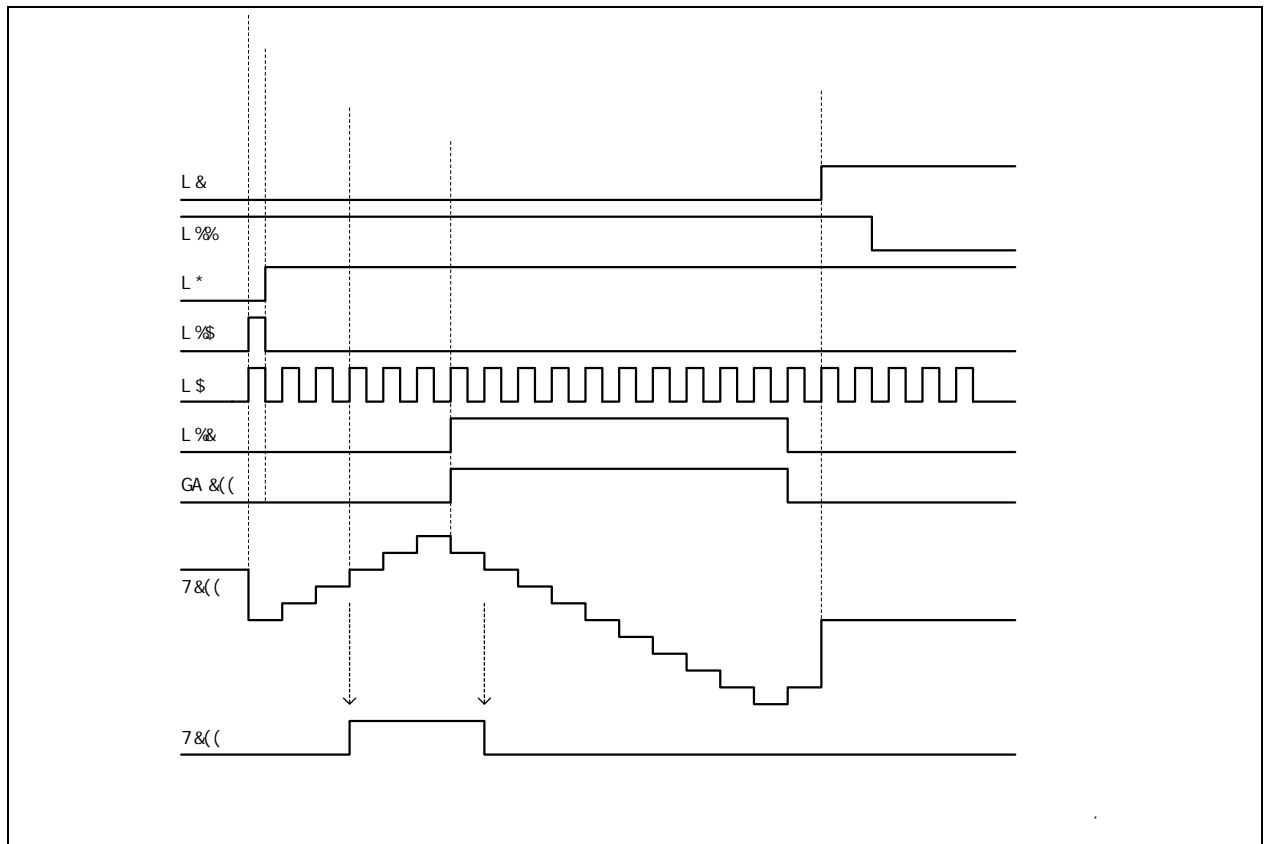
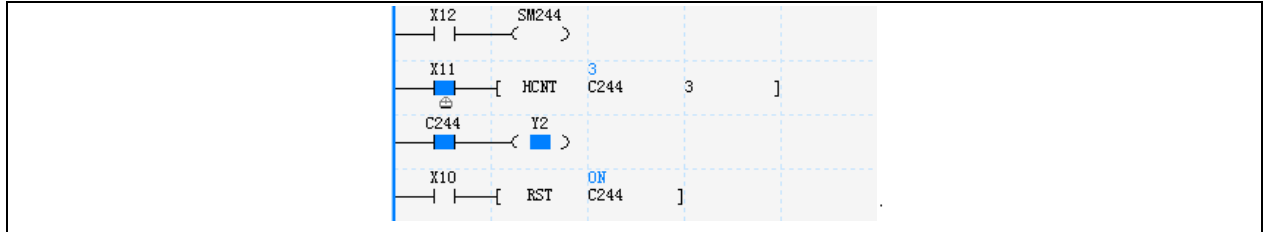
		R/W	MC 200	MC 100	MC 280
SM100	X0 X1 AB 1 /4	R/W			
SM101	X2 X3 AB 1 /4	R/W			
SM102	X3 X4 AB 1 /4	R/W			
SM103	X4 X5 AB 1 /4	R/W			
SM104	X6 X7 AB 1 /4	R/W			

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8.1.4

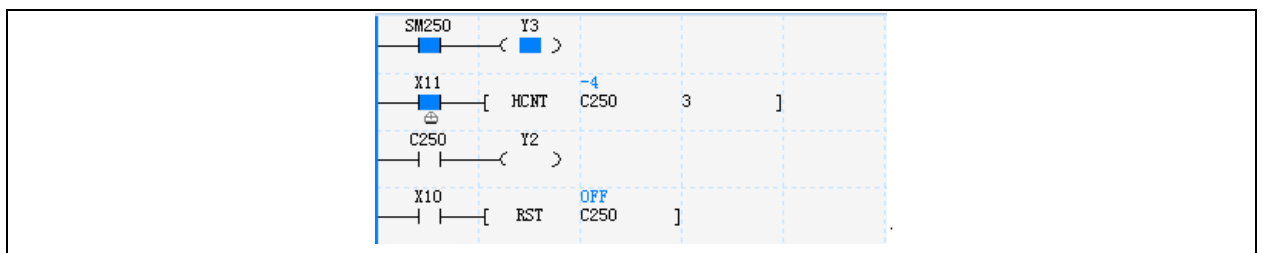
C: : CB

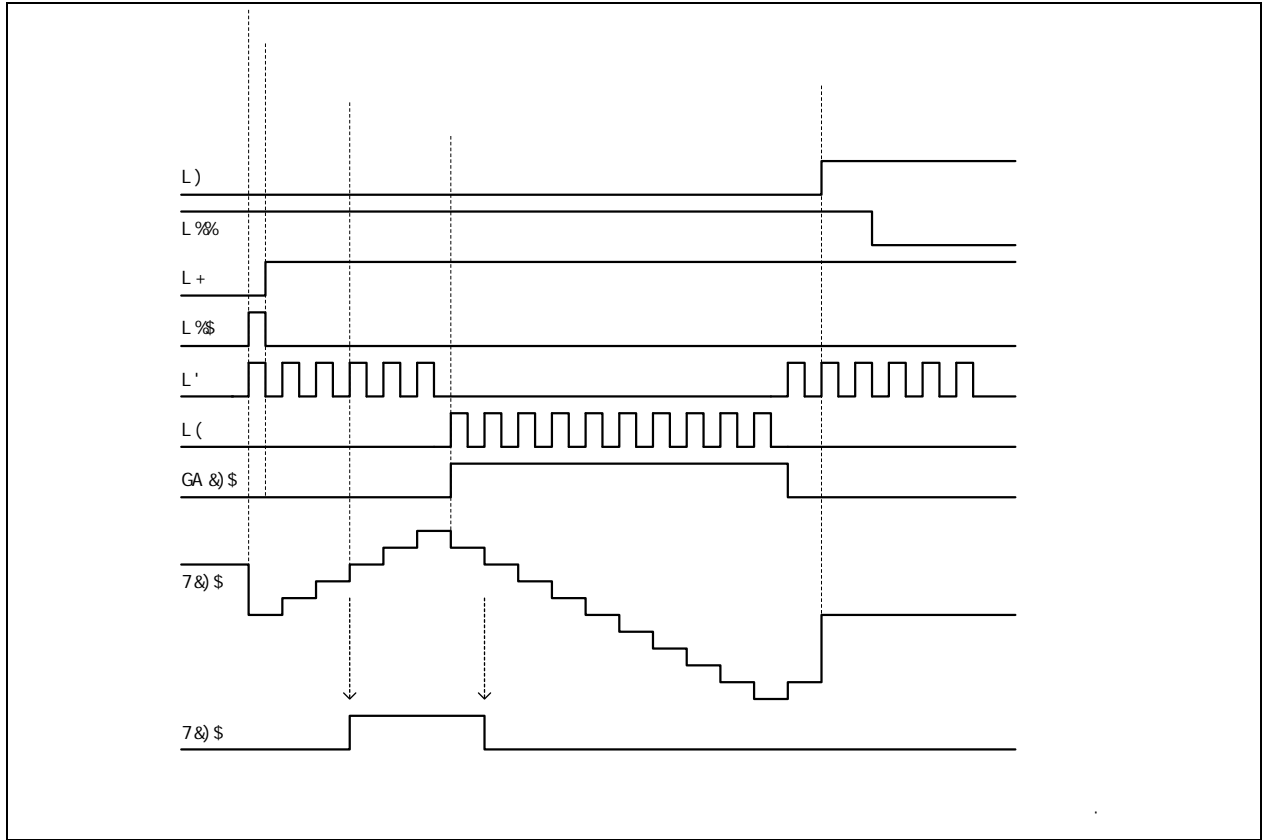
GA



C: : CB

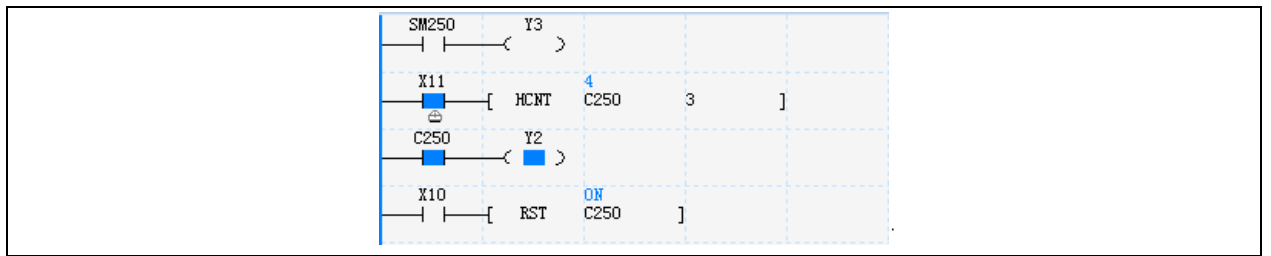
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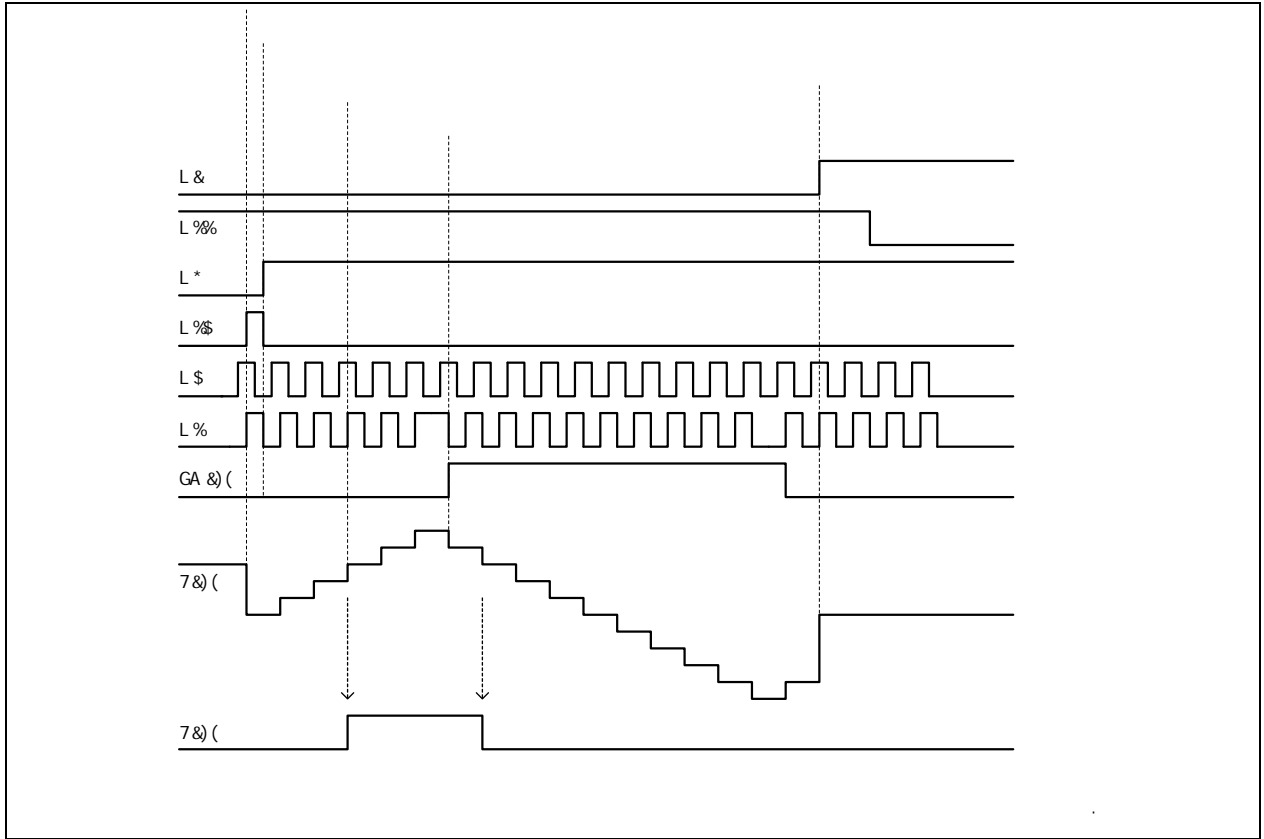




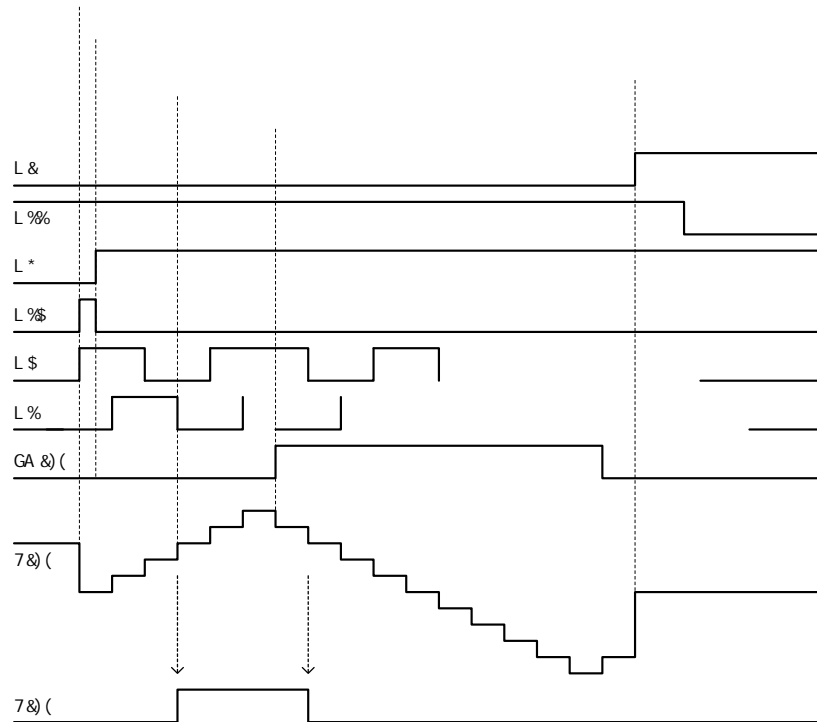
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GA



8.1.5 MC200 MC100

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GD8

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- 7&\* 7&+ 7&(\* )\$\_<n
- 7&)% '\$\_<n

8<G7G 8<G7F 8<G7= 8<GD 8<GH  
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8.2

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L'	GA -'
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L)	GA -)
L*	GA -*
L+	GA -+



% C:: CB GA CB  
 & GA -\$ GA -+ <7BH GD8  
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 ) L\$rL+ GD8 <7BH ,\$\_  
 8<G7G 8<57= 8<GD 8<GH '\$\_

8.3

L\$ L+

GD8

D@7

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L\$ L+

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GD8

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G8 %		!&\$- +% \$%a g % GA % \$%a &\$- +%	F #	!&\$- +%

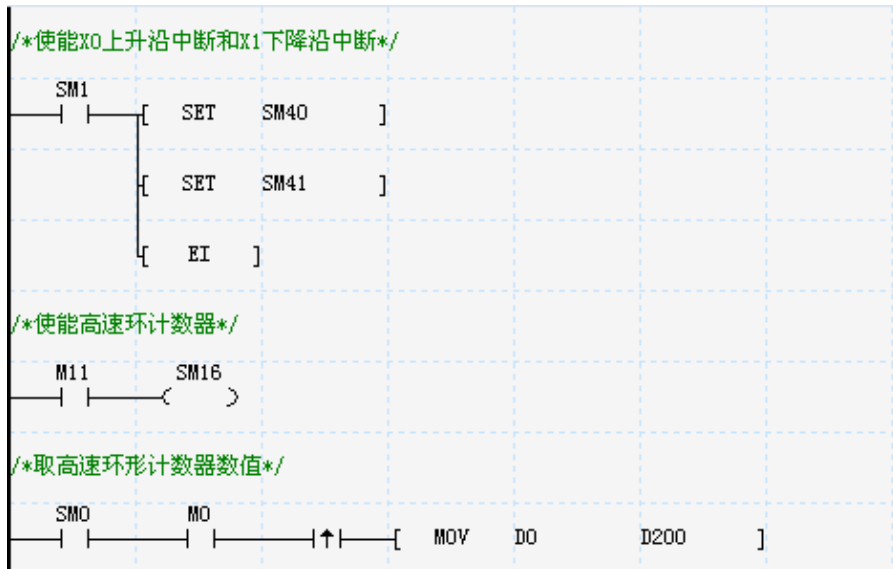
G8 %

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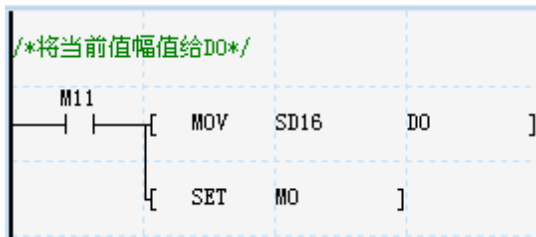
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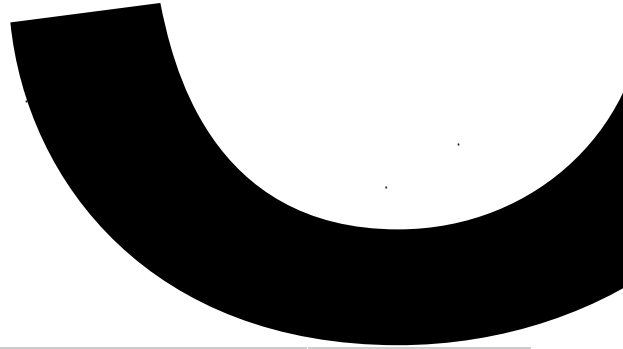


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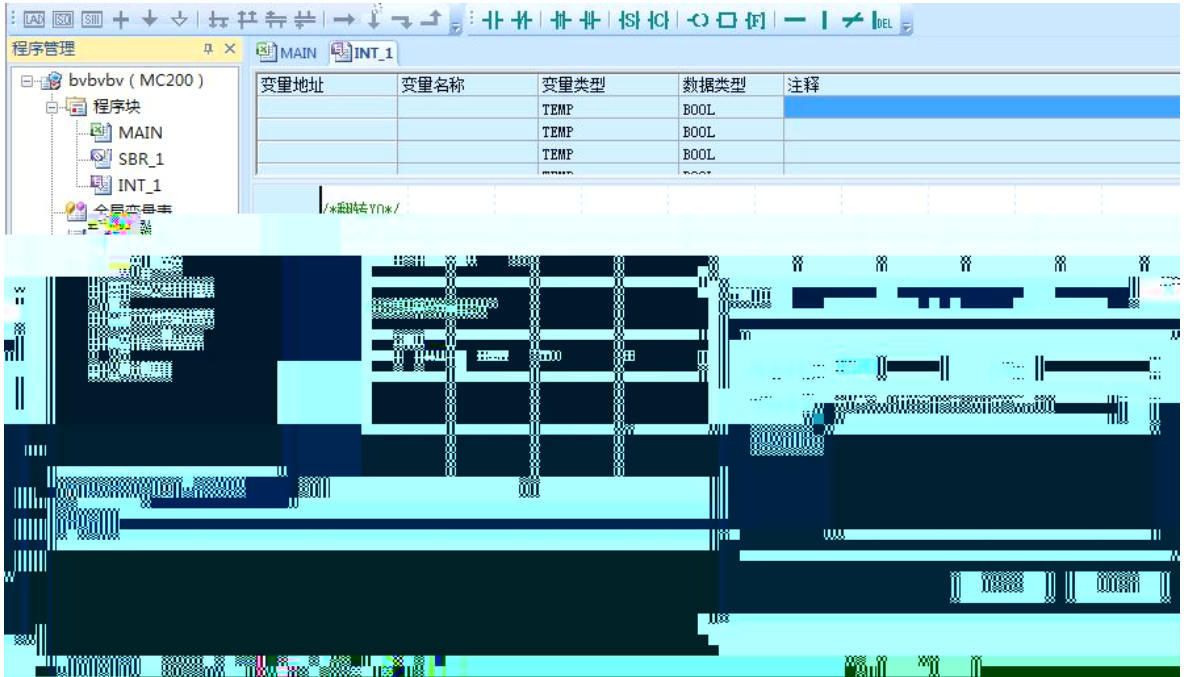
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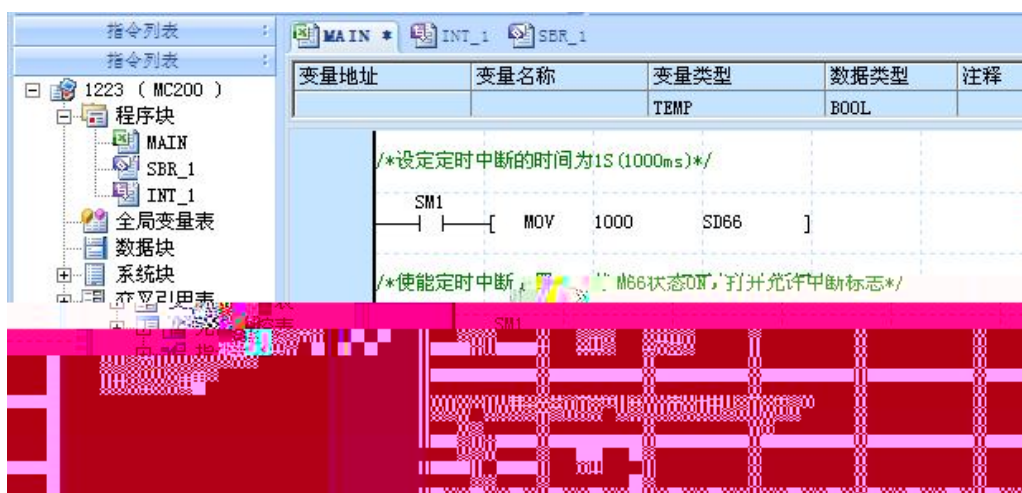
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### 9.4

