Ladder Program Converter

Operation Manual

CONTENTS

Introduction

This manual contains information required to use the Ladder Program Converter.
Please refer to the user's manual of PLC unit while you use Ladder Program Converter.

Intended Audience

This manual is intended for the following personnel, who must also have knowledge of electrical systems (an electrical engineer or the equivalent).

- Personnel in charge of installing FA systems.
- Personnel in charge of designing FA systems.
- Personnel in charge of managing FA systems and facilities.

Note

This manual contains information required to use the Ladder Program Converter.
Read this manual completely and be sure you understand the contents before attempting to use the Ladder Program Converter.
Pease keep the manual and always keep it at hand after reading.

Read and Understand this Manual

1. WARRANTY

This software is used to convert the instructions of FX1S/FX1N series made by Mitsubishi Electric Corporation and S7-200 series made by Siemens to OMRON instructions according to the conversion rules as much as possible.
OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NONINFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS.
After conversion operation, the Programmable Logic Controller is responsible for the operation of CX-Programmer for CP1E. Please refer to the programmable manual of our company.
Related Manuals

CP1E CPU Unit Hardware User's Manual (Cat. No. W479)
CP1E CPU Unit Software User's Manual (Cat. No. W480)

2. LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

3. SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this manual.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

4. CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons.

Requirement of configuration

Environment of the converter can be installed

	Microsoft Windows 2000 Service Pack2 or lower /Me	Microsoft Windows XP	Microsoft Windows Vista（32bit version）
CPU	Pentium series CPU 150MHz or better CPU Pentium III 1GHz or better central processors	Pentium series CPU 300MHz or better CPU Pentium III 1GHz or better central processors	Microsoft recommended configuration（1GHz or better CPU）
Memory（RAM）	256MB or more	384MB or more	Must be 512MB or more 1GB or more is better
Hard drive space	50MB of free	50MB of free	50MB of free

Safety Precautions

Definition of Precautionary Information

The following notation is used in this manual to provide precautions required to ensure safe usage of Ladder Program Converter, CX-Programmer and Programmable Logic Controller (PLC). The safety precautions that are provided are extremely important to safety. Always read and heed the information provided in all safety precautions.

⚠ WARNING	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. Additionally, there may be severe property damage.
⚠ Caution	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, or property damage.

Precautions for Safe Use

Indicates precautions on what to do and what not to do to ensure using the product safely.

Precautions for Correct Use

Indicates precautions on what to do and what not to do to ensure proper operation and performance.

Additional Information

Additional information to increase understanding or make operation easier.

Symbols

The triangle symbol indicates precautions (including warnings). The specific operation is shown in the triangle and explained in text. This example indicates a precaution for electric shock.

The circle and slash symbol indicates operations that you must not do. The specific operation is shown in the circle and explained in text.

The filled circle symbol indicates operations that you must do. The specific operation is shown in the circle and explained in text. This example shows a general precaution for something that you must do.

The triangle symbol indicates precautions (including warnings). The specific operation is shown in the triangle and explained in text. This example indicates a general precaution.

The triangle symbol indicates precautions (including warnings). The specific operation is shown in the triangle and explained in text. This example indicates a precaution for hot surfaces.

⚠ WARNING

This tool is just used to convert the instructions of Mitsubishi and Siemens to instructions of OMRON according to the conversion rules as much as possible. Because the ladder program can not be converted completely, it is necessary to modify the instructions and memory area which have not been converted. The operation of the made ladder program must be confirmed enough before carrying out a formal operational.
System operation may be abnormal without confirmation.

The I/O memory convert specification is made before instruction conversion. If you want to add program after conversion, it is necessary to confirm there is no repetition of I/O memory.
System operation may be abnormal without confirmation.

1. About Ladder Program Converter

This tool is used to convert the instructions of Mitsubishi and Siemens to instructions of OMRON according to the conversion rules.

2. Operation Environment

2.1. Operation System

Ladder Program Converter can only run in Microsoft Windows 2000 (Service Pack2 or lower) / Microsoft Windows Me、Microsoft Windows XP、Microsoft Windows Vista（32bit version）.

1.2. Object PLC Series

PLC type of Conversion source includes FX1S and FX1N of Mitsubishi as well as S7-200 series of Siemens. OMRON PLC type of Conversion Destination is CP1E.

3. Installation and uninstall

3.1. Installation

The install steps are as follows:

(1) Uninstall the previous version of Ladder Program Converter before installing the new version. Please refer to the section 3.2 for details of the method of uninstall.

(2) Copy the install files of Ladder Program Converter to object folder specified by users.

(3) Run “setup.exe” in the install files.

(4) Install Ladder Program Converter according to the installation prompts.

3.2. Uninstall

Please perform the Uninstall of Ladder Program Converter through the *Add/Remove Programs*.

Select ***Start -Setting - Control Panel - Add/Remove Programs***.

Select *Ladder Program Converter* from the dialogue box.

Click the ***Remove*** Button.

And then finish uninstall under the instruction of *install-shield wizard*.

Note:

Please don’t delete the folder where Ladder Program Converter is installed directly, otherwise the operation of reinstall and uninstall can’t carry out normally.