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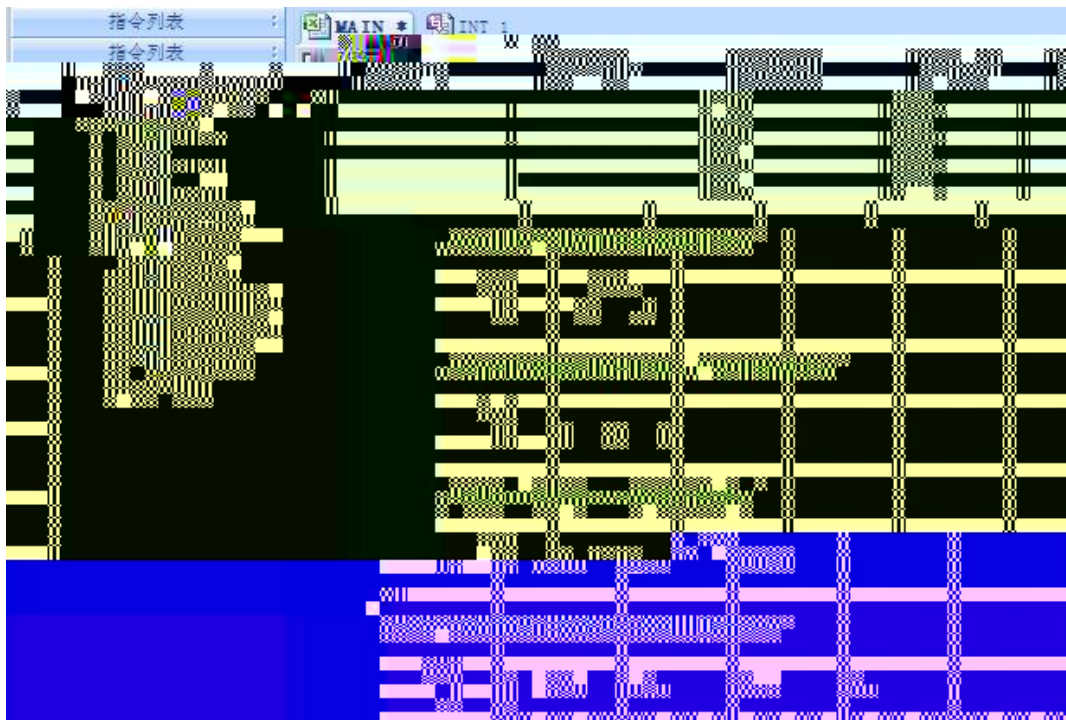
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& 9= GA \*) 7 & \*



# 9.6 PTO

PTO

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A 7%\$\$

PTO

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-BHS%

-BHS%

变量地址	变量名称	变量类型	数据类型	注释
		TEMP	BOOL	
		TEMP	BOOL	
		TEMP	BOOL	
		TRMP	BOOL	

/\*记录高速输出中断完成次数\*/

```

SMO
| | | [ INC D17 ]

```

**INT\_1**

程序名称: INT\_1 作者: \_\_\_\_\_

中断事件: PTO(Y0) 输出完成中断(中断号=18) ...

程序说明: \_\_\_\_\_

确定 取消

&

A 5-B

DHC

GA \*\*

D@G

变量地址	变量名称	变量类型	数据类型	注释
		TEMP	BOOL	
		TEMP	BOOL	
		TEMP	BOOL	

```

SMO
| | | [ EI ]

/*使系统高速输出完成中断有效*/

SMO
| | | [ SM63 ]

M1
| | | [ PLS 3000 3 Y0 ]

/*注意:调用高速输出PLS指令前请确认初始化参数是否被设置*/

SM1
| | | [ DMOV 5000 D3000 ]
| | | [ DMOV 1000 D3002 ]
| | | [ DMOV 6000 D3004 ]

```

# 9.7

GA)\*

A 7%\$\$



The screenshot shows the SIMATIC Manager interface. On the left is a project tree with folders for '程序块' (Program Blocks) containing 'MAIN', 'COM1-SENOD', 'SBR\_1', and 'SMO1-SENOD'. Below it are '全局变量表' (Global Variable Table), '数据块' (Data Blocks), '系统块' (System Blocks), '交叉引用表' (Cross-reference Table), '元件监控表' (Component Monitoring Table), '指令向导' (Instruction Wizard), and '通信' (Communication). The main window displays a variable declaration table and a ladder logic diagram.

变量地址	变量名称	变量类型	数据类型	注释
		TEMP	BOOL	
		TEMP	BOOL	
		TEMP	BOOL	

The ladder logic diagram consists of two rungs:

- Rung 1: A normally open contact labeled 'Y3' is connected to a coil labeled 'Y3'. Above the rung is the comment '/\*翻转Y3\*/'.
- Rung 2: A normally open contact labeled 'SMO' is connected to a coil labeled 'REF Y0 8'. Above the rung is the comment '/\*立即刷新\*/'.

A dialog box titled 'SMO1-SENOD' is open in the foreground. It contains the following fields:

- 程序名称: SMO1-SENOD
- 作者: [Empty]
- 中断事件: COM1的帧发送中断 (中断号=36)
- 程序说明: [Empty text area]

Buttons for '确定' (OK) and '取消' (Cancel) are at the bottom.

This screenshot shows the same SIMATIC Manager interface as the first image, but with a different ladder logic diagram and a different dialog box.

地址	变量名称	变量类型	数据类型	注释
		TEMP	BOOL	
		TEMP	BOOL	
		TEMP	BOOL	

The ladder logic diagram consists of two rungs:

- Rung 1: A normally open contact labeled 'SMO' is connected to a coil labeled 'EI'. Above the rung is the comment '/\*使系统中断使能有效\*/'.
- Rung 2: A normally open contact labeled 'SM1' is connected to a coil labeled 'SET SM54'. Above the rung is the comment '/\*使XOM1发送帧中断有效\*/'.

A dialog box titled 'SMO1-SENOD' is open in the foreground. It contains the following fields:

- 程序名称: SMO1-SENOD
- 作者: [Empty]
- 中断事件: COM1的帧发送中断 (中断号=36)
- 程序说明: [Empty text area]

Buttons for '确定' (OK) and '取消' (Cancel) are at the bottom.

	MC	PLC	
%\$%"			& -
%\$"&			& -
%\$"			& -
%\$" "%			& -
%\$" "&			& -
%\$" "			\$\$
%\$" "("			\$&
%\$" ")"			\$&
%\$" "* F H I			\$&
%\$" "+5G7 =			\$
%\$" ", A cXVI g			\$
%\$" "- D@7			\$
%\$" "%A cXVI g			\$(
%\$" "%%			\$(
%\$" "%&			\$)
%\$" "% @CB; BH			\$)
%\$" "%			\$)
%\$" "%			\$*
%\$" "%* A cXVI g			\$*
%\$" "%+ A cXVI g			\$+
%\$" "%			\$
%\$" "(" A 7Vi g			%&
%\$" ("%A 7Vi g			%&
%\$" ("&A 76I G			%&
%\$" (" A 7Vi g			%&
%\$" "(" A 7Vi g			%
%\$" "("			%
%\$" "*" A 7Vi g			%
%\$" "			&\$
%\$" "%			&\$
%\$" "&			&\$
%\$" " A B			&\$
%\$" "(" A 7Vi g			&\$

# 10.1

A 7 D@7

A cXVI g	%()	&\$\$	) +*\$\$ ' , (\$\$ % &\$\$ - *\$\$ (, \$\$ &(\$\$ %&\$\$
A 7VI g	%()	&\$\$	) +*\$\$ ' , (\$\$ % &\$\$ - *\$\$ (, \$\$ &(\$\$ %&\$\$

A 7 D@7

A 7&\$\$	\$	FG&' &	A cXVI g	A 7VI g
	%	FG&' & FG(, )	A cXVI g	A 7VI g
A 7%&\$\$	\$	FG&' &	A cXVI g	A 7VI g
	%	FG&' & FG(, )	A cXVI g	A 7VI g
A 7& \$	\$	FG&' &	A cXVI g	A 7VI g
	%	FG(, )	A cXVI g	A 7VI g
	&	FG(, )	A cXVI g	A 7VI g

A 7 D@7 FI B GHCD HA \$

# 10.2

L S6i ]Xyf

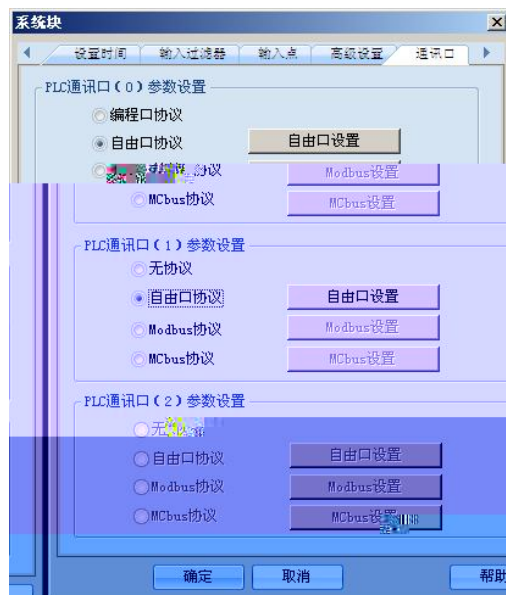
# 10.3

## 10.3.1

5G7=

D@7 FI B LAH F7J

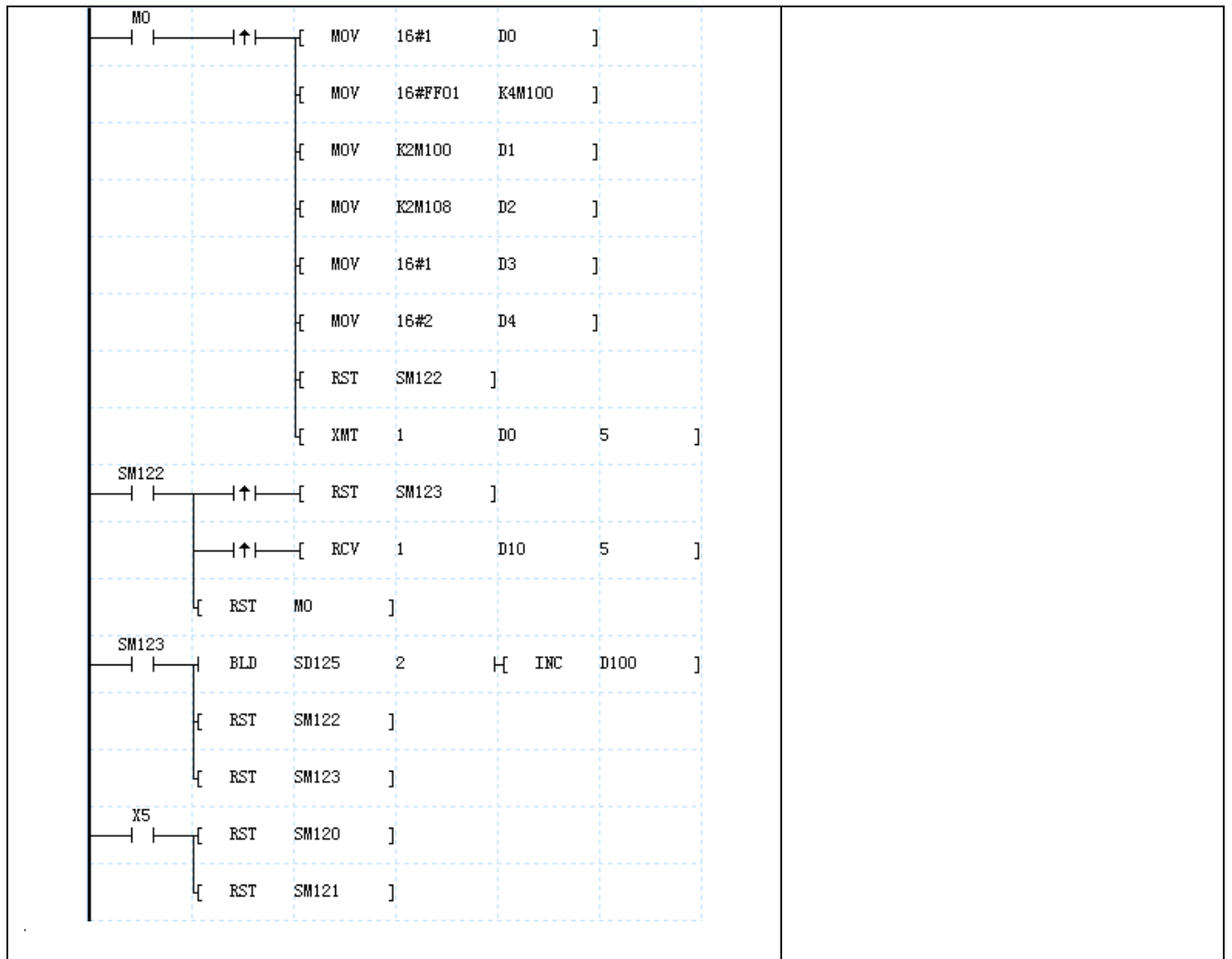
## 10.3.2





	%&\$\$ )+*\$ \$ ', (\$\$ %&\$\$ -*\$\$ (, \$\$ &(\$\$ %&\$\$ -*\$\$	
	+	
	% & %	
	\$ &)) \$\$ ::	
	\$ &)) \$\$ ::	
	\$ *)')' )ag	





10.3.4

A 7          D@7A cXVI g          5G7= FHI          A 7%\$\$          FHI

10.3.5

%          FG& & FG(, )  
 &  
 fM&          +          5G7=          ,          FHI  
 fR&          %&\$\$ &(\$\$ (, \$\$ -\*\$ \$ % &\$\$ ', (\$\$  
 fl&          %          &  
 f(L&          %          &  
 '          %          % ' %

10.3.6 RTU

%  
 &          %)  
 '          '")

( 7F7%  
 ) FHI &)\*

				CRC
	%	%	\$ & &	&

\*  
 19200 1.5 =1/19200 11 1.5 1000=0.86ms  
 3.5 =1/19200 11 3.5 1000=2ms

10.3.7 ASCII

% 5G7=  
 & '5 7F@ \$8 \$5  
 %g  
 ( @F7  
 ) 5G7= FHI 5G7= <9L 5G7= & & &  
 FHI & & 5G7= )%

					LRC	
	%	&	&	\$ & & &	&	&

10.3.8 Modbus

A cXVi g \$% \$& \$' \$( \$) \$\* %& %\* (%  
 (%

10.3.9 PLC

	Modicon	
\$%	\$ %!!!!	M L A GA G H 7
\$&	% &!!!!	L
\$'	( .!!!! (	8 G8 N H 7
\$)	\$.!!!!	M A GA G H 7
\$*	(.!!!!	8 G8 N H 7
%&	\$.!!!!	M A GA G H 7
%*	(.!!!!	8 G8 N H 7

% \$  
 & %  
 ' (  
 ( !!!! % ---- % ---- \$  
 ) \$ % (  
 \* \$) %& L L

'\$(

& D@7 A cXVI g

M	M\$ M ++	\$\$\$\$ \$&)	\$% \$) %	M\$ M+
L	L\$ L' ++	%&\$\$ \$%( )		



\$\*

\$	\$		\$	%	
\$	\$		\$	%	
\$	\$		\$	%	
\$	\$		\$	%	
\$	\$		\$	%	

A 7&\$A 7& \$

10.3.15

\$ \$%	
\$ \$&	
\$ \$'	

f&

f&

FHI &\*

f l FHI

f(l

f)l

5G7=



10.3.16 Modbus

DCFH\$DCFH\$ DCFH% DCFH\$ A cXVI g DCFH% A cXVI g

Modbus

A cXVI g

A cXVI g

	\$ ' %
	%&\$\$ ) +*\$ \$ ', (\$ \$ % &\$\$ - *\$ \$ (, \$ \$ &(\$ \$ %&\$\$
	+ , 5G7= + FHI
	% & % &
A cXVI g #	% \$
	FHI 5G7=

### 10.3.17 Modbus

D@7 A cXVi g 6121 Modbus A cXVi g A cXVi g A cXVi g

D@7 A cXVi g A 7&\$\$ A 7&\$\$

' \$a g ' \$a g ' )\$a g

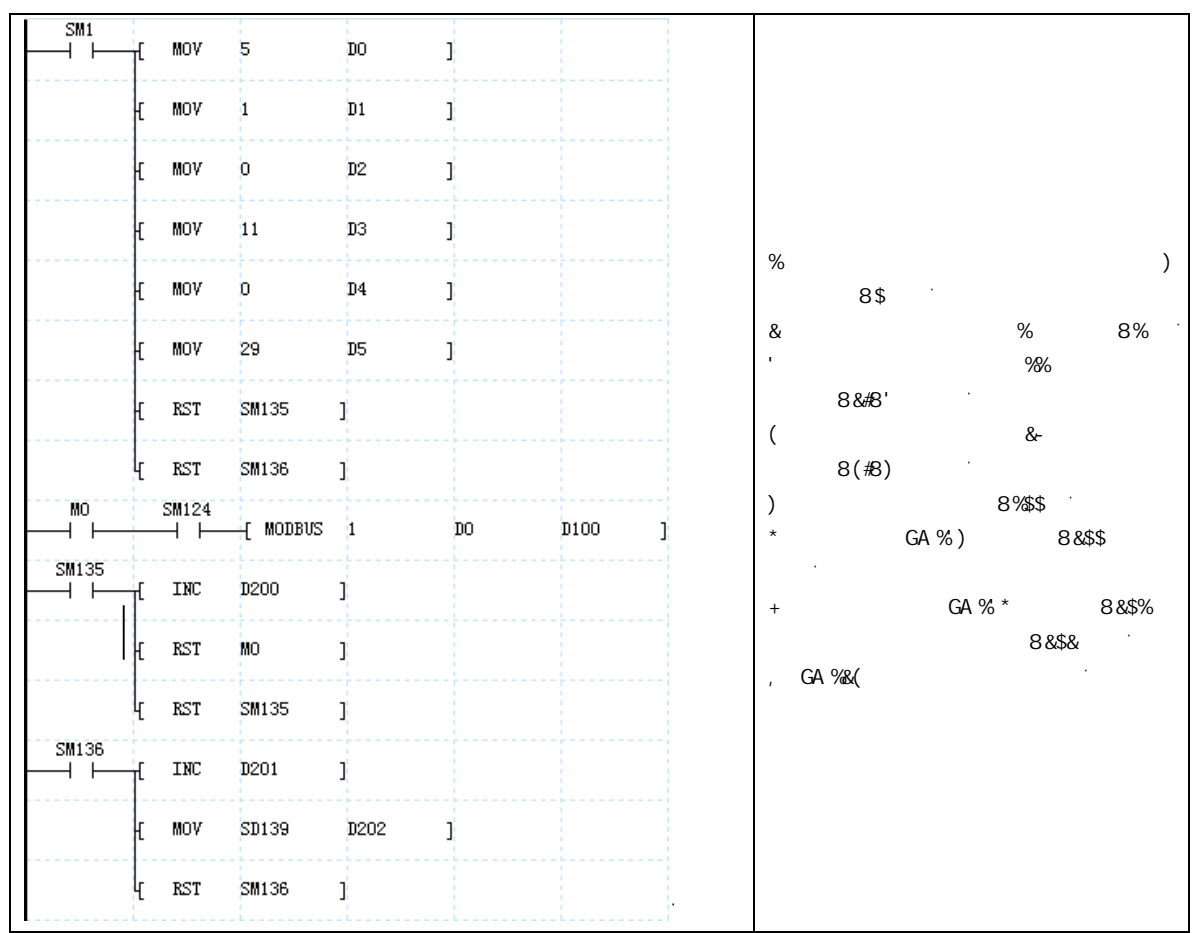
A 7&\$\$ D@7 A cXVi g A 7&\$\$ D@7 )

% ' - 8%\$\$ 8%\$\$ 8%\$\$

8%\$\$& 8%\$\$

(&	(%)	(\$	' -	' ,	' +	' *'	' )	' ('	' ''	' &	' %	' \$	&-	& .	&+
L	L	L	\$	\$	%	%	\$	\$	\$	\$	%	\$	%	%	\$
8%\$\$*								8%\$\$)							
&*	&)	&('	&'	&&	&%	&\$	%	%	%+	%'	%)	%('	%	%&	%%
%	%	\$	\$	\$	%	%	\$	%	%	%	\$	\$	\$	\$	%
8%\$\$('								8%\$\$)							

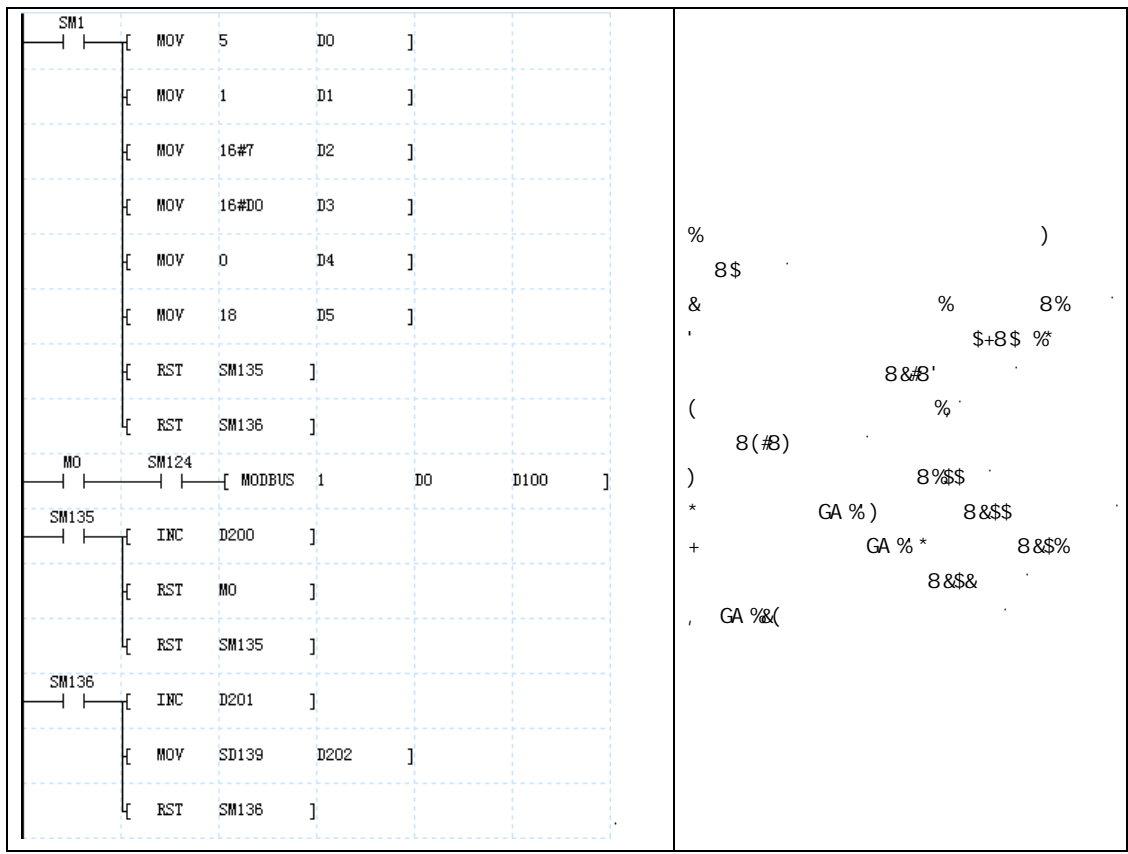
8%\$\$\* (\$ (% (&





% A 7&\$\$D@7 % \$ %  
 & %& A cXVi g  
 G8% - 8&\$\$ 8&\$\$ A cXVi g  
 A 7&\$\$ D@7 A 7&\$\$ A cXVi g

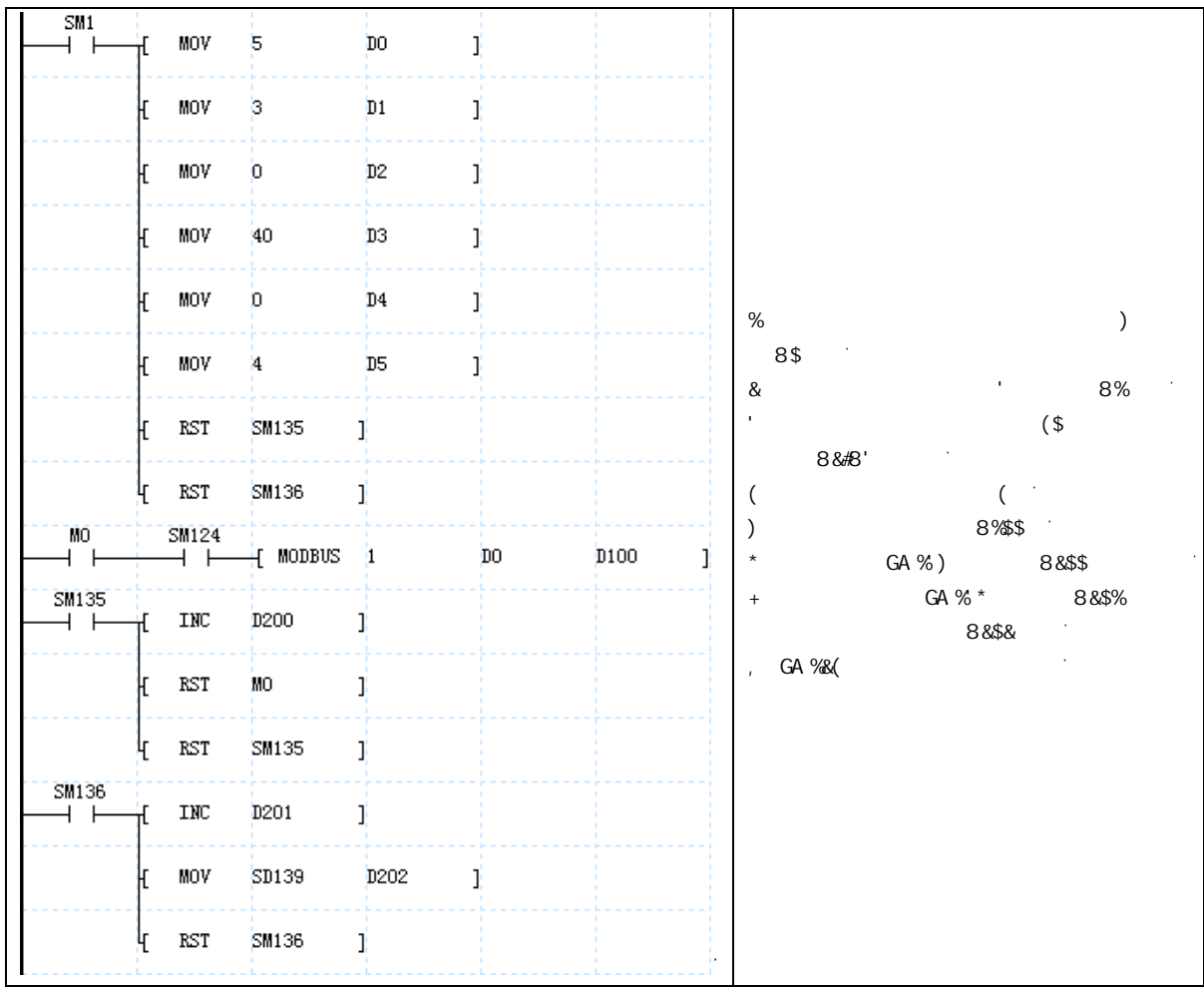
A 7&\$\$ A cXVi g A 7&\$\$ ) &\$\$\$ &\$%  
 8%\$\$ 8%\$\$ 8%\$\$ 8%\$\$ 8%\$



% )  
 8\$  
 & % 8%  
 \$+8\$ %  
 8&#B'  
 %  
 ( 8(#B)  
 ) 8%\$\$  
 \* GA %) 8&\$\$  
 + GA % \* 8&\$\$  
 8&\$\$  
 GA %&(

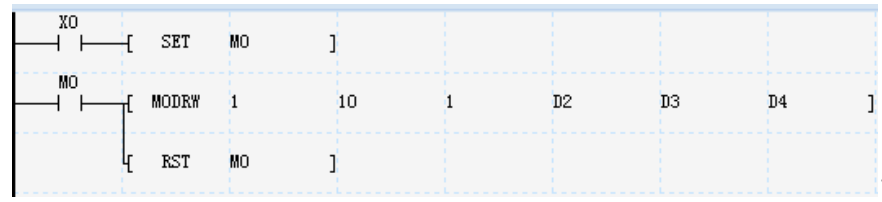
A 7&\$\$ A cM g A 7&\$\$ ) (\$ ('  
 8%\$\$ 8%\$\$ 8%\$\$ 8%\$\$ 8%\$

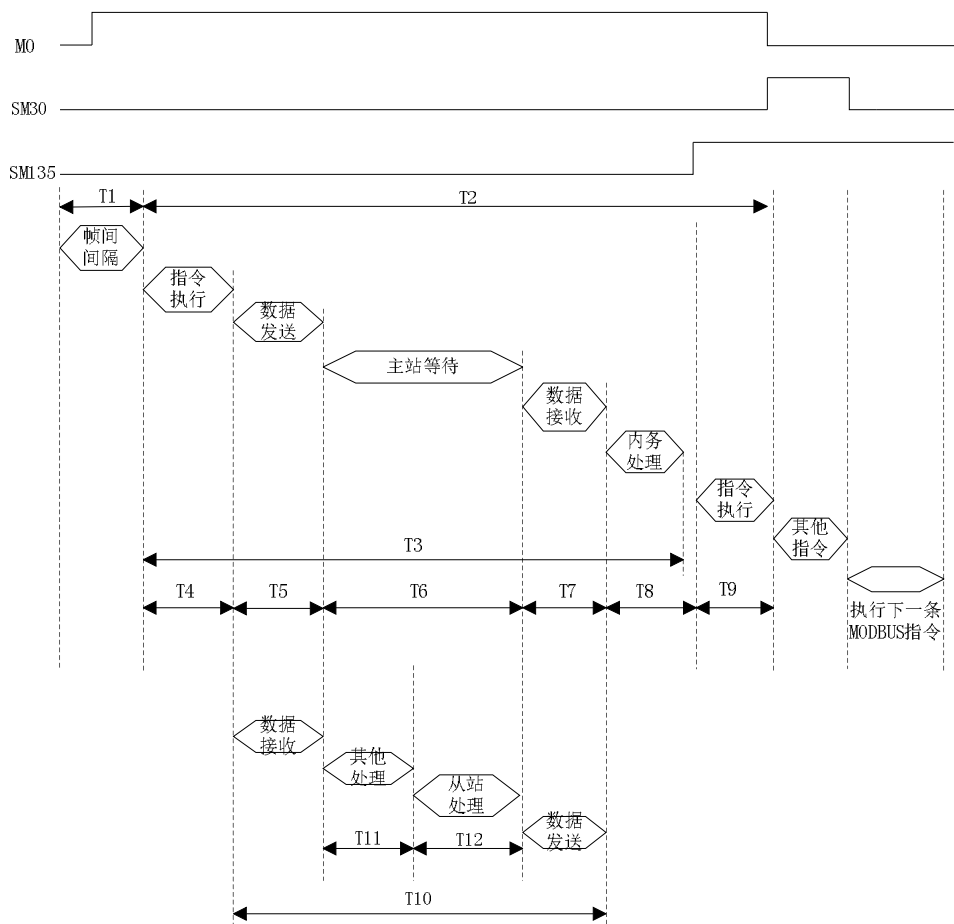
40	40	41	41	42	42	43	43
8	8	8	8	8	8	8	8
8%\$	8%('	8%\$)	8%\$*	8%\$+	8%\$,	8%\$-	8%\$%



10.3.18

A C86I G





A C86I G

$T_m$   $T_{\%}$   $T_{\&}$

$T_m$   $T_{\%}$   $T_{\&}$

$T_{\%}$

A C86I G

'")

%

+

\$

%

%

&

$$T_{\&} = f \cdot VNT \cdot \frac{T_i}{T_s} \cdot L \cdot \% \cdot T_s$$

$T_s$  D@7

$T_i$   $T_{(}$   $T_{)}$   $T_{*}$   $T_{+}$   $T_{,}$   $T_{-}$

$T_{(}$   $T_{,}$   $T_{-}$  %a g

$T_{)}$  \_\_\_\_\_ Vdg %\$\$\$ a g %a g

$T_{*}$

$T_{+}$  \_\_\_\_\_ Vdg %\$\$\$ a g %a g

$T_{\%}$   $T_{)}$   $T_{\%}$   $T_{\&}$   $T_{+}$

$T_{\%}$

$T_{\%}$

%a g

%&\$\$

%

FHI

%\$

&\$

$$T_{\%} = \frac{\% \$ \% \$}{\% \& \$ \$} \% \$ \$ \$ \% * " \& ms$$

$$T_{+} = \frac{\& \$ \% \$}{\% \& \$ \$} \% \$ \$ \$ \% \% ( ms$$

$$T_{(} = T_{\%} T_{\%} \% ms$$

$$T_{*} = ' ) ms$$

$$T_{\%} = \% * " \& ' ) \% \% ( \% \% ) ) " * ms$$

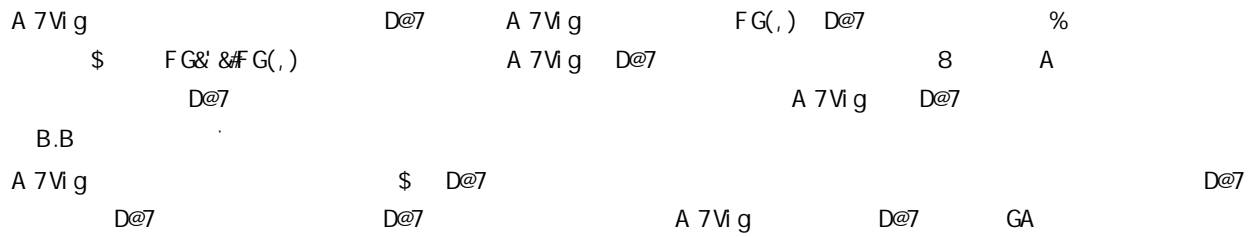
%\$a g

$$T_{\&} = \frac{fVNTf)}{\%} \uparrow \% \uparrow * $ms$$

$$T_{\%} = * " \& \% ) \% \% \% ( ' ' " * ms$$

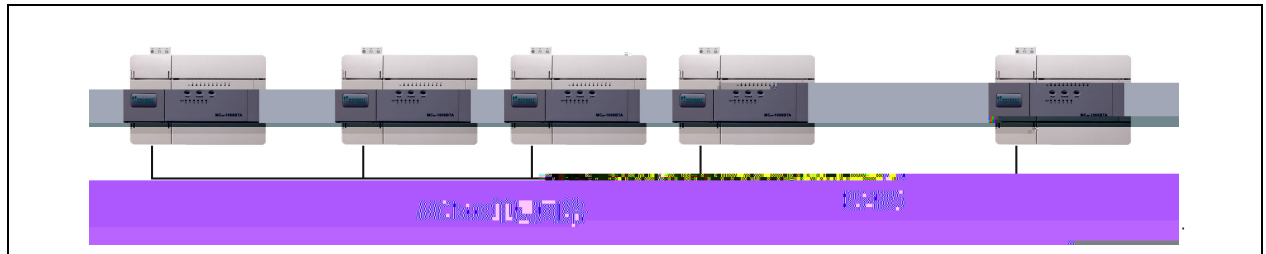
# 10.4 MCbus

## 10.4.1 MCbus

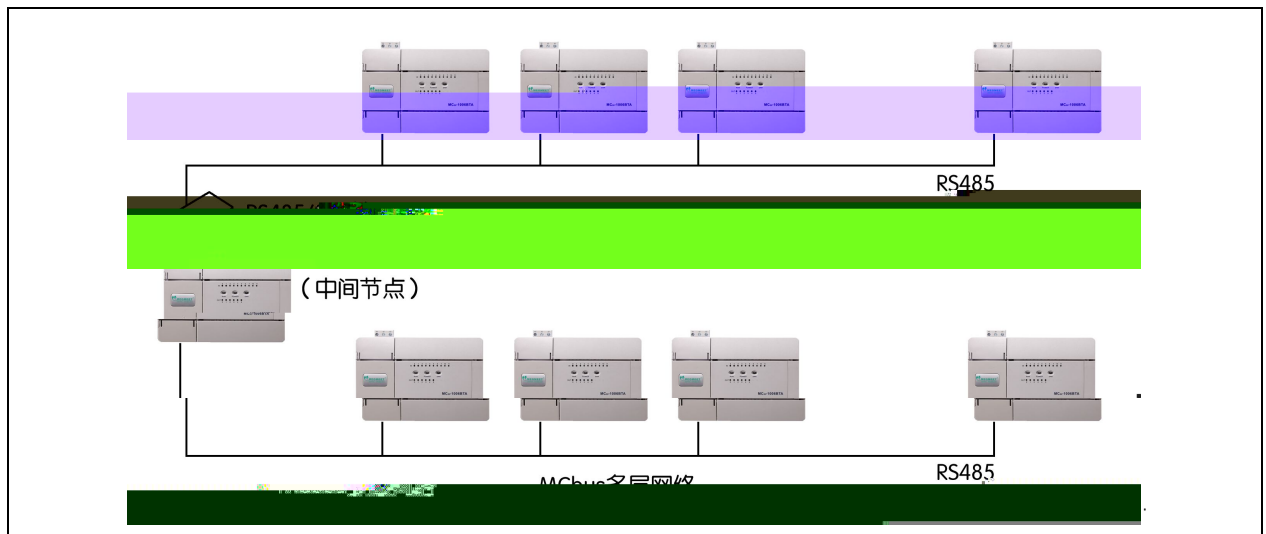


## 10.4.2 MCbus

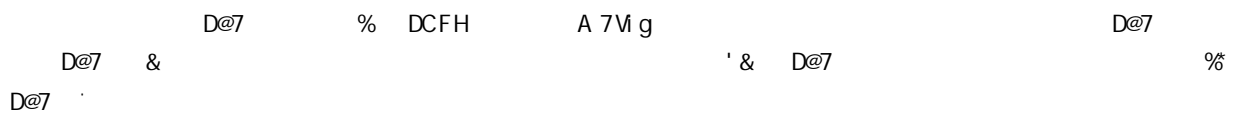
A 7Vi g



10-1 MCbus



10-2 MCbus



## 10.4.3 MCBUS



' % '

\$

%

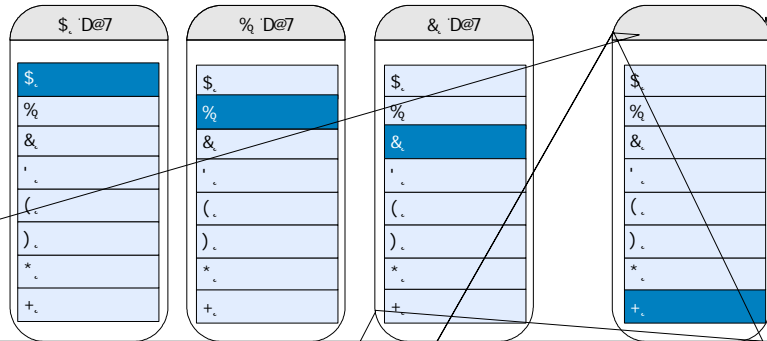
### 10.4.4 MCBus

A 7Vi g D@7

D@7 A 7Vi g

8 A 8 A

D@7



D	1	2	3	4	5
8++)* 8++)+	. &	. %	. +		
8++) , 8++)-	. &				
8++)* \$ 8++)* %	. ' \$	. %			
8++)* & 8++)* ' .	. ' %				

f&L % \$ 8 8++\$\$ 8++\$% \$ D@7 8++\$\$ 8++\$% %!

' % 8++\$\$ 8++\$%

f&L & \$ 8 8++\$\$ 8++\$ \$ D@7 8++\$\$ 8++\$% 8++\$& 8++\$'

%! % 8++\$\$ 8++\$ (

MCbus M

M	1	2	3	4	5
A % \$ \$ A % ( % )	. \$	. \$	. \$	. \$	
A % ( % A % ' %	. %				
A % ' & A % ( +	. &	. %			
A % ( , A % * +	. ' .				
A % * ( A % +	. (	. &	. %		. \$
A % , \$ A % ( -	. )				
A % - * A % % %	. *	. ' .			. \$
A % % & A % % +	. +				
A % & A % ( ' .	. ' .	. (	. &		
A % ( ( A % ) -	. -				
A % * \$ A % +	. % \$	. )			
A % + * A % - %	. % %				
A % - & A % \$ +	. % &	. *			
A % \$ , A % & .	. %				
A % & ( A % * -	. % (	. +			. \$
A % ( \$ A % ) .	. % )				
A % ) * A % + %	. %				

MCbus D 0

D	6	7	8	9
8++\$\$ 8++\$%	.\$	.\$	.\$	.\$
8++\$\$& 8++\$'	.%	.\$	.\$	.\$
8++\$( 8++\$)	.&	.%	.\$	.\$
8++\$* 8++\$+	.'	.'	.\$	.\$
8++\$, 8++\$-	.(	.&	.%	.\$
8++%\$ 8++%&	.)	.'	.%	.\$
8++%& 8++%'	.*	.'	.%	.\$
8++%( 8++%)	.'	.'	.%	.\$
8++% 8++%+	.'	.(	.&	.%
8++% 8++%'	.'	.'	.&	.%
8++&\$ 8++&%	.\$%	.)	.'	.%
8++&& 8++&'	.\$%	.'	.'	.%
8++&( 8++&)	.\$%	.*	.'	.%
8++&* 8++&+	.\$%	.'	.'	.%
8++&, 8++&-	.\$%	.'	.'	.%
8++&\$ 8++&%	.\$%	.'	.'	.%
8++&& 8++&'	.\$%	.'	.'	.%

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

MCbus D 1

D	10	11	12	13
8++' & 8++''	.\$	.\$	.\$	.\$
8++' ( 8++')	.%	.\$	.\$	.\$
8++' * 8++' +	.&	.%	.\$	.\$
8++', 8++' -	.'	.'	.\$	.\$
8++(\$ 8++(%	.(	.&	.%	.\$
8++(& 8++('	.)	.'	.%	.\$
8++(( 8++())	.*	.'	.%	.\$
8++(* 8++(+	.'	.'	.%	.\$
8++(, 8++(-	.'	.(	.&	.%
8++)\$ 8++)%	.'	.'	.&	.%
8++)& 8++)'	.\$%	.)	.'	.%
8++)( 8++))	.\$%	.'	.'	.%
8++)* 8++)+	.\$%	.*	.'	.%
8++), 8++)-	.\$%	.'	.'	.%
8++*\$ 8++*%	.\$%	.'	.'	.%
8++*& 8++*'	.\$%	.'	.'	.%

10 O# 1 D D7732 D7733 O# PLC D7732 D7733  
 1#- 15# D7732 D7733

MCbus M O

M	6	7	8	9
A %(\$ A %%)	.\$	.\$	.\$	.\$
A %% A %' %	.%	.%	.%	.%
A %' & A %(+	.&	.&	.&	.&
A % (, A %**	.(	.(	.(	.(
A %*( A %+	.)	.)	.)	.)
A %,\$ A %(-	.\$	.\$	.\$	.\$
A %- * A %%%	.*	.*	.*	.*
A %%& A %&+	.&	.&	.&	.&
A %& A %('	.(	.(	.(	.(
A %(( A %) -	.)	.)	.)	.)
A %*\$ A %+	.\$	.\$	.\$	.\$
A %+* A %- %	.%	.%	.%	.%
A %& - A %\$+	.&	.&	.&	.&
A %\$ , A %&	.\$	.\$	.\$	.\$
A %&( A %' -	.&	.&	.&	.&
A %(\$ A %))	.\$	.\$	.\$	.\$

6 O# O M M1400 M1415 O# PLC M1400 M1415  
 1#- 15# M1400 M1415

MCbus M 1

M	10	11	12	13
A %)* A %+%	.\$	.\$	.\$	.\$
A %+& A %' ,	.&	.&	.&	.&
A % , , A %+\$	.\$	.\$	.\$	.\$
A %+\$ ( A %%	.\$	.\$	.\$	.\$
A %&\$ A %('	.(	.(	.(	.(
A %+ * A %)%	.)	.)	.)	.)
A %+) & A %+*	.*	.*	.*	.*
A %+*, A %+,	.(	.(	.(	.(
A %+, ( A %+-	.)	.)	.)	.)
A % \$\$ A % %)	.\$	.\$	.\$	.\$
A % %& A %' %	.&	.&	.&	.&
A %' & A % (+	.&	.&	.&	.&
A % (, A %**	.(	.(	.(	.(
A %*( A %+	.)	.)	.)	.)
A %,\$ A %(-	.\$	.\$	.\$	.\$
A %- * A %%%	.*	.*	.*	.*