4. Notice about the conversion

4.1. Notice of the Copy-Paste Conversion Method

(1) Setting Fx1S series and Fx1N series of Mitsubishi as the copy source has been tested. The program of other series PLC could not be identified.

(2) In Omron CX-P, paste can be performed in the Diagram view and Mnemonic view of Section.

(3) The UNDEFINST will be output when Instruction of Mitsubishi can not be identified. The UNDEFOPER will be output to substitute for the operand of Mitsubishi which can not be identified.

(4) When the Source instruction can not been converted to the OMRON instruction, a “Mi_” will be added before the Mitsubishi instruction and a “Si_” will be added before the Siemens instruction as the conversion result in the CXT file.

(5) That copy from Siemens program should start with Network 1 and the minimum copy unit is one Network otherwise some programs will lost.

(6) Because the Channel length of Siemens is different from that of MONRON, Siemens channel length is 8 bits, while OMRON channel length is16 bits, the Error will occur during the conversion. Please pay more attention to it.

4.2. Conversion Limition

(1) About Siemens Instructions:

Problem	Detail
OB Series can not be converted	Converting will break the LD’s structure, so it can not be converted.
TON	Because of the different Resolution, the Tim Number will change after converted.
TONR function is changed after being converted	When set value is arrived, OMRON TIM will stop and Siemens TIM will continue
DIV	It occur address across problem after converted.
SBR/CALL	It’s a subroutine instruction. In Siemens, SBR/CALL is used to jump to the subroutine section directly, the section number is regarded as the sign. In OMRON, it jumps from SBS to SBN, SBN is regarded as the sign.
Float can not be converted directly	The OMRON PLC doesn’t support float constant, so it can not be converted.
Flag SM1.1 can not be converted	The Flag SM1.1of Siemens needs the special Flags (P_CY, P_OF and P_UF) of OMRON to correspond.

(2) About Mitsubishi Instructions:

Problem	Detail
Mitsubishi area X,Y →Omron area CIO	Each point of Mitsubishi area X,Y corresponds a physical I/O. Not every point of Omron area CIO corresponds a physical I/O.
Mitsubishi area C200~C255→ Omron area C200~C255	The area C200~C255 of Mitsubishi is 32 bits length; The area C200~C255 of Omron is 16 bits length.
The marker bit and the structure of arithmetic is difference.	When data is beyond max. range in Mitsubishi, the result is recalculated from 0. The carry flag is active; When data is less than min. range in Mitsubishi, the result is recalculated from 0. The borrow flag is active. The flag couldn't reset until changing next time. Ex.when the operand is 16 bit length,, 32767+1=0;-32768-1=0 The carry and borrow flag is the same flag (CF) in Omron. It's the difference with that in Mitsubishi. CF is active when data changes from plus to negative or from negative to plus. When data is beyond max. range in Omron, the data is cycle operation.The overflow flag is active. When data is less than min. range in Omron, the data is cycle operation. The underflow flag is active. The flag will reset next cycle. Ex.when the operand is 16 bit length, 32767+1=-32768;-32768-1=32767
The pulse instruction of Mitsubishi is difference with that of Omron	Mitsubishi P instruction will execute one time after contact M8000. Omron @ instruction won't execute after cotact P_on.
Sequence Control Instructions and SUBROUTINE instructions will no function after being converted	Mitsubishi's sequence control logo can't be converted.So Function can not be achieved.
WDT function is changed after being converted	In Mitsubishi PLC, program can be divided into a shorter period of time, through WDT (watchdog timer) monitor the cycle time;
EI/DI function is changed after being converted	The Mitsubishi PLC default disable interrupts, The Omron PLC default ensable interrupts.

5. Copy-Paste Conversion Method in CX-P

The Ladder Program Converter supports copying the program from the conversion source software (Mitsubishi GX-Developer, Siemens STEP 7 MicroWIN) directly and pasting to the CX-Programmer for CP1E 1.00 or higher Version.

5.1. Copy Program from GX-Developer of Mitsubishi

Only Fx1 series PLC of Mitsubishi supports the direct-copy method. The integrity of program reading can not be guaranteed when the method are used to other series PLC.

(1) Open the source program in GX-Developer.