10 O# 1 M M1656 M1671 O# PLC M1656 M1671  
 1#- 15# M1656 M1671



D@7 A 7Vi g 8 8++\$\$ 8++\* A



### 10.4.6 MCBus



A 7Mg

\$

D@7

\$

\$

\$

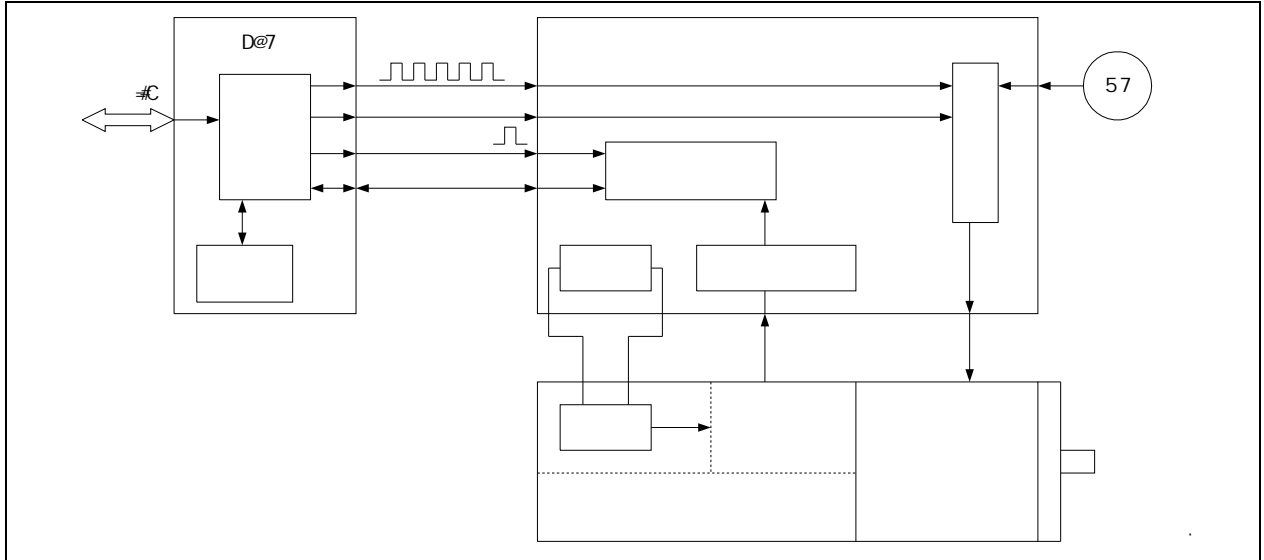




%%%	.....'	&%
%%'%%	.....'	&%
%%'%%&	.....'	&&
%%'%"	.....'	&
%%&A 7     D@7	.....'	&
%%"	.....'	)
%%('	.....'	&*
%%('"%A 7& \$	.....'	&*
%%('"%A 7&\$\$	.....'	,
%%('"% A 7%\$\$	.....'	(%
%%)	.....'	(&
%%)"%	.....'	(&
%%)"&	.....'	(-

# 11.1

## 11.1.1

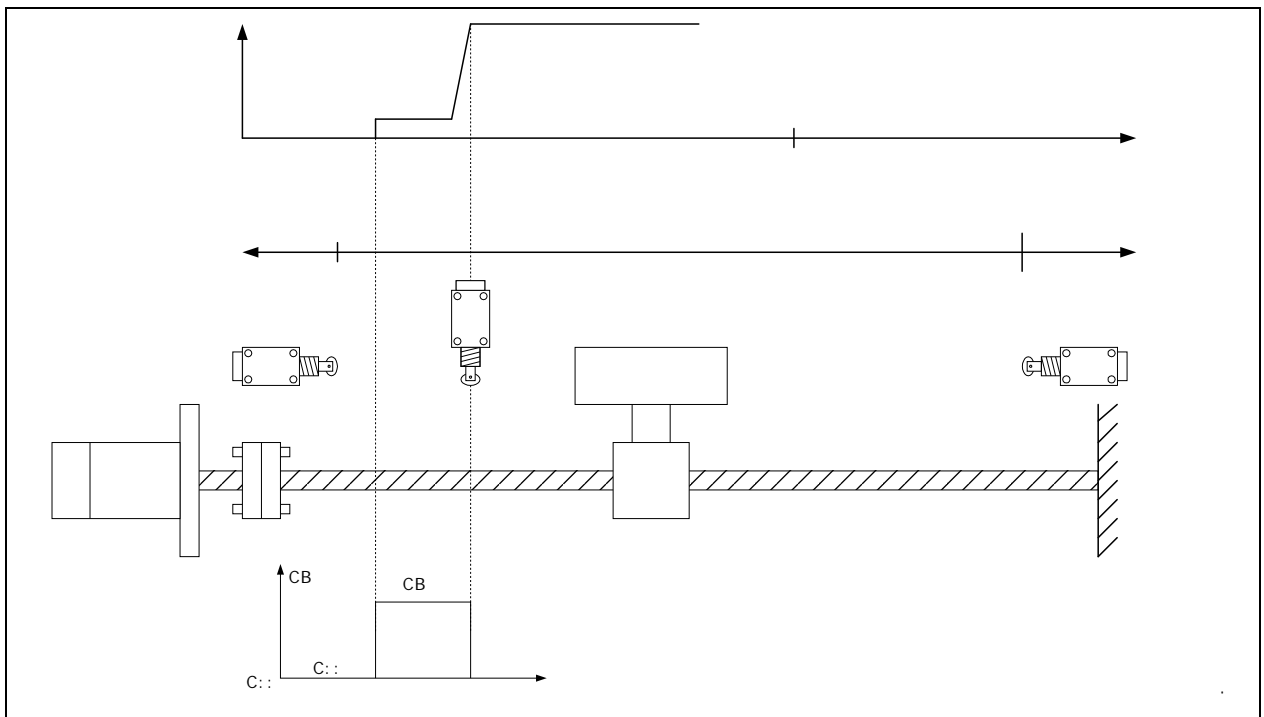


11-1

D@7

D@7

A 7 D@7

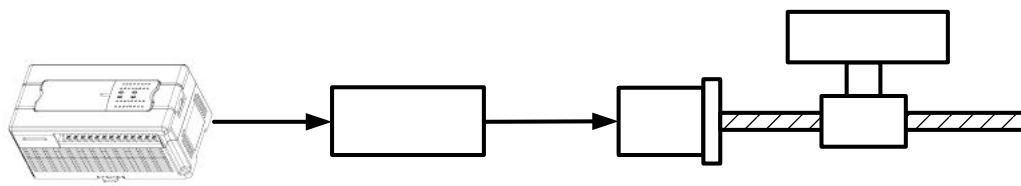


11-2

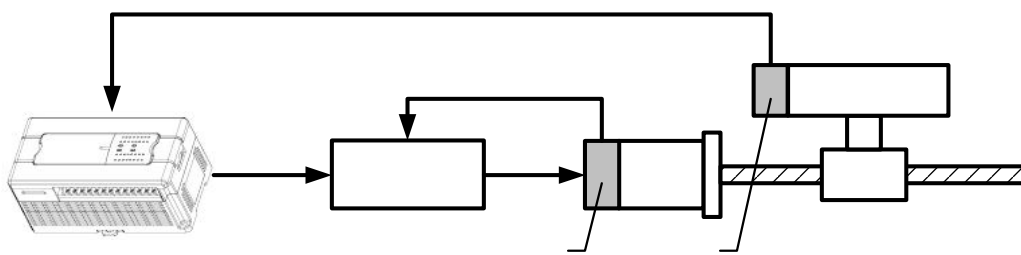
D@7

NFB

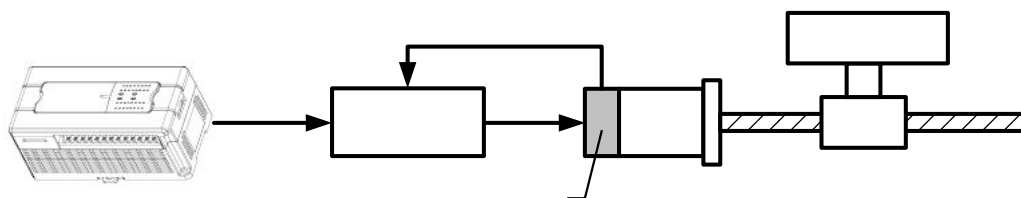
11.1.2



11-3

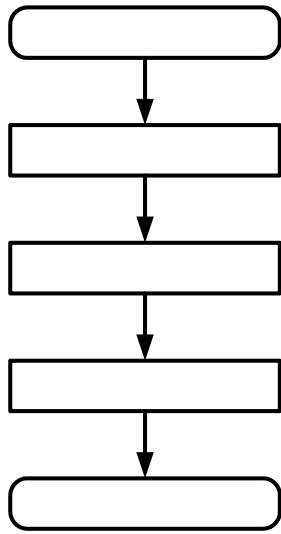


11-4



11-5

11.1.3

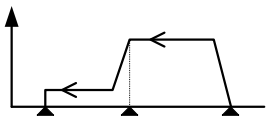
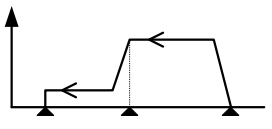
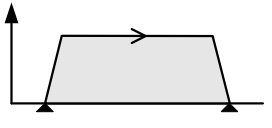
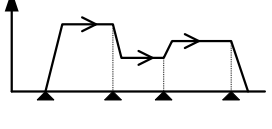
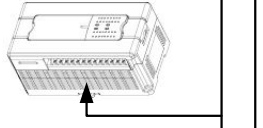
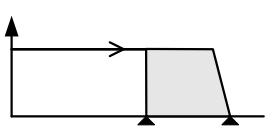
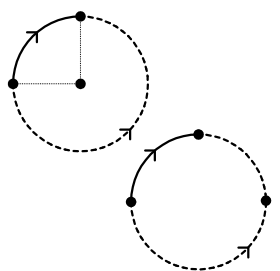
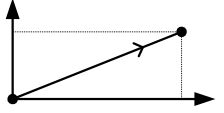


**11. 2 PLC**

**11. 3**

A 7 D@7

11-2 MC PLC

			MC280	MC200	MC100	MC80
8GNF		8C; 8C; 8C; CB				
NFB		8C; 8C; CB 8C; C::				
8FJ =						
8FJ 5						
D@GJ						
56G						
GHCD8J						
7K						
77K						
@B						

			MC 280	MC 200	MC 100	MC 80
A CJ 9@B?						
; 95F6CL						

610 10

### 11.3

A 7 D@7

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(

SD80/SD82

) SD50/SD52

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% %

D@7

SD84

SD84

0

SD84

PLC

SD84

100

SD80/SD82

SD80/SD82

SM82/SM83

SD80/SD82

YOY1

PLC

SD50/SD52

SD80/SD82

SD

MC100 MC200/MC280

SD

MC100

SD87

0

SD85

0



$$F_{a\text{]bS}acc} = \sqrt{\frac{F_{aU}}{T}}$$

$F_{aU}$                       G8, )   G8, \*                      T                      G8, +  
 $F_{a\text{]bS}acc}$

- :                      :                       $F_{aU}$
- :                       $F_{a\text{]bS}acc}$                        $F_{a\text{]bS}acc}$
- :                       $F_{a\text{]bS}acc}$                        $F_{aU}$                       :

### 11.4

#### 11.4.1 MC280

A 7 & \$

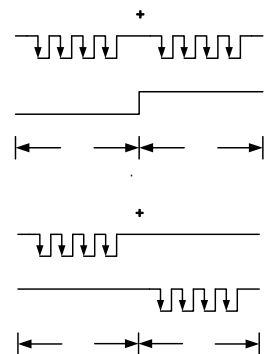
11-3 MC280-1616BTA8

\$	Z		M\$	&\$\$	L M\$ M% M& M M( M) M* M+	
			M\$			
	Z		M\$			
			M%			
5 Z	5	M\$M\$fl	M\$			
		5 M\$ 6	E			
	6	M%M\$fl	M%			
		6 M\$ 5	E			
%	Z		M%	&\$\$	L M\$ M% M& M M( M) M* M+	
			M%			
	Z		M\$			
			M%			
5 Z	5	M%M\$fl	M%			
		5 M\$ 6	E			
	6	M\$M\$fl	M\$			
		6 M% 5	E			
&	Z		M&	&\$\$	M M\$ M% M& M	
			M&			
	Z		M&			
			M			

5	Z	5	M&M fl	M&	M ( M ) M*						
		6	5 M 6	L							
6	Z	5	M #M&fl	M							
		6	6 M& 5	L							
	Z		M		M M\$ M% M& M M ( M ) M* M+						
			M								
	5	Z		M&							
				M							
6	Z	5	M #M&fl	M	M ( M ) M*						
		6	5 M& 6	L							
(	Z		M		L #M #						
			M								
)	Z		M)		L #M #						
			M)								
*	Z		M*		L #M #						
			M*								
	5	Z	5	M* #M+fl				M*	L #M #		
			6	5 M+ 6				L			
6	Z	5	M+ #M*fl	M+							
		6	6 M* 5	L							
+	Z		M+		L #M #						
			M+								
	5	Z	5	M+ #M*fl				M+	L #M #		
			6	5 M* 6				L			
6	Z	5	M* #M+fl	M*							
		6	6 M+ 5	L							
	DK A										

11-4 MC280-1616BTA6

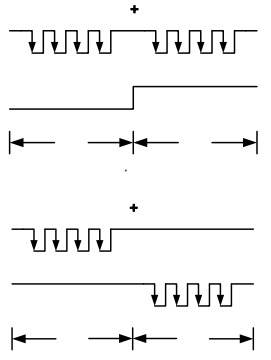
\$	Z		M\$		L M\$ M% M& M M ( M ) M* M+			
			M\$					
	5	Z		M%				
				M%				
6	Z	5	M\$ #M%fl	M\$	L #M #			
		6	5 M% 6	L				
6	Z	5	M% #M\$fl	M%				
		6	6 M\$ 5	L				
%	Z		M%		L M\$ M% M& M			
			M%					
	Z		M\$					
			M%					



5	Z	5	M#Mfl	M%	M( M) M*	M+	
		6	M\$ M\$ 6	E			
6	Z	6	M\$Mfl	M\$	M	M\$ M% M&	
		5	M% 5	E			
5	Z	5	M&M fl	M&	M( M) M*	M+	
		6	M #Mfl	M			
6	Z	6	M&M fl	M&	M	M\$ M% M&	
		5	M 6	E			
5	Z	5	M #Mfl	M	M( M) M*	M+	
		6	M&M fl	M&			
6	Z	6	M&M fl	M&	M	M\$ M% M&	
		5	M 6	E			
5	Z	5	M #Mfl	M	M( M) M*	M+	
		6	M&M fl	M&			
6	Z	6	M&M fl	M&	M	M\$ M% M&	
		5	M 6	E			
(	Z		M(		L #M #		
			M(				
)	Z		M)		L #M #		
			M)				
	DK A						
	DK A						

11-5 MC280-1616BTA4

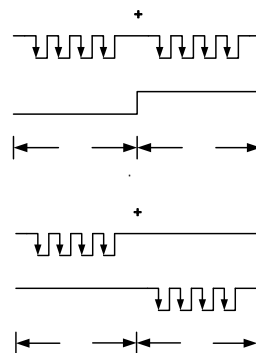
\$	Z		M\$		L	M\$ M% M&	
			M\$				
5	Z		M\$		M	M( M) M*	
			M%				
6	Z	5	M\$Mfl	M\$	M+		
		6	M% 6	E			
5	Z	5	M\$Mfl	M\$	M	M\$ M% M&	
		6	M% 5	E			
6	Z	6	M\$Mfl	M\$	M	M( M) M*	
		5	M% 6	E			
%	Z		M%		L	M\$ M% M&	
			M%				
5	Z		M\$		M	M( M) M*	
			M%				
6	Z	5	M\$Mfl	M%	M+		
		6	M\$Mfl	M\$			
6	Z	6	M% 5	E	M	M\$ M% M&	
		5	M 6	E			
&	Z		M&		M		
			M&				



	ž		M&	&&&	M M% M% M% M M ( M ) M' M+			
			M					
	5 ž	5	M&M fl					M&
		6	5 M 6					Ł
6 ž	6	M #M&fl	M					
		6 M& 5	Ł					
	ž		M	&&&	M M% M% M% M M ( M ) M' M+			
			M					
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			M					
	5 ž	5	M #M&fl					M
		6	5 M& 6					Ł
6 ž	6	M&M fl	M&					
		6 M 5	Ł					

11-6 MC200E-1616BTA8

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		6	5 M% 6					Ł
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		6 M\$ 5	Ł					
%	ž		M%	&&&	#			
			M%					
	ž		M\$					
			M%					
	5 ž	5	M%M\$fl					M%
		6	5 M\$ 6					Ł
6 ž	6	M\$M%fl	M\$					
		6 M% 5	Ł					
&	ž		M&	&&&	#			
			M&					
	ž		M&					
			M					
	5 ž	5	M&M fl					M&
		6	5 M 6					Ł
6 ž	6	M #M&fl	M					
		6 M& 5	Ł					
	ž		M	&&&	#			
			M					
	ž		M&					
			M					
	5 ž	5	M #M&fl					M
	5 M& 6	Ł						



	6	6	M&M fl	M&			
			6 M 5	h			

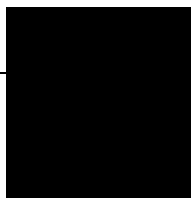
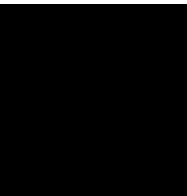
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			R/W
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G8 &&'	\$	%\$ &&&&&&	F #
G8 &&('	\$	%#/\$	F #
G8 &&)	\$	)\$ )\$\$\$ a g	F #
G8 &&*	\$	GA & % B M M B	F #
G8 &&+	\$	8 GNF	F #
G8 &&.	\$	8 GNF	F #
G8 &&-	\$	8 GNF	F #
G8 &&\$	\$	D@G	F
% G8 &&& G8 &&)			
& %#/\$			

1 Y1

			R/W
GA & * %		M%	F #
GA & + %		M% Vi gn CB fUXm C::	F
GA + %		M%	F #
GA ' % \$		8 GNF #NF B M% 7@F	F #
GA ' % %		M M B M% G8' % B M%	F #
GA ' % &		8 GNF M%	F #
GA ' % :		8 GNF M%	F #
GA ' % :		8 GNF M%	F #
GA ' % )		8 GNF M% CB CB C::	F #
GA ' % '		8 GNF M% CB CB C::	F #
GA ' % #		M% 8 J #'	
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			R/W
G8) &	%		F #
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G8' % % :	%	' & G8' % \$	F #
G8' % & :	%	%\$ &&&&&&	F #
G8' % :	%	%#/\$	F #
G8' % ( :	%	)\$ )\$\$\$ a g	F #
G8' % ) :	%	GA ' % % B M M B	F #
G8' % # :	%	8 GNF	F #

GB' %	%	8GNF	F#
GB' %	%		F#
% GB' %& GB' %)			
& %//\$			

2 Y2

			R/W
GA &*		M&	F#
GA &+&		M& Vi gm CB fUXm C::	F
GA +&		M&	F#
GA ' &\$		8GNF #NFB M& 7@F	F#
GA ' &%		8GNF M& GB' &* B M M B M/&	F#
GA ' &&		8GNF M&	F#
GA ' &'		8GNF M&	F#
GA ' &(		8GNF M&	F#
GA ' &)		8GNF M& C:: CB CB CB	F#
GA ' &*		8GNF M& C:: CB CB	F#
GA ' &+		M& 8J +'	
GA ' &		8GNF M& Vi gm CB fUXm C::	F#
GA ' &-		M& 8J +'	
GA ' &\$ M/& % 7@F			&\$a g%

2 Y2

			R/W
GB%\$	&	GB%\$ GB%%	F#
GB%%	&		F#
GB' &\$	&	GB' &\$ GB' &%	F#
GB' &%	&	' & GB' &\$	F#
GB' &&	&	%\$ &\$\$\$\$	F#
GB' &'	&		F#
GB' &(	&	%//\$	F#
GB' &)	&	)\$ )\$\$\$ a g	F#
GB' &*	&	GA ' &% B M M B	F#
GB' &+	&	8GNF	F#
GB' &	&	8GNF	F#
GB' &-	&		F#
GB&&&	&	D@G	F
% GB' && GB' &)			
& %//\$			

3 Y3

			R/W



M%

C::

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CB

C::

CB

CB

M gn

CB fYXm

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% 7@F

G8% ( G8%)

G8' (\$

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GA '))		8 GNF M)				C::	F #
		CB			CB	CB	
GA ')*		8 GNF M)				C::	F #
		CB			CB	CB	
GA '),		8 GNF	M)	Vi gn	CB fYUXm	C::	F #
	GA ')\$		M)	% 7@F			&\$a g%

5 Y5

				R/W
G8%*'	)			F #
G8%+	)		G8%* G8%+	F #
G8')\$	)		G8')\$ G8')%	F #
G8')%	)		' & G8')\$	F #
G8')&	)			F #
G8')'	)		% %\$\$\$\$	F #
G8')(	)		%#/\$	F #
G8'))	)		)\$ )\$\$\$ a g	F #
G8')*'	)	GA ')%	B M M B	F #
G8')+'	)	8 GNF		F #
G8'),	)	8 GNF		F #
G8')-	)	8 GNF		F #
G8&&)	)	D@G		F
% G8')& G8'))				
& %#/\$				

6 Y6

				R/W
GA &*		M*		F #
GA &+*		M*	Vi gn CB fYUXm C::	F
GA +*		M*		F #
GA '*\$		8 GNF #NFB M*	7@F	F #
		7@F		
GA '*%		8 GNF M*	G8' ** B	F #
	M	M B	M%	
GA '*&		8 GNF M*		F #
GA '*'		8 GNF M*		F #
GA '*('		8 GNF M*		F #
GA '*)		8 GNF M*	C::	F #
		CB	CB CB	
GA '***		8 GNF M*	C::	F #
		CB	CB CB	
GA '*,		8 GNF M*	Vi gn CB fYUXm C::	F #
	GA '*\$		M% % 7@F	&\$a g%

6 Y6

			R/W
G8%,'	*		F #
		G8%,' G8%'-	

			R/W
GB%-'	*	GB'*\$ GB' *%	F#
GB'*\$	*	' & GB'*\$	F#
GB' *%	*		F#
GB' *&	*	%\$ %\$\$\$\$	F#
GB' *'	*		F#
GB' *(	*	%#/\$	F#
GB' *)	*	)\$ )\$\$\$ a g	F#
GB' **	*	GA' *% B M M B	F#
GB' *+	*	8GNF	F#
GB' *,	*	8GNF	F#
GB' *-	*		F#
GB&&*	*	D@G	F
% GB' * & GB' *)			
& %#/\$			

7 Y7

			R/W
GA &+'		M+	F#
GA &++'		M+ Vi gm CB FYXm C::	F
GA ++'		M+	F#
GA' +\$'		8GNF #NF B M+ 7@F	F#
GA' +%		M M B M+ GB' +* B M%+	F#
GA' +&		8GNF M+	F#
GA' +'		8GNF M+	F#
GA' +(		8GNF M+	F#
GA' +)		8GNF M+ CB CB CB C::	F#
GA' +*		8GNF M+ CB CB CB C::	F#
GA' +,		8GNF M+ Vi gm CB FYXm C::	F#
GA' +\$ M%+ % 7@F &\$a g%			

7 Y7

			R/W
GB%+\$	+	GB%+\$ GB%+%	F#
GB%+%	+		F#
GB' +\$	+	GB' +\$ GB' +% ' & GB' +\$	F#
GB' +%	+		F#
GB' +&	+	%\$ %\$\$\$\$	F#
GB' +'	+		F#
GB' +(	+	%#/\$	F#
GB' +)	+	)\$ )\$\$\$ a g	F#
GB' +*	+	GA' +% B M M B	F#
GB' ++	+	8GNF	F#





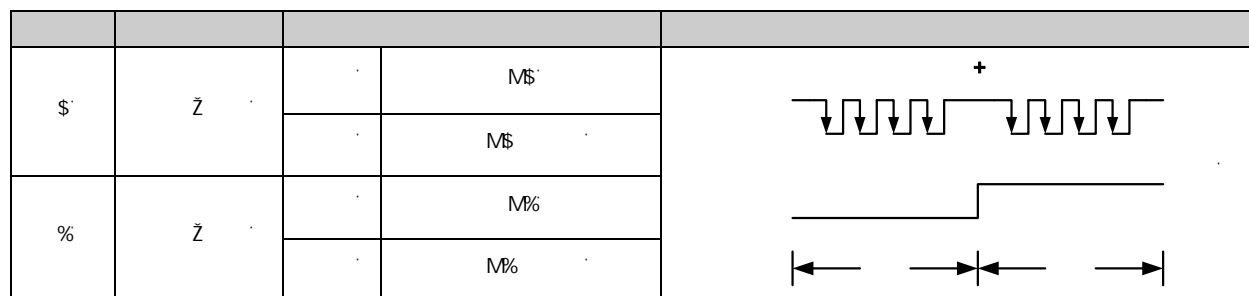
1 Y1

			R/W
GB ) &	%		F #
GB )	%	GB ) & GB )'	F #
GB & %	%	GB & % GB & %	F #
GB & %	%	' & GB & %	F #
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% GB & % GB & %			
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11.4.3 MC100

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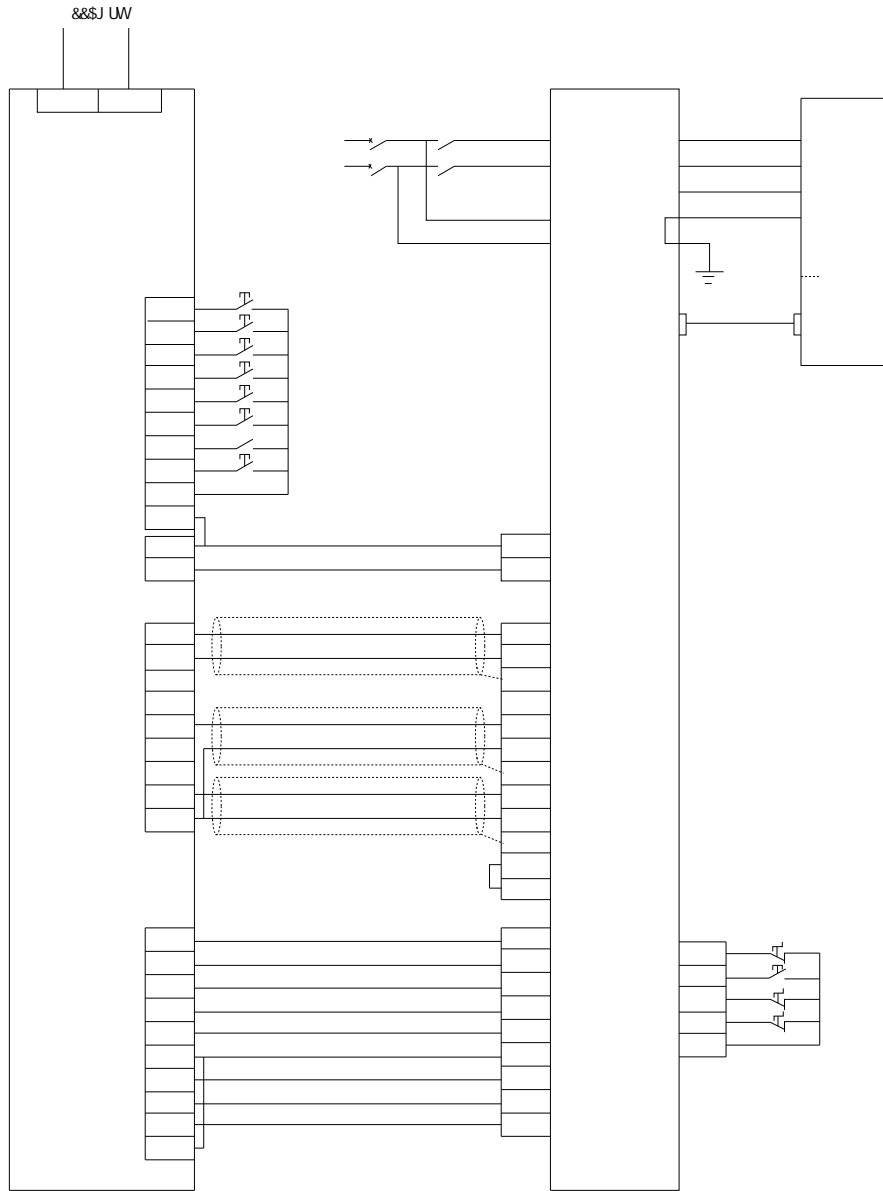
11-10 MC100



			R/W
GA , \$	M \$	M \$	F #
GA , %	M %	M %	F #
GA , &	M \$	M \$ Vi gn CB fYUXm C::	F
GA , '	M %	M % Vi gn CB fYUXm C::	F
GA **	M \$	M \$	F #
GA *(	M %	M %	F #
GA , )		NFB M \$ M % 7 @F	F #
GA , *	M \$	CB D@GM	F #
GA , +	M %	CB D@GM	F #
GA , -	D@GJ	CB	F #
GA , ) M & M % 7 @F & \$ a g % M & M			
GA , )			

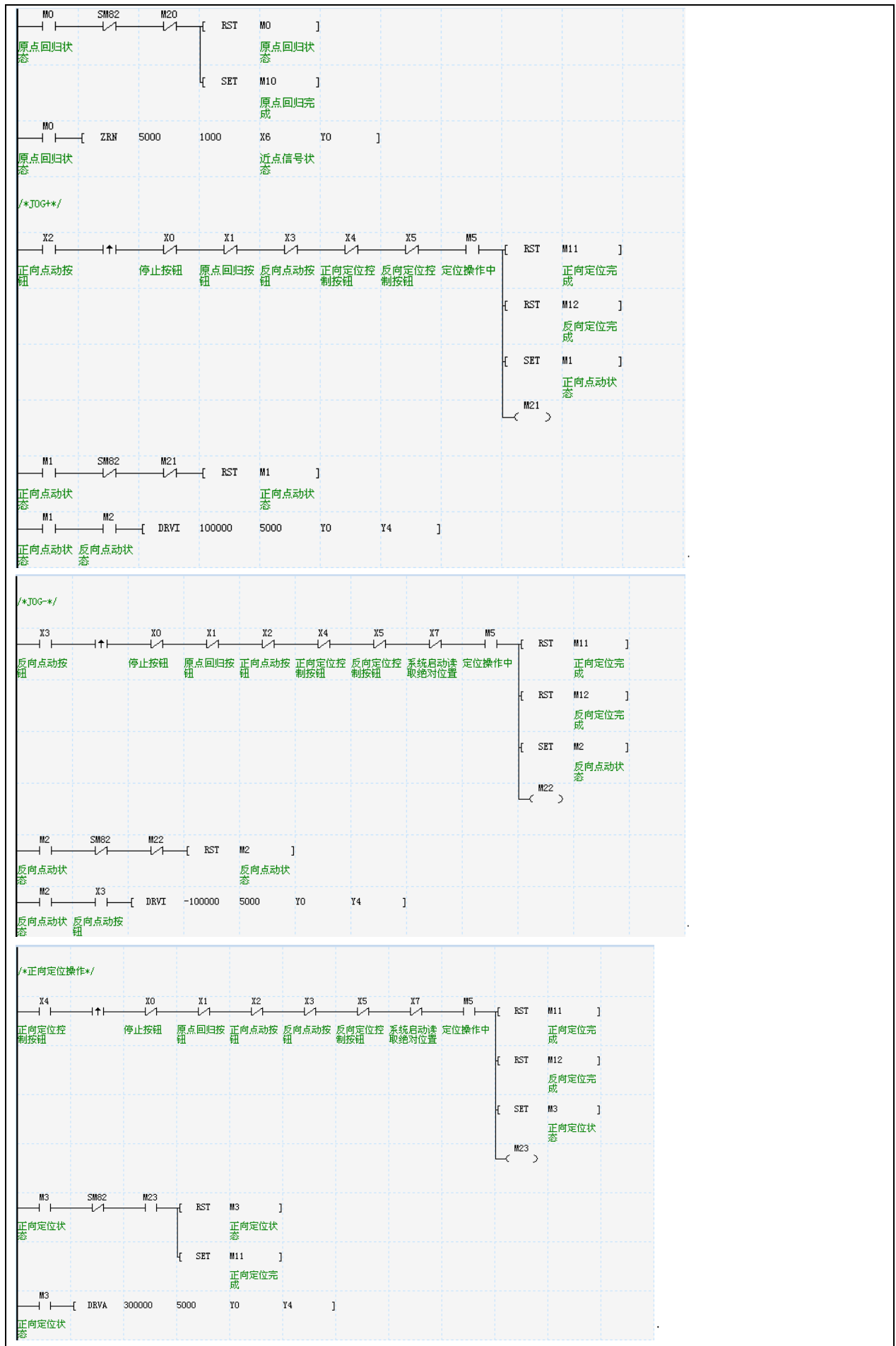
			R/W
G8) \$	\$		F#
G8) %	\$	G8) \$ G8) %	F#
G8, \$	\$	G8, \$ G8, %	F#
G8, %	\$	' & G8, \$	F#
G8) &	%		F#
G8) ' .	%	G8) & G8) ' .	F#
G8, &	%	G8, & G8, ' .	F#
G8, ' .	%	' & G8, &	F#
G8, (	\$ %	%/#\$	F#
G8, )	\$ %		F#
G8, * .	\$ %	%\$ %\$\$\$\$	F#
G8, +	\$ %	)\$ )\$\$\$ a g	F#
G8) * .	\$	D@G	F
G8) +	%	D@G	F

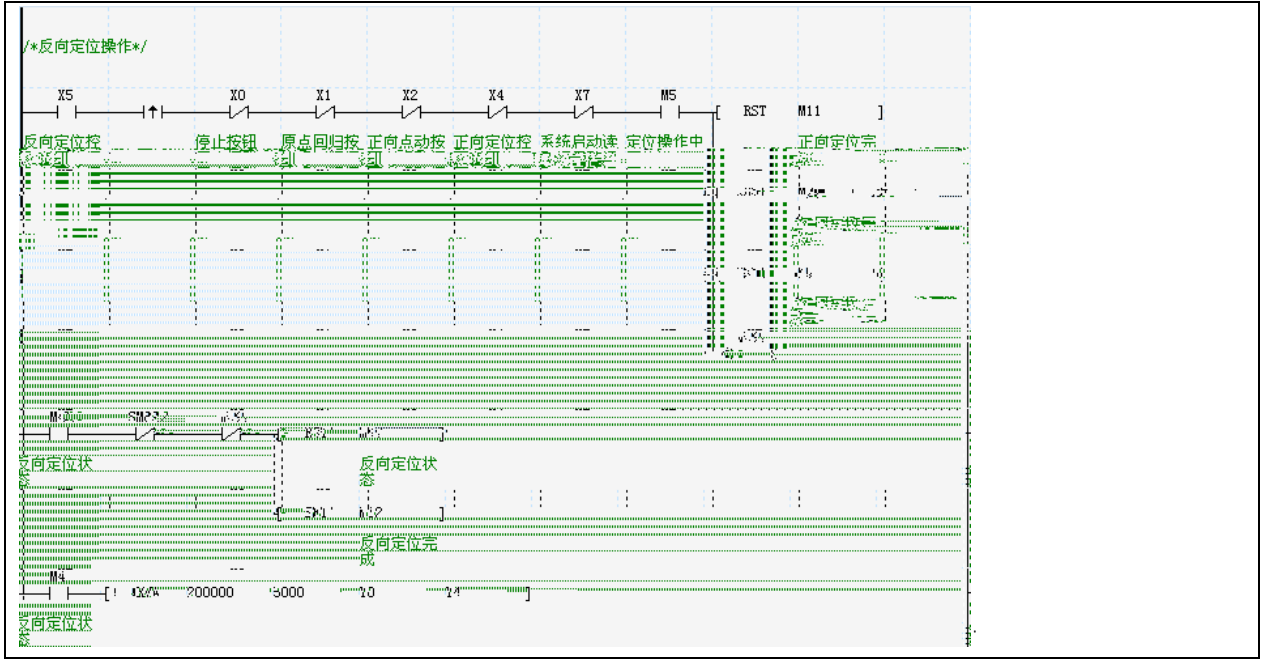
% G8, ( G



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PLS

D@G

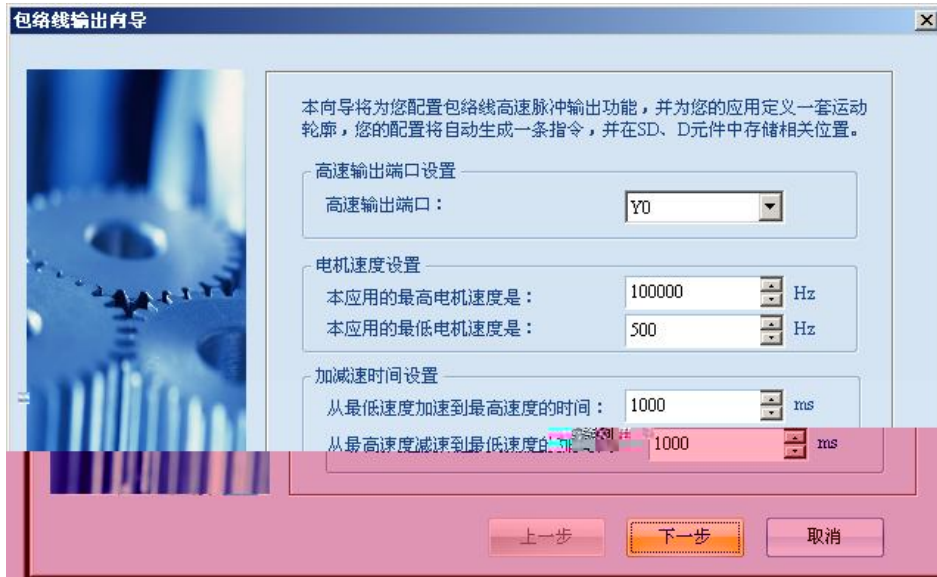
DHC

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D@G

DHC



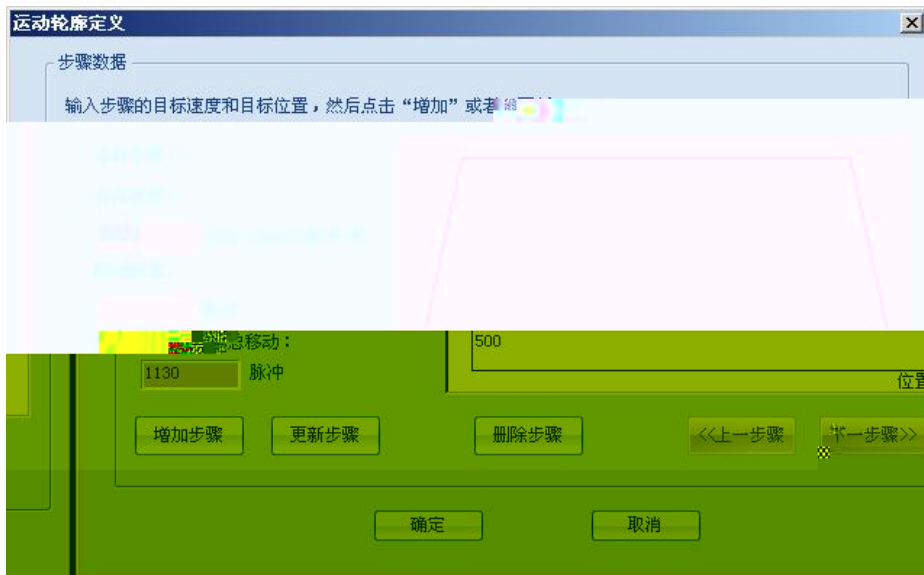


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1000 50000 20000 100000 5000 316 0.316

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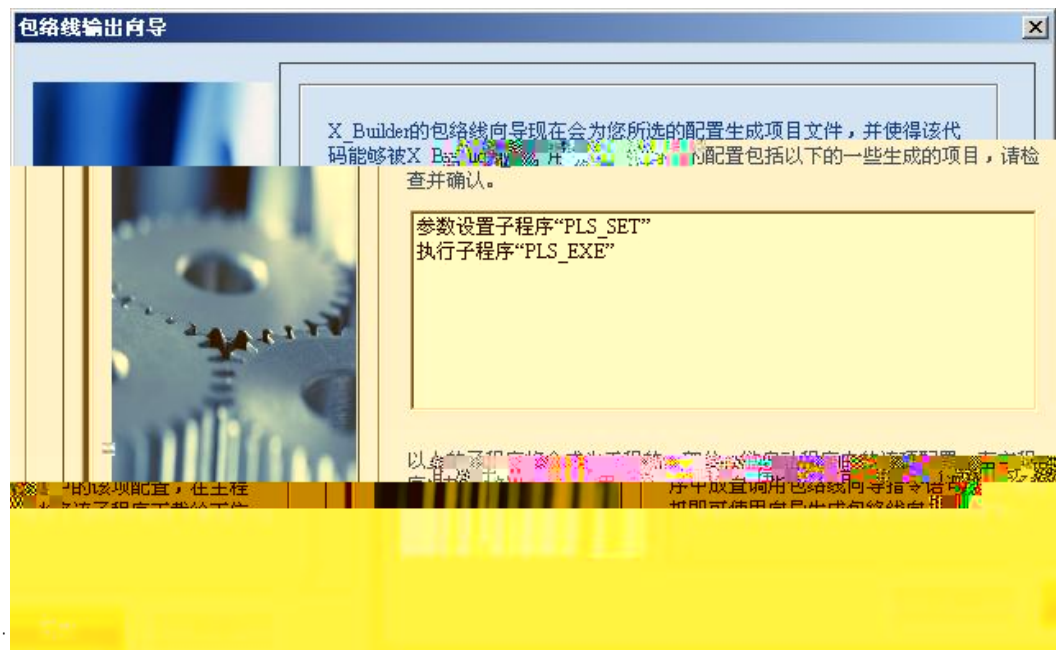


D@G

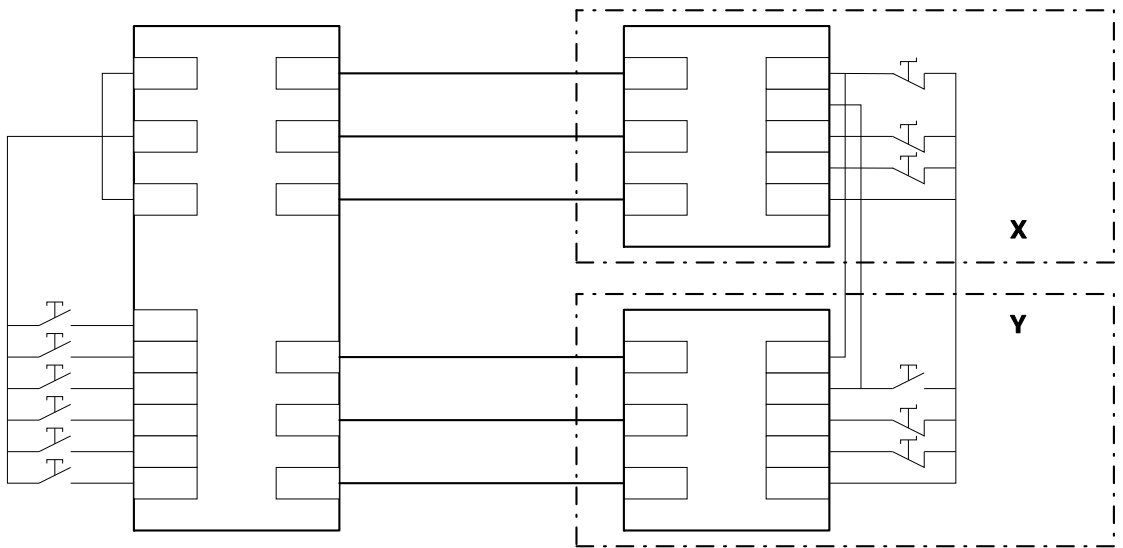
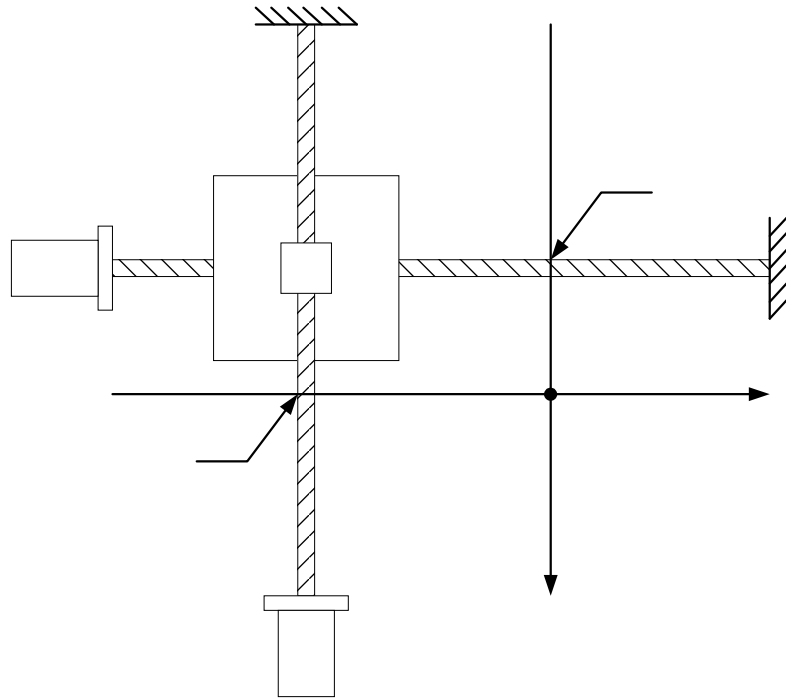
8



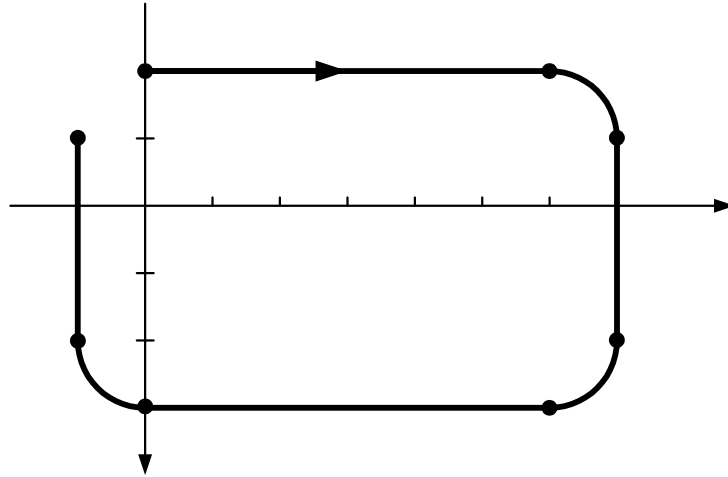
DHC



11.5.2



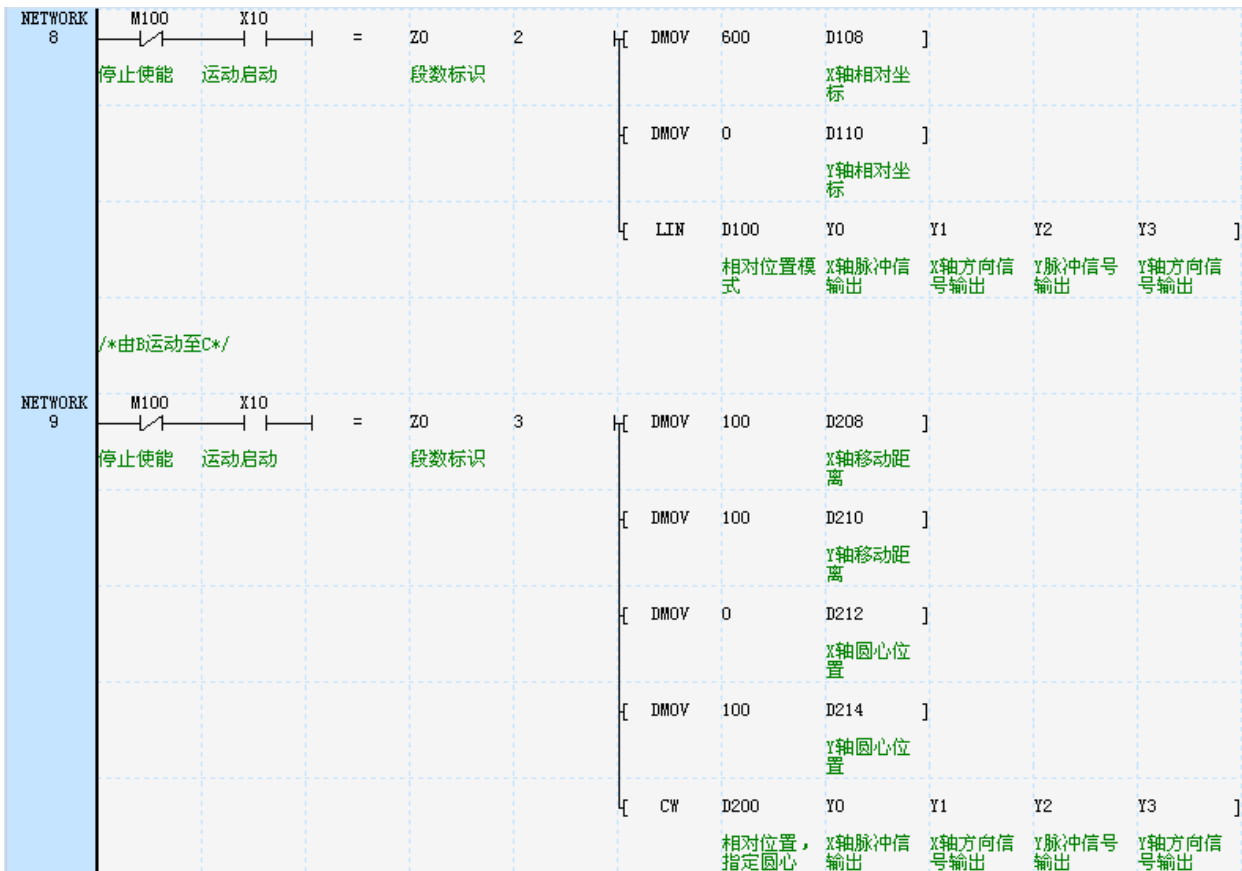
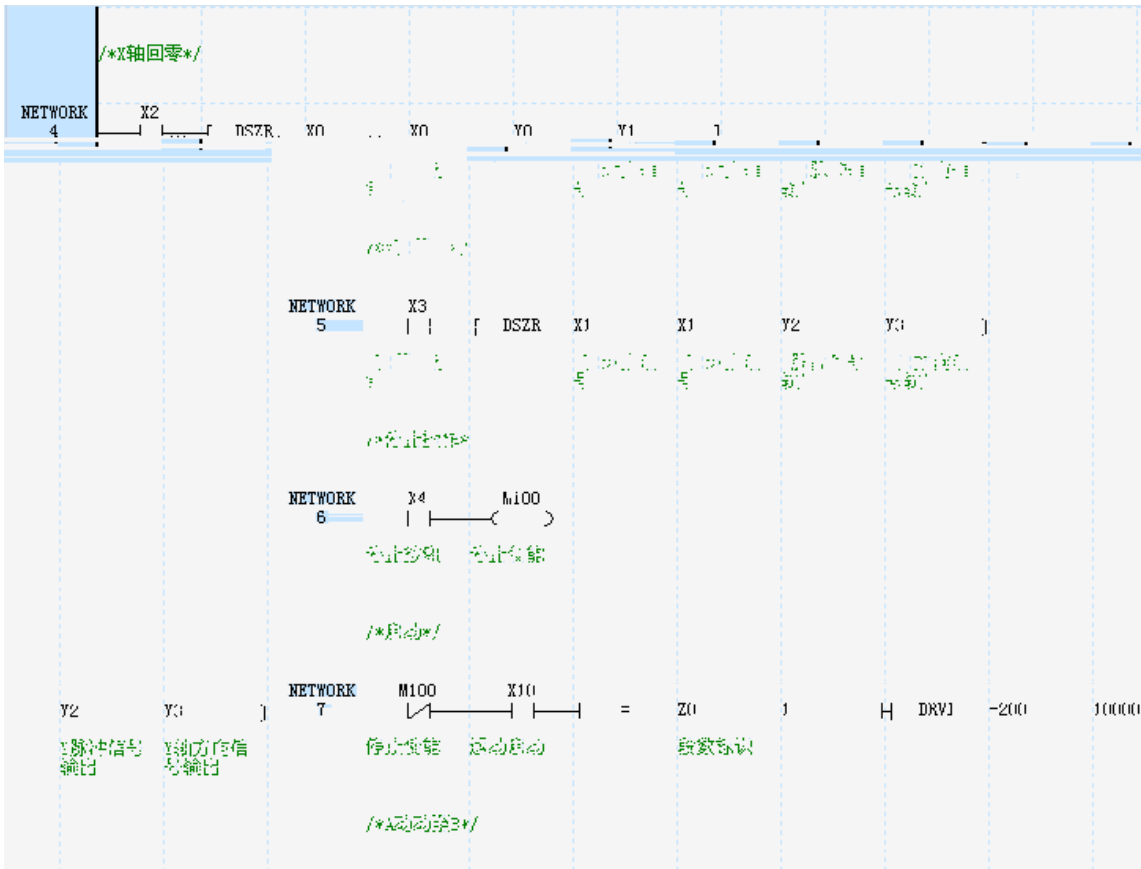
%  
&  
,

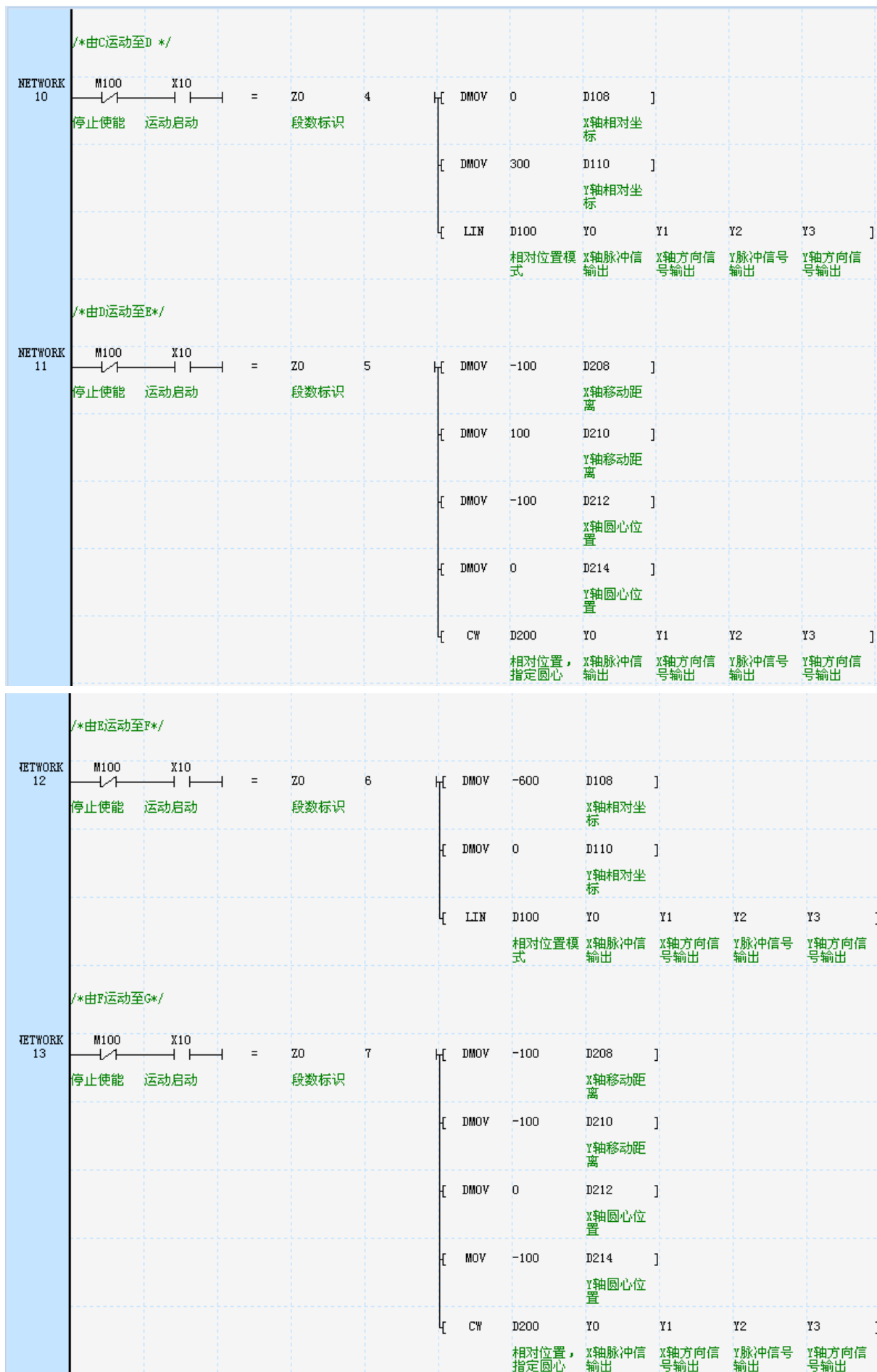


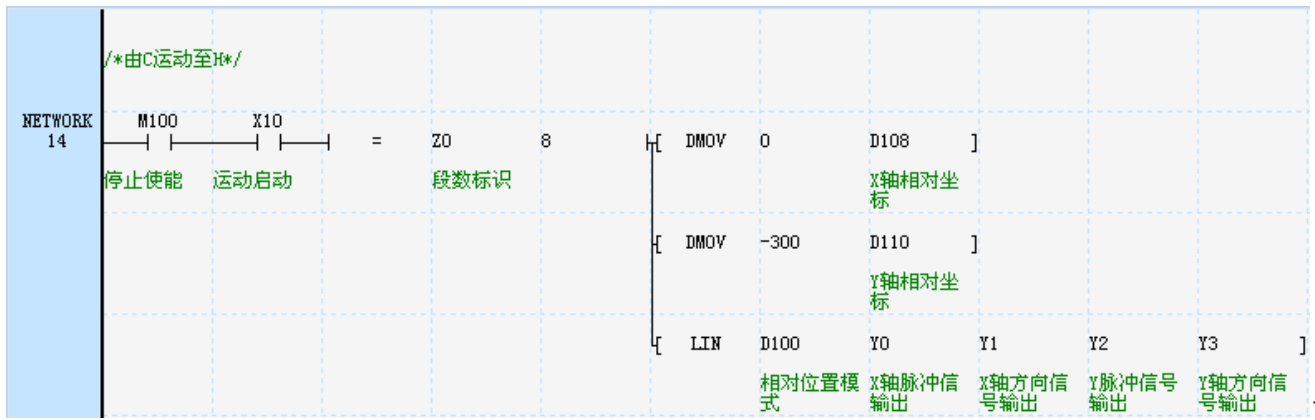
		/*初始化运动控制指令相关软元件*/				
NETWORK 0	SM1	[	DMOV	0	D100 ]	相对位置模式
		[	DMOV	10000	D102 ]	直线插补初始速度
		[	DMOV	10000	D104 ]	直线插补合成速度
		[	DMOV	100	D106 ]	直线插补减速时间
		[	DMOV	0	D108 ]	X轴相对坐标
		[	DMOV	0	D110 ]	Y轴相对坐标
NETWORK 1	SM1	[	DMOV	0	D200 ]	相对位置, 指定圆心
		[	DMOV	10000	D202 ]	圆弧插补保留

[	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	SNO	[	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	SNO	[	DMOV	200000	SD322	]	Y2最高速度
		[	MOV	10	SD324	]	Y2基度速度
		[	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







)\*

GHCD→FI B



G8 GA

GA

F

1. PLC

			R/W	MC200	MC100	MC280
GA \$		FI B GHCD	F			
GA %		GHCD FI B	F			
GA &			F			
GA ' "		GHCD FI B	F			
GA (			F			
GA )			F			
GA *	&(J XW	&(J XW )\$a g )\$a g	F			
GA +		%	F			
GA ,			F			
GA -		L CB D@7 GHCD FI B	F			

2.

			R/W	MC200	MC100	MC280
GA %	g	g	\$ F			

GA &\$		G8&\$	F			
GA &%		G8&\$	F			
GA &&		G8&\$	F			
GA ' \$		A C8FK	F			

4.

				R/W	MC2 00	MC1 00	MC280
GA (\$	L \$ #	%	L \$	F #			
GA (%)	L % #	%	L %	F #			
GA (&	L & #	%	L &	F #			
GA ('	L ' #	%	L '	F #			
GA ((	L ( #	%	L (	F #			
GA ()	L ) #	%	L )	F #			
GA (*	L * #	%	L *	F #			
GA (+	L + #	%	L +	F #			
GA (,	\$	%		F #			
GA (-	\$	%		F #			
GA )\$	\$	%		F #			
GA )%	\$	%		F #			
GA )&	%	%		F #			
GA )'	%	%		F #			
GA )(	%	%		F #			
GA ))	%	%		F #			
GA )**		%		F #			
GA )+	&	%		F #			
GA ),	&	%		F #			
GA )-	&	%		F #			
GA *\$	&	%		F #			
GA *%	%	%	%	F #			
GA *&	&	%	%	F #			
GA **	DHC M\$	%	DHC M\$	F #			
GA *(	DHC M%	%	DHC M%	F #			
GA *)		%		F #			
GA **	\$	%	\$	F #			



	#				
--	---	--	--	--	--

9. PORTO

			R/W	MC200	MC100	MC280
GA %&\$	\$	LAH	F#			
GA %&%	\$	F7J	F#			
GA %&&	\$		F#			
GA %&	\$		F#			
GA %&('	\$		F			



GA %&&GA %& DCFH\$ A 7Vi g A cXi g : F99DCFH GA %&&GA %& A 7%\$\$ D@7 DCFH\$

10. PORT1

			R/W	MC200	MC100	MC280
GA %&\$	%	LAH	F#			
GA %&%	%	F7J	F#			
GA %&&	%		F#			
GA %&	%		F#			
GA %&('	%		F			



GA %&&GA %& DCFH% A 7Vi g A cXi g : F99DCFH GA %&&GA %& A 7%\$\$ D@7

11. PORT 2

			R/W	MC200	MC100	MC280
GA % \$	&	LAH	F#			
GA % %	&	F7J	F#			
GA % &	&		F#			
GA % ' "	&		F#			



14.

					R/W	MC200	MC100	MC280
GA %&	58	\$	%	58	\$	F#		
GA %&	58	%	%	58	%	F#		
GA %&	58	\$	%	\$		F#		
GA %&	58	%	%	\$		F#		
GA %&	85	\$	%	85	\$	F#		

15.

					R/W	MC200	MC100	MC280
GA % \$					F#			
GA % %	#				F#			
GA % &					F#			
GA % )					F#			
GA % ,			%		F#			

16. ASCII

					R/W	MC200	MC100	MC280
GA % *	5G7	\$	%	5G7=	F#			
		%	%	5G7=				
GA % -	G5J 9F				F			

17.

					R/W	MC200	MC100	MC280
GA % \$		%	&	GHCD F I B	F			
		(						
GA % %		%	&		F			
GA % &		%	&		F			

18.

					R/W	MC200	MC100	MC280
GA % *					F			



				R/W	MC200	MC100	MC280
	GA &'	7&'	7&SS	GA &SS	F		
	GA &(	7&(			F		
	GA &)	7&)			F		
	GA &*	7&*			F		
	GA &+	7&+			F		
	GA '\$%	7' '\$%			F		
	GA &,	7&,			F		
	GA &-	7&-			F		
	GA &\$	7&\$			F		
	GA &%	7&%			F		
	GA '\$(	7' '\$(			F		
	GA '\$)	7' '\$)			F		
	GA '\$*	7' '\$*			F		
	GA &&	7&&			F		
	GA &'	7&'			F		
	GA &(	7&(			F		
	GA &)	7&)			F#		
	GA &*	7&*			F#		
	GA &+	7&+			F#		
	GA &,	7&,	F#				
	GA &-	7&-	F#				

21.

			R/W	MC200	MC100	MC280
GA &*\$		M\$ M% 8J +H M\$ L\$ M% L% G8 &(\$ (	F#			
GA &*\$	M\$*\$	M\$*\$	F#			
GA &*\$	M\$*&	M\$*&	F#			
GA &*\$	M\$*\$	M\$*\$	F#			
GA &*\$	M\$\$(	M\$\$(	F#			
GA &*\$	M\$)\$	M\$)\$	F#			
GA &*\$	M\$*\$	M\$*\$	F#			
GA &*\$	M\$*\$	M\$*\$	F#			
GA &+%	M\$*\$ Vi g#fYUXm	M\$*\$	F			
GA &+&	M\$*& Vi g#fYUXm	M\$*&	F			
GA &+'	M\$*\$ Vi g#fYUXm	M\$*\$	F			
GA &+(\$	M\$\$( Vi g#fYUXm	M\$\$(	F			
GA &+)\$	M\$)\$	M\$)\$	F			



			R/W	MC200	MC100	MC280
GA' '(		M 8GNF #BJ #H	F#			
GA' )		M 8GNF	F#			
GA' **		M 8GNF	F#			
GA' ',		M 8GNF #BJ #H	F#			
GA' (\$		M 8GNF #NF B	F#			



% G8)\$ G8))

GHCD F I B

& G8 GA

G8

F

### 1. PLC

			R/W	MC200	MC100	MC280	
G8\$\$	D@7	% A 7%\$\$ &\$ A 7&\$\$	F				
G8\$%		%\$\$% %\$\$%	F				
G8&\$		%& %&	F				
G8\$			F				
G8\$(		\$%J ' * J ' *	F				
G8\$)		%\$a g %\$a g %\$\$a g %\$\$a g	F				%\$ %\$\$a g
G8\$*		( ( * *	F				
G8\$+	=\$		F				
G8\$,			F				
G8\$-	% L\$ \$ L\$ %		F			\$ %	
G8%\$	=C		F				
G8%#	=C		F				
G8%&	=C		F				
G8%							
G8%&							
G8%#							
G8%&							
G8%#							
G8%&		GA % \$%a g z & \$!! (&- (*+&-)a g	F#		' '\$\$-		
G8%#			F#		' '\$\$-		

### 2.

### FIFO

			R/W	MC200	MC100	MC280	
G8&\$	\$	)	F				
G8&%	%		F				
G8&&	&		F				
G8&'	'		F				
G8&(	(		F				

3. FROMTO

		R/W	MC20 O	MC10 O	MC280	
G8 &)	: FCA #HC \$	F				&))
G8 &*	#C #C \$	F				&))

4.

		R/W	MC2 OO	MC1 OO	<sup>b</sup> MC280	99 ** ^ i " δ <sup>3</sup> TM € Sq & %
G8' \$	a g	F				
G8' %	a g	F				
G8' &	a g	F				

\$a g

%a g

G8' ... \$² \$6 A / G8

G8' ' %\$\$\$a g %\$\$\$

6.

				MC200	MC100	MC280	
G8(\$	L\$ Td' ò0 Ê l & g	TM E' & f		F#	\$\$%	TM E' & f	\$\$%\$ i g

9.

			R/W	MC200	MC100	MC280	
GB**	\$	% ' &+*+	F#				% ' &+*+a g
GB*+	%	% ' &+*+	F#				% ' &+*+a g
GB*,	&	% ' &+*+	F#				% ' &+*+a g

% a g

) a g

10.

		R/W	MC200	MC100	MC280	
GB, \$	M\$	F#				\$
GB, %	M\$	F#				
GB, &	M%	F#				
GB, ''	M%	F#				\$
GB, (	NFB 8FJ = 8FJ 5	F#				\$
GB, )	NFB 8FJ = 8FJ 5	F#				%\$\$\$
GB, *	NFB 8FJ = 8FJ 5	F#				
GB, +	NFB 8FJ = 8FJ 5	F#				%%\$
GB, ,		F#				%%\$
GB, -		F#				%%\$

11.

		R/W	MC200	MC100	MC280	
GB%\$\$		F				&\$\$\$ &\$- -
GB%\$%		F				% %&
GB%\$\$		F				% ' %
GB%\$		F				\$ &
GB%\$(		F				\$ )-
GB%\$)		F				\$ )-
GB%\$*		F				\$ *
HK F						

' +\$'

' A cXVi g

A 7%\$\$ A 7&\$\$ A 7& \$

---

12.

0



F@0

---

A 7

13.

1

			R/W	MC 200	MC 100	MC 280		
		G8%&\$ G8%&\$&	V& V% V\$ \$\$\$ ' z \$\$\$ \$\$% % z\$\$\$ \$%\$ - z' \$\$\$ \$%\$ ( z' \$\$\$ %\$ \$ & z' \$\$\$ %\$% % z\$\$\$ %\$ \$ ) + z' \$\$\$ %\$% %\$ z\$\$\$					
		G8%&\$"	\$ % % &					
		G8%&\$"	\$ %					
		G8%&\$"	\$ %					
			% +					
		G8%&\$"+	% \$					
		G8%&\$"	% \$					
		G8%&\$"-	% \$					
		G8%&\$"%\$	% W&"U° \$					
		G8%&\$"%%						

			R/W	MC200	MC100	MC280	
G8%&*			F				
G8%&+			F				
G8%&			F				

14. Modbus/MC bus

			R/W	MC200	MC100	MC280	
G8% \$	\$		F #K				AC8 % ' & A 76I G \$ ' %
G8% %	\$ #A 7Vi g		F #K				
G8% &	\$		F #K				
G8% ' .	A 7Vi g \$		F #K				% %
G8% )	%		F #K				AC8 % ' & A 76I G \$ ' %
G8% * .	% #A 7Vi g		F #K				
G8% +	%		F #K				\$ %\$\$
G8% ,	A 7Vi g %		F #K				% %
G8% -	A cXVi g %		F				

15.

2

			R/W	MC200	MC100	MC280		
G8%( \$	∞	V& V% V\$ \$\$\$ ' , Z\$\$ \$\$% % Z\$\$ \$%\$ -Z'\$ \$%\$ (z \$ %\$\$ &Z'\$ %\$\$ %Z\$\$ %\$ \$ )+Z'\$ %\$% %\$ Z\$\$		F #K				
		G8%( \$"	\$ % % &					
		G8%( \$(	\$ %					
		G8%( \$)	\$ %					
		G8%( \$"*	\$ , % +					
		G8%( \$"+	% \$					
		G8%( \$,	% \$					
		G8%( \$"-	% \$					
G8%( \$"%\$	% \$							
G8%( \$		G8%( \$)%		F #K				
		G8%( \$)%&	\$ %					
		G8%( \$)% G8%( \$)%						

			R/W	MC200	MC100	MC280	
G8%(%			F#				
G8%(&			F#				
G8%('		\$a g	F#				\$ ' &+*+a g
G8%( ('		\$a g	F#				\$ ' &+*+a g
G8%(')		\$ %  &  (  )  * %	F				
G8%(*			F				
G8%(+			F				
G8%(')			F				

16. Modbus 2

		R/W	MC200	MC100	MC280	
G8%(\$		&	F#			A C8 % ' &
G8%(%		&	F#			
G8%('			F#			

		R/W	MC200	MC100	MC280	
G8% &	8 < GH 8 < GD	F #K				
G8% ' .	8 < GH 8 < GD	F #K				
G8% (		F #K				

19.

		R/W	MC200	MC100	MC280	
G8% %		F				
G8% &		F				
G8% ' .	A C 86 I G f D C F H \$ &	F				
G8% (	A C 86 I G f D C F H % &	F				
G8% )	A C 86 I G f D C F H &	F				

20.

			R/W	MC200	MC100	MC280	
G8% * .	DC F H \$ a g	\$ ) ) a g	F #K	" \$ \$ -	" \$ \$ -	#	\$ ! ' & + * +
G8% +	DC F H % a g		F #K	" \$ \$ -	" \$ \$ -	#	
G8% ,	DC F H & a g		F #K	" \$ \$ -	" \$ \$ -	#	

21.

		R/W	MC200	MC100	MC280
G8 & \$ \$	M \$	F #K			
G8 & \$ %	M \$	F #K			
G8 & \$ &	M \$ NFB D @ G J 8 F J = 8 F J 5 8 GNF 8 J = H % \$ % \$ \$ \$ \$ \$	F #K			
G8 & \$ ' .	M \$ NFB D @ G J 8 F J = 8 F J 5 8 GNF 8 J = H % \$ % \$ \$ \$ \$ \$	F #K			
G8 & \$ (	M \$ NFB D @ G J 8 F J = 8 F J 5 8 GNF 8 J = H % # \$ %	F #K			
G8 & \$ )	M \$ NFB 8 F J = 8 F J 5 8 GNF 8 J = H G8 & \$ ( G8 & \$ & G8 & \$ ' . ) \$ a g ) \$ \$ \$ a g	F #K			
G8 & \$ +	M \$ z 8 GNF	F #K			
G8 & \$ ,	M \$ 8 GNF	F #K			
G8 & \$ -	M \$ 8 GNF	F #K			
G8 & \$ %	M %	F #K			
G8 & \$ %	M %	F #K			
G8 & \$ &	M % NFB D @ G J 8 F J = 8 F J 5 8 GNF 8 J = H % \$ % \$ \$ \$ \$ \$	F #K			

G8&%	M% NFB D@GJ 8FJ = 8FJ 5 8GNF 8J +H	F #K		
G8&%(	M% NFB D@GJ 8FJ = 8FJ 5 8GNF 8J +H	F #K		
G8&%)	M% NFB 8FJ = 8FJ 5 8GNF 8J +H	F #K		
G8&%(	M% 8GNF	F #K		
G8&%(	M% 8GNF	F #K		
G8&%(	M% 8GNF	F #K		
G8&&\$	M%	F #K		
G8& \$	M%	F #K		
G8&( \$		F #K		

				R/W	MC10 O	MC20 O	MC280
G8&&\$	%	\$	M\$\$\$	F			
G8&&%	%	\$	M\$%\$	F			
G8&&&	%	\$	M\$&&	F			
G8&&'	%	\$	M\$'	F			
G8&&(	%	\$	M\$\$(	F			
G8&&)	%	\$	M\$)	F			
G8&&*	%	\$	M\$*	F			
G8&&+	%	\$	M\$+	F			
G8' %\$	' &	\$	M\$%	F #K			
G8' %%							
G8' %&	' &	%\$\$\$\$fA 7& \$.& \$\$\$\$\$E	NFB D@GJ 8FJ = 8FJ 5 8GNF 8J +H n% A 7& \$	F #K			
G8' %)	%	) \$\$\$\$fA 7& \$.) \$ E	NFB D@GJ 8FJ = 8FJ 5 8GNF 8J +H E n%	F #K			
G8' %)'	%	%\$\$\$	NFB 8FJ = 8FJ 5 8GNF 8J +H G8' %( G8' %&G8' % ) \$a g ) \$\$\$a g	F #K			
G8' %+	%	\$	M%	F #K			
G8' %&	%	%\$\$\$	M% 8GNF	F #K			
G8' %)	' &	) \$\$\$\$	M% 8GNF	F #K			
G8' %&				F #K			
G8' &&\$	' &	\$	M\$&&	F #K			
G8' &&%							
G8' &&)	' &	%\$\$\$\$fA 7& \$.& \$\$\$\$\$E	NFB D@GJ 8FJ = 8FJ 5 8GNF 8J +H n& A 7& \$	F #K			
G8' &('	%	) \$\$\$\$fA 7& \$.) \$ E	NFB D@GJ 8FJ = 8FJ 5 8GNF 8J +H E n&	F #K			
G8' &)	%	%\$\$\$	NFB 8FJ = 8FJ 5 8GNF 8J +H G8' &( G8' &&G8' & ) \$a g ) \$\$\$a g	F #K			

				R/W	MC10 O	MC20 O	MC280
G8' &*	%	\$		M	F#		
G8' &+	%	\$\$\$\$		M 8GNF	F#		
G8' &	' &	)\$\$\$\$		M 8GNF	F#		
G8' &-					F#		
G8' '\$	' &	\$		M\$	F#		
G8' '%							
G8' '&	' &	\$\$\$\$\$fa 7& \$.& \$\$\$\$\$		NFBZ@GJ ZBFJ ZBFJ 5 8GNF 8J +H fl %/\$ m A 7& \$ % &\$\$\$\$	F#		
G8' ''					F#		
G8' '(	%	)\$\$\$\$fa 7& \$.)\$\$ \$		NFBZ@GJ ZBFJ ZBFJ 5 8GNF 8J +H fl %/\$ \$ m	F#		
G8' ')	%	\$\$\$\$		NFBZBFJ ZBFJ 5 8GNF 8J +H G8' '( G8' '&G8' '' m )\$ag )\$\$\$\$ag	F#		
G8' '*	%	\$		M	F#		
G8' '+	%	\$\$\$\$		M 8GNF	F#		
G8' ',	' &	)\$\$\$\$		M 8GNF	F#		
G8' '-					F#		
G8' (\$	' &	\$		M\$(\$	F#		
G8' (%)							
G8' (&	' &	\$\$\$\$\$		NFBZ@GJ ZBFJ ZBFJ 5 8GNF 8J +H fl %/\$ m A 7& \$ % &\$\$\$\$	F#		
G8' ('	' &	\$\$\$\$\$			F#		
G8' ((	%	)\$\$		NFBZ@GJ ZBFJ ZBFJ 5 8GNF 8J +H fl %/\$ \$ m	F#		
G8' ()	%	\$\$\$\$		NFBZBFJ ZBFJ 5 8GNF 8J +H G8' (( G8' (&G8' (' m )\$ag )\$\$\$\$ag	F#		
G8' (*	%	\$		M	F#		
G8' (+	%	\$\$\$\$		M 8GNF	F#		
G8' (,	' &	)\$\$\$\$		M 8GNF	F#		
G8' (-					F#		
G8' )\$	' &	\$		M\$)	F#		
G8' )%					F#		
G8' )&	' &	\$\$\$\$\$		NFBZ@GJ ZBFJ ZBFJ 5 8GNF 8J +H fl %/\$ m A 7& \$ % &\$\$\$\$	F#		
G8' )'	' &	\$\$\$\$\$			F#		
G8' )(	%	)\$\$		NFBZ@GJ ZBFJ ZBFJ 5 8GNF 8J +H fl %/\$ \$ m	F#		
G8' ))	%	\$\$\$\$		NFBZBFJ ZBFJ 5 8GNF 8J +H G8' )( (G8' )&G8' )' )\$ag )\$\$\$\$ag m	F#		
G8' )*	%	\$		M	F#		
G8' )+	%	\$\$\$\$		M 8GNF	F#		

				R/W	MC100	MC200	MC280
G8' )	' &	) \$\$\$\$	M) 8GNF	F #			
G8' )-				F #			
G8' *\$	' &	\$	M\$*	F #			
G8' *%				F #			
G8' *&			NFBZ@GJ ZBFJ ZBFJ 5 8GNF	F #			
G8' *'	' &	&\$\$\$\$	8J + m A 7& \$	F #			
G8' *(	%	) \$\$	NFBZ@GJ ZBFJ ZBFJ 5 8GNF 8J + E m	F #			
G8' *)	%	\$\$\$\$	NFBZBFJ ZBFJ 5 8GNF 8J + G8' *( G8' *&G8' *' ) \$a g ) \$\$\$a g	F #			
G8' **	%	\$	M*	F #			
G8' **+	%	\$\$\$\$	M* 8GNF	F #			
G8' *,	' &	) \$\$\$\$	M* 8GNF	F #			
G8' *-				F #			
G8' +\$	' &	\$	M\$+	F #			
G8' +%				F #			
G8' +&			NFBZ@GJ ZBFJ ZBFJ 5 8GNF	F #			
G8' +'	' &	&\$\$\$\$	8J + m A 7& \$	F #			
G8' +(	%	) \$\$	NFBZ@GJ ZBFJ ZBFJ 5 8GNF 8J + E m	F #			
G8' +)	%	\$\$\$\$	NFBZBFJ ZBFJ 5 8GNF 8J + G8' +( G8' +&G8' +' ) \$a g ) \$\$\$a g	F #			
G8' +*	%	\$	M+	F #			
G8' ++	%	\$\$\$\$	M+ 8GNF	F #			
G8' +,	' &	) \$\$\$\$	M+ 8GNF	F #			
G8' +-				F #			

22.

		R/W	MC100	MC200	MC280
G8(\$%	G-\$!G--	F #			

23.

		R/W	MC100	MC200	MC280
G8(' \$	%	F #			
G8(' %	&	F #			
G8(' &		F #			
G8(' ''	(	F #			
G8(' ('	)	F #			

# Modbus

# MC100 MC200 MC280

## 1. Modbus

A 7 D@7 \$ A cXVi g % A cXVi g

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

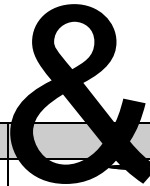
8 1

6 2 252 ASII 252 RTU

## 2. Modbus

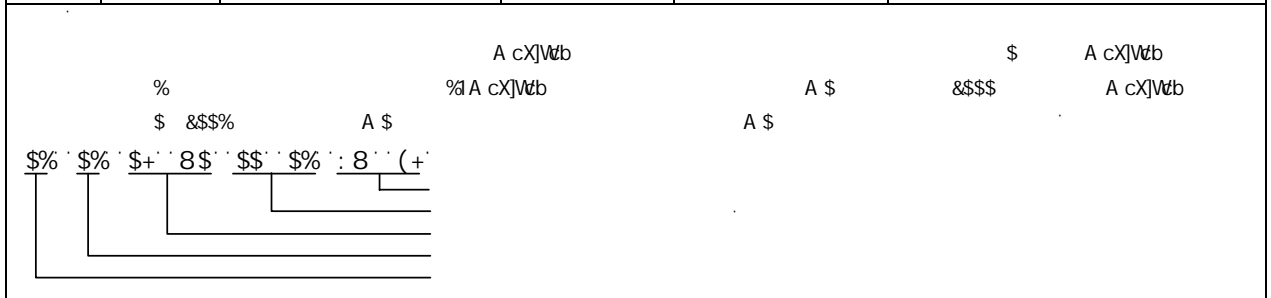
\$% \$& \$' \$) \$\* \$, %& %\*

		Modicon		
\$%		\$ % 1111	M L A	GA G H A7
\$&		% #		



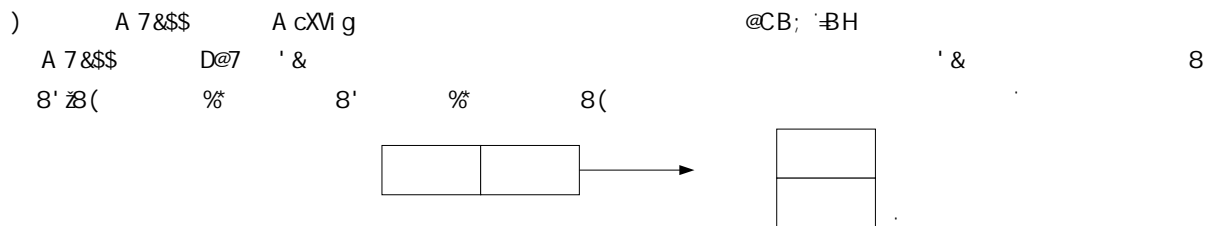
PLC Modbus

M	M\$ M ++ &)*	\$\$\$\$ \$&)	\$% \$) %)	M/\$ M/+
L	L\$ L' ++ &)*	%&\$\$ \$%( ) \$\$\$\$ \$&)	\$% \$) %) \$&	
A	A \$ A %&&' -	&\$\$ (\$(+ %&\$\$!&\$% %	\$% \$) %)	
GA	GA \$ GA )%%	(((\$ ( * ) ' \$\$\$!' \$&)	\$% \$) %)	
G	G\$ G(-)	*\$\$\$!+\$& ' %\$\$\$!' (\$+%	\$% \$) %)	
H	H\$ H) %&	, \$\$\$ , & ) %&\$\$!%&)	\$% \$) %)	H
7	7\$ 7' \$*	-&\$\$ -( ) %&\$\$!%&\$) \$	\$% \$) %)	7
8	8\$ 8+---	\$\$\$\$ +---	\$' \$* %'	
GB	GB\$ GB) %&	, \$\$\$ , & ) %&\$\$!%&)	\$' \$* %'	
N	N\$ N%&	, ) \$\$ , ) %&	\$' \$* %'	
H	H\$ H) %&	- \$\$\$ - & ) %&\$\$!%&)	\$' \$* %'	H
7	7\$ 7% -	-) \$\$ - * -	\$' \$* %'	7 K CF8
7	7&\$\$ 7&)	-+\$\$ -, %&	\$' %'	7 8K CF8
7	7&)* 7' \$*	%&\$\$!%&\$% %	\$' %'	7 8K CF8
F	F\$ F' &+*+	% \$\$\$! ( ) +*+	\$' \$* %'	



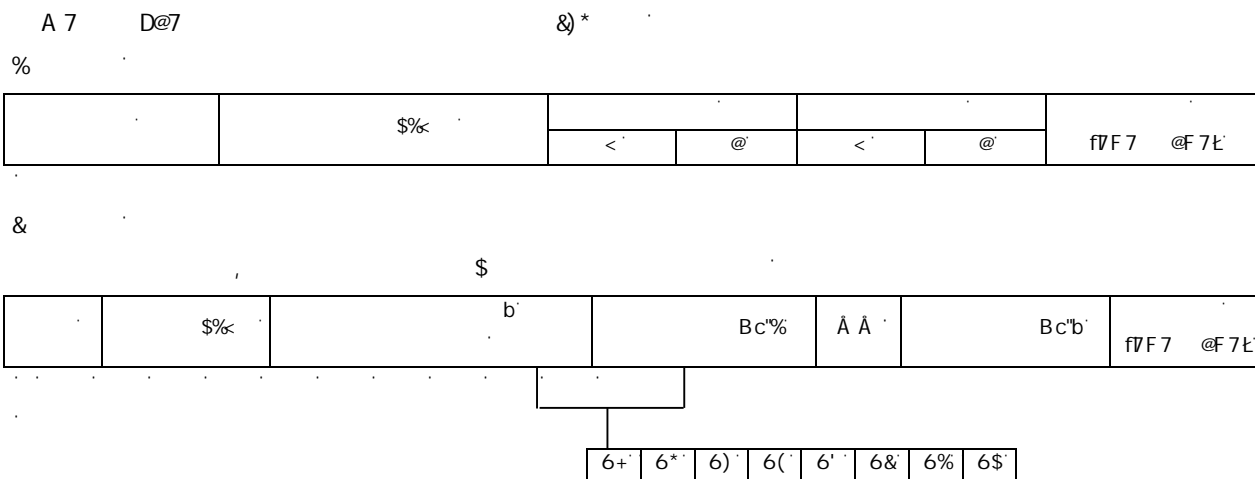
\$! \$%	
\$! \$&	
\$! \$'	

% L M L\$ L' ++ &)\* M/\$ M ++ &)\* M/\$ M/+ M/\$ M/+ M/\$ M/+  
 & L %&\$\$ %( ) \$% \$) % ) \$ & )  
 \$&  
 7 7&\$\$ 7& ) ' &  
 7 7&\$\$ -+\$\$ -+% A cXVI g  
 ( GA GB A cXVI g D@7 C?

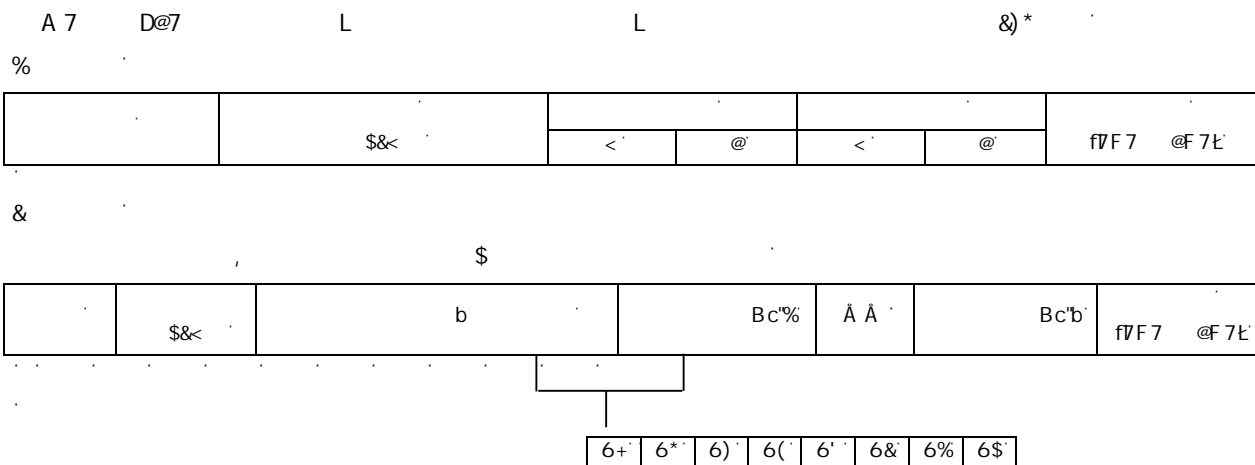


### 3. Modbus

#### 3.1 0x01



#### 3.2 0x02



#### 3.3 0x03



3.4 Ox05

VfclXWlgh

%

%

	\$) <	<	@	<	@	f7F7 @F7E
--	-------	---	---	---	---	-----------

\$! :: \$\$\$CBZ% \$! \$\$\$\$fC:: ZL

&

	\$) <	<	@	<	@	f7F7 @F7E
--	-------	---	---	---	---	-----------

3.5 Ox06

%

%

	\$* <	<	@	<	@	f7F7 @F7E
--	-------	---	---	---	---	-----------

&

	\$* <	<	@	<	@	f7F7 @F7E
--	-------	---	---	---	---	-----------

3.6 (Ox0F)

%\*, \$! \$+V\$ ž

%

\$: <	<	@	<	@	f7E	Bc%	Å Å	Bc'B	f7F7 @F7E
-------	---	---	---	---	-----	-----	-----	------	-----------

6+ 6\* 6) 6( 6' 6& 6% 6\$

&

\$: <	<	@	<	@	f7F7 @F7E
-------	---	---	---	---	-----------

3.7 (Ox10Hex)

%&\$ \$! +,

%

\$! %\$ <	<	@	<	@	f7E	Bc%	Å Å	Bc'B	f7F7 @F7E
-----------	---	---	---	---	-----	-----	-----	------	-----------

&

\$! %\$ <	<	@	<	@	f7F7 @F7E
-----------	---	---	---	---	-----------

' , &

A cXVi g

A 7%\$ A 7&\$ A 7& \$

---

3.8

%

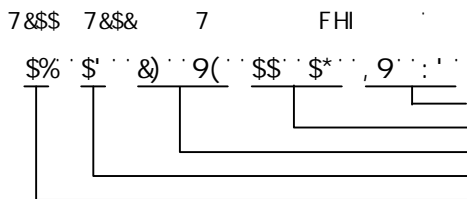
L M

+ % \$% \$( 6\$ \$\$ \$5 67 85  
04 B0 1200 10 XO X9  
01 01 02 00 00 B9 FC  
02 00 00



% \$% 7F7  
& L

% 7 7&\$ 7&)) 7' \$% 7' \$\* 7&\$ 7&)) 7' \$% 7' \$\*  
\$ % 7



-\$ \$ -+\$% 7&\$ -+\$% % -+\$% %

&

01 03 25 E5 00 04 5E F2  
25 E5 9701  
01 83 02 C0 F1

01 03 25 E4 00 05 CE F2  
25E4 5  
01 83 03 01 31

LONG INT

A 7 D@7 @CB; 'BH' 8 8' 8( @CB; 'BH  
'D@7 8' % 8( % A cXVI g @CB; 'BH  
D@7 @CB; 'BH '&  
: @C5H @CB; 'BH

5.

\$% \$& \$ \$) \$\* \$ % %  
\$) \$\* % %  
\$, \$ \$% \$ \$( \$ \$5 %

# Modbus

\$ %	
\$ %	
\$ %	
\$ %	
\$ %	
\$ %	#
\$ %	
\$ %	
\$ %	
\$ %	
\$ %	
\$ %	
\$ %	
\$ %	
\$ %	7F7 #F7
\$ %	a cXfk
\$ %	
\$ %	
\$ %	

\$ %	
\$ &	
\$ ' .	
\$ ( )	
\$ )	
\$ * .	
\$ %	
\$ &\$	
\$ &%	
\$ &&	

	MC100/MC200		MC80	
	8+- (\$'	8+- *-'	8' - (\$'	8' - *-'
	8+- +\$'	8+- --'		
	8+, \$\$fA 7&\$\$L	8+, - ( fA 7&\$\$L		
A 7Vi g	8++\$\$	8++*''		
A 7Vi g %!%	8+) \$\$	8++)'		
A 7Vi g	A %\$\$	A %%%		
9FCA K F	8*\$\$\$	8*--'		

L\$ L+

GD8

D@7

%

L\$ L+

L\$ L+

GD8

7&*'	X0	X1	X2	X3	X4	X5	X6	X7	kHz		
	#								MC280	MC2 00	MC1 00

)\$

%\$\$

96

				MC 100	MC 200	MC 280
*%						
*&						
*+.						
*('			G8&\$			
*)'						
**'						
*+.'						
*.'						
*_.'						
+\$'						
+%						
+&						
+.'						
+('						
+)'	≠€					
+*'						
++'	D@GF					
+.'	6: A					
+.'	56G					
,\$'	56G					

# MC 200

8 A 7&\$\$ ) D@7 8  
 D@7 D@7 99DF CA 8

%	8+, \$\$	8+, \$%	8+, \$&	8+, \$'	8+, \$(	8+, \$)!!	8+, \$-
&	8+, %\$	8+, %%	8+, %&	8+, %'	8+, %(	8+, %)!!	8+, %-
'	8+, &\$	8+, &%	8+, &&	8+, &'	8+, &(	8+, &)!!	8+, &-
(	8+, '\$	8+, '%	8+, '&	8+, ''	8+, '(	8+, ')!!	8+, '-
)	8+, (\$	8+, (%	8+, (&	8+, ('	8+, ((	8+, ())!!	8+, (-
*	8+, )\$	8+, )%	8+, )&	8+, )'	8+, )(	8+, ))!!	8+, )-
+	8+, *\$	8+, *%	8+, *&	8+, *'	8+, *(	8+, *)!!	8+, *-
,	8+, +\$	8+, +%	8+, +&	8+, +'	8+, +(	8+, +)!!	8+, +-
-	8+, , \$	8+, , %	8+, , &	8+, , '	8+, ,(	8+, ,)!!	8+, , -
%\$	8+, -\$	8+, -%	8+, -&	8+, -'	8+, -(	8+, -)!!	8+, --

# ASCII

5G7=<9L		\$	%	&	'	(	)	*	+
(	\$	BI @	8@9	GD579	\$	4	D		d
	%	GC<	87%		%	5	E	U	e
	&	GHL	87&		&	6	F	V	f
	'	9HL	87'		'	7	G	W	g
	(	9CH	87(		(	8	H	X	h
	)	9BE	B5?	!	)	9	I	Y	i
	*	57?	GMB	/	*	:	J	Z	j
	+	69@	9H6		+	;	K	[	k
	,	6G	75B	fl	,	<	L	\	l
	-	<H	9A	£	-	=	M	]	m
	5	@	Gl 6	!	.	>	N	^	n
	6	JH	9G7	Z	/	?	O	_	o
	7	::	:G		0	@		~	
	8	7F	:G	!	1	A	Q	a	q
	9	GC	FG	"	2	B	R	b	
:	G=	!G	#	3	C		c	89@	

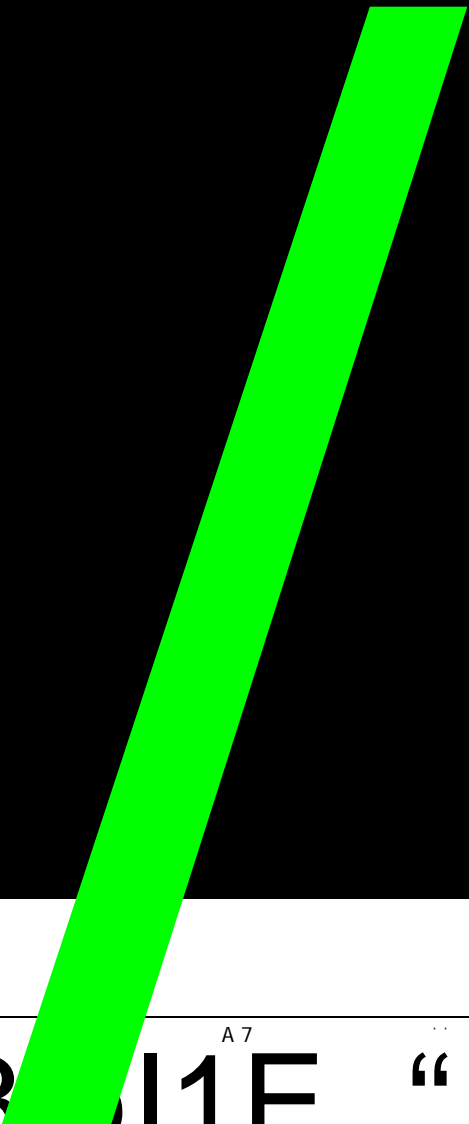
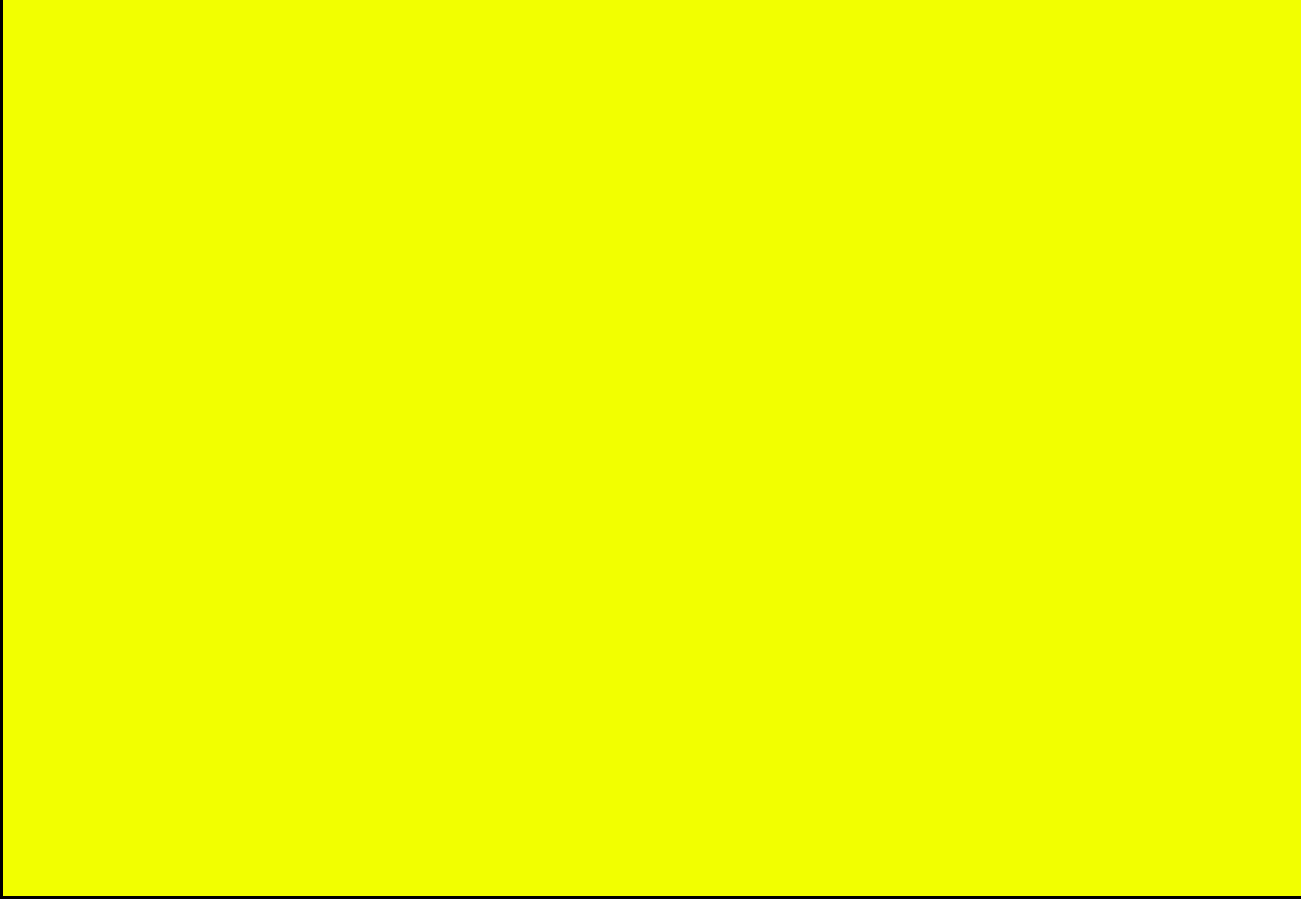
				MC200	MC100	MC80	MC280	
56G								%)
57CG	7CG%	+						%)
588		+						- +
5B6		%						***
5B8		%						* (
5B80	5B80	)						&\$)
5B801	5B801	)						&\$)
5B802	5B802	)						&\$)
5B81	5B81	)						&\$)
5B82	5B82	)						&\$)
5B821	5B821	)						&\$)
5B880	5B80	+						&\$,
5B8801	5B801	+						&\$,
5B8802	5B802	+						&\$,
5B881	5B81	+						&\$,
5B882	5B82	+						&\$,
5B8821	5B821	+						&\$,
5B8F0	5B82	+						&0%
5B8F01	5B801	+						&0%
5B8F02	5B802	+						&0%
5B8F1	5B81	+						&0%
5B8F2	5B82	+						&0%
5B8F21	5B821	+						&0%
5B=		%						* (
5BF	€ TMY '2BC' TM w,9&@ 0							

				MC 200	MC 100	MC 80	MC 280	
6	6FGH		)					&\$
	6G9H		)					&\$
	6HCK		+					&(-
7	75@@							, +
	75A 6CL		%					&()
	75A H56@9		%					&( (
	77#H	77#H	+					% (
	77K		%&					&(\$
	7: 9B8		%					, )
	7-F 9H		%					, *
	7>							, )
	7CG	7CG	+					%&\$
	7F 7%	7F 7%	+					% )
	7GF 9H		%					, +
	7HF	%	)					+
	7HI	%	)					+
	7A D		+					&%
	7K		%&					& -
8	8588		%\$					%\$%
	865B8		-					&%
	8678	' & 678	+					%%
	86-B	' & 678	+					%&\$
	86#G	CB	*					%,
	87A D0		+					% &
	87A D01		+					% &
	87A D02		+					% &
	87A D1		+					% &
	87A D2		+					% &
	87A D21		+					% &
	87BH	' &	+					+*
	88A 7		(					%\$(
	88-J		%\$					%&\$
	8A 7							%\$%
	89;	!2	+					%&
	8A 7C		)					% +
	8: @H		+					%+
	8: A C J		-					- \$
	8: FCA		%\$					% -
	8: 6-B	' &	+					%&&
	8: FM	' &	+					%&%
	8<G7=		%\$					%,
	8<G7F		%\$					% \$
	8<G7G		%\$					%) +
	8<GD		%\$					%(
	8<GD=		%\$					%) -
	8<GH		%\$					% &
8<GN		%					%%	
8=		%					, *	
8-B 7		(					%\$	

				MC 200	MC 100	MC 80	MC 280	
8-BH		+						%
8-G	% (	+						& %
8-J		+						-
8A CJ		+						'
8A I @		%\$						%&
8B9;		+						%)
8F7@	' &	-						% (
8F7F	' &	-						%'
8FC@	' &	-						%'
8FCF	' &	-						% &
8FJ5		%%						

8'





On HI3 11E “ n HI3’c

A7

				MC 200	MC 100	MC 80	MC 280	
D	CF801	CF01	+					&\$-
	CF802	CF02	+					&\$-
	CF81	CF1	+					&\$-
	CF82	CF2	+					&\$-
	CF821	CF21	+					&\$-
	CF=		%					*)
	CFF0	CF2	+					&/%&
	CFF01	CF01	+					&/%&
	CFF02	CF02	+					&/%&
	CFF1	CF1	+					&/%&
	CFF2	CF2	+					&/%&
	CFF21	CF21	+					&/%&
	CI H		%					*)
	CI H'GII	G 7						+%
D	D-8	D-8	-					%+(-
	D@G		+					%+\$
	D@GF		%\$					%,
	D@GJ							&\$
	D@GM		-					%+
	DCK 9F		%\$					%%%
	DI G<		+					-&
	DK A	DK A	+					%'
D@G6		%&					%+%	
F	F58	12	+					%/
	F588		%\$					%\$*
	F5A D		%&					%++
	F7@	%	+					%&
	F7F	%	+					%%
	F7J	F7J	+					%'
	F8J		%\$					%\$,
	F9:	#C	)					%&
	F9:.							%&
	F9H	G 7	%					+&
	F@7BJ		%&					%&)
	FACJ		+					,
	FAI @		%\$					%\$+
	FB8							&)
	FB9;		+					%\$-
	FC@	%	+					%%
	FCF	%	+					%\$
	FGEH		+					%\$,
	FGH		%					*-
	FGH'GII	G 7						+%
FGI 6		%\$					%\$+	
FGI A		-					%&	
FJ 56G		+					%\$-	
F7A D		-					&/%	
	G7@		+					&/%
	G9;	+	)					%&&
	G9F		-					&&\$
	G9H		%					*-

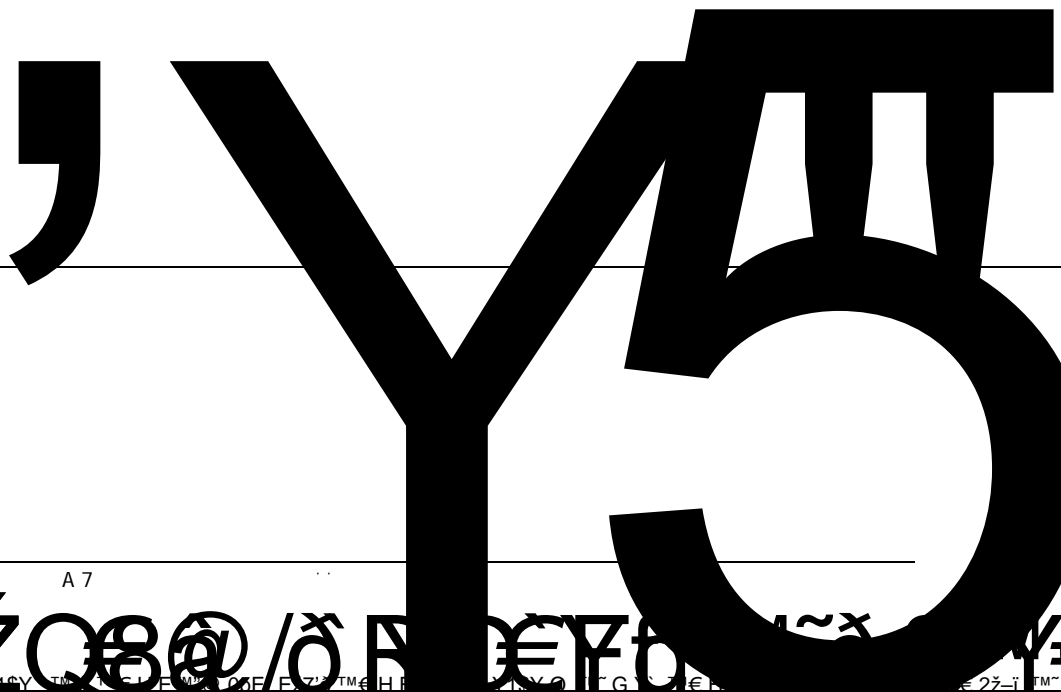


				MC 200	MC 100	MC 80	MC 280	
K	K 5B8		+					%&+
	K 8H		%					, *
	K -BJ		)					%&
	K CF		+					%&+
	K G: @		-					- *
	K G: F		-					-)
	K HC6		+					&( +
	K LCF		+					%&+
L	L 7<		)					-%
	LA H	LA H	+					% &
N	NCB9		-					&/%
	NFB		%%					&&-
	NFGH		)					% *
	NG9H		)					% +
A 7&\$\$								

				MC 200	MC 100	MC 80	MC 280	
@8		%						*
@8=		%						*
5B8		%						*(
5B=		%						*(
CF		%						*(
CF=		%						*)
CI H		%						*)
G9H		%						*_
FGH		%						*_
5B6		%						**
CF 6		%						**
-BJ		%						*
BCD		%						*_
A DG		%						*+
A F 8		%						*+
A DD		%						*+
A 7								+\$
A 7F		%						+\$
9I		&						*
98		&						*
HCB		)						+
HC:		)						+(
HA CB		)						+(
HCBF		)						+
7HI	%	)						+
7HF	%	)						+
87BH	' &	+						+*
@6@								, (
7>								, )
75@@								, +
7GF 9H		%						, +
7: 9B8		%						, )
7 F 9H		%						, *
: CF								, :
B9LH		%						, *
K 8H		%						, *
GHCD		%						, *
9=		%						, *
8=		%						, *

(\$\$)

				MC 200	MC 100	MC 80	MC 280	
G 7	GH@	G 7						+%
	G9H'GI	G 7						+%
	CI H'GI	G 7						+%
	FGH'GI	G 7						+%
	F9H	G 7	%					+&
	ACJ		)					
	8ACJ		+					
	FACJ		+					
	6ACJ		+					
	GK 5D							-%
	L7<		)					-%
	8L7<		+					-&
	:ACJ		+					-\$



				MC 200	MC 100	MC 80	MC 280	
F588		%\$						%\$*
FGI 6		%\$						%\$+
FAI @		%\$						%\$+
F8-J		%\$						%\$
FJ 56G		+						%\$-
FB9;		+						%\$-
FGEH		+						%\$
G-B	G-B	+						%\$-
7CG	7CG	+						%%\$
H5B	H5B	+						%%\$
@B	@B	+						%%%
9LD	9LD	+						%%&
DCK 9F		%\$						%%%
FGI A		-						%%&
5G-B	G-B <sup>1%</sup>	+						%%
57CG	7CG <sup>1%</sup>	+						%%
5H5B	H5B <sup>1%</sup>	+						%%(
F58	!2	+						%%(
89;	!2	+						%%)
@C;		+						%%(
K 5B8		+						%%+
8K 5B8		%\$						%%&

#

( \$&

				MC 200	MC 100	MC 80	MC 280	
#C	< 7BH		+					%)
	8 < G7G		%\$					%)
	8 < G7F		%\$					%)
	8 < G7=		%\$					%)
	8 < GN		%					%)
	8 < GH		%\$					%)
	8 < GD		%\$					%)
	GD8	GD8	+					%)
	D@GM		-					%)
	D@GF		%\$					%)
	D@G6		%&					%)
	DK A	DK A	+					%)
	D@G		+					%)
	D-8	D-8	-					%)
	F 5 A D		%&					%)
HF -5B; @9		%&					%)	
< 57? @9		%&					%)	
56G8		-					%)	

					MC200	MC100	MC80	MC280	
HF8									%+
HK F									%,
H588			+						%-
HGI 6			+						%\$
<CI F									%%
<HCG			)						%(
GHC<			)						%(
@81	@81		)						&\$('
@881	@81		+						&\$+
@8F1	@81		+						&8\$
@82	@81		)						&\$('
@882	@82		+						&\$+
@8F2	/ @82 + @3	/ 3#	+ 3% 7 #U U	+8 %%	E / 9%3% /	9%Y3 7 /	#88U	Z F % %	
@821									

Ž Û / 3 # Ž 3 / 3 // + A A 3 % % A 3 3 X I # 3 ° 6 3 / 3 / / 3 % 3 Ž

(\$)

				MC 200	MC 100	MC 80	MC 280	
5B802	5B802	)						&\$)
5B8802	5B802	+						&\$,
5B8F02	5B802	+						&%%
CF1	CF1	)						&\$*
CF81	CF1	+						&\$
CFF1	CF1	+						&%%
CF2	CF2	)						&\$*

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				MC 200	MC 100	MC 80	MC 280	
6@8	@8	)						% -
6@8=	@8=	)						&\$
65B8	5B8	)						&\$
65B=	5B=	)						&\$%
6CF	CF	)						&\$%
6CF=	CF=	)						&\$&
6G9H		)						&\$
6FGH		)						&\$
6CI H		)						&\$&
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