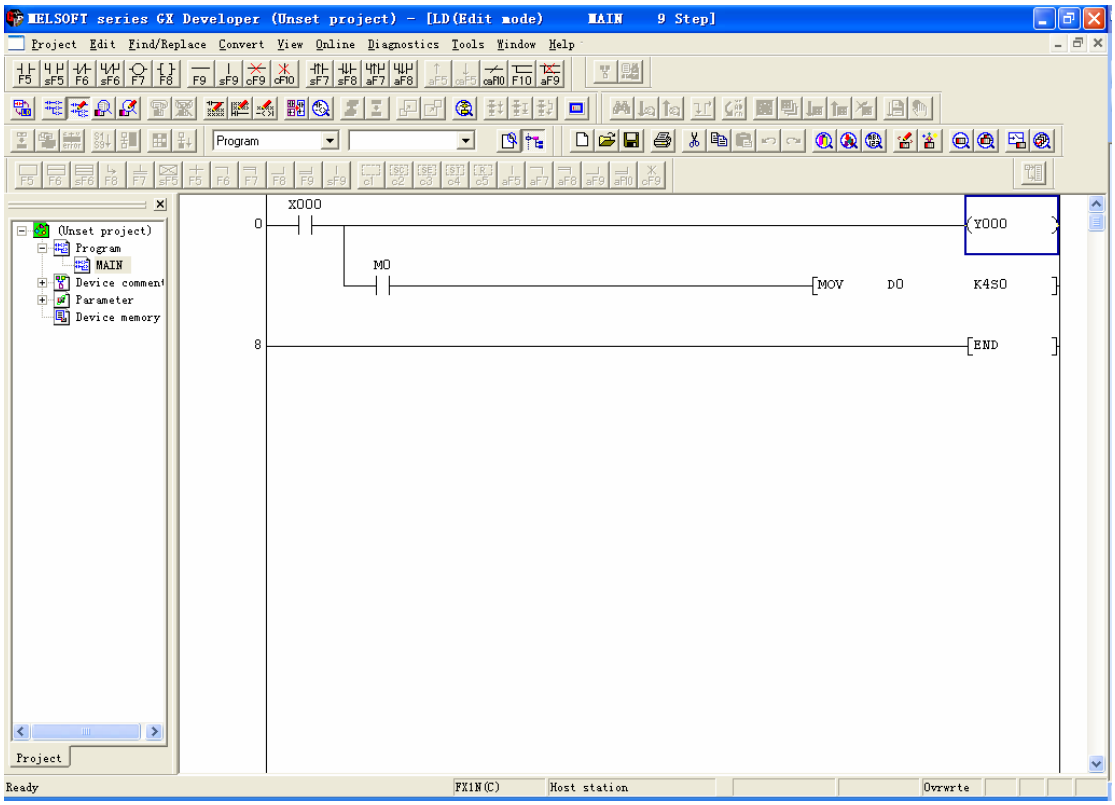

Fig.5-1 Mitsubishi GX-Developer

(2) Click  , enter the mnemonic list window.

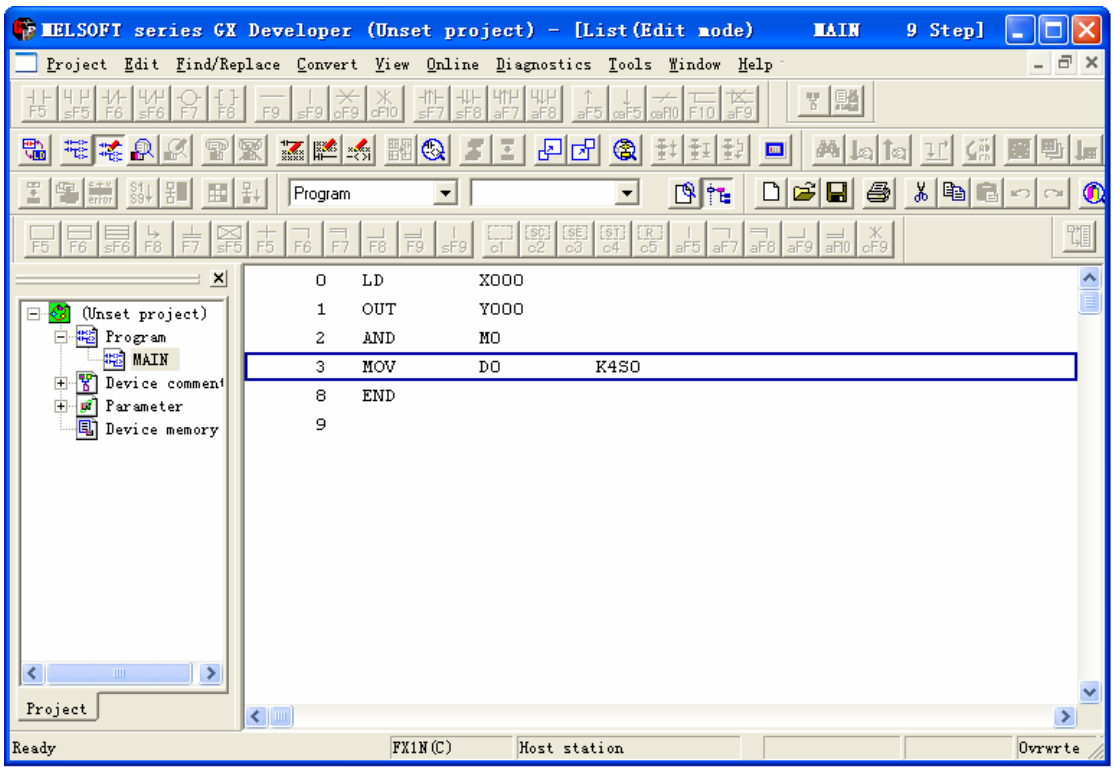

Fig.5-2 Mitsubishi instruction list View

(3) Select the Program needed to be converted and copy it.

(4) Start up CX-Programmer for CP1E 1.00 and create a new project.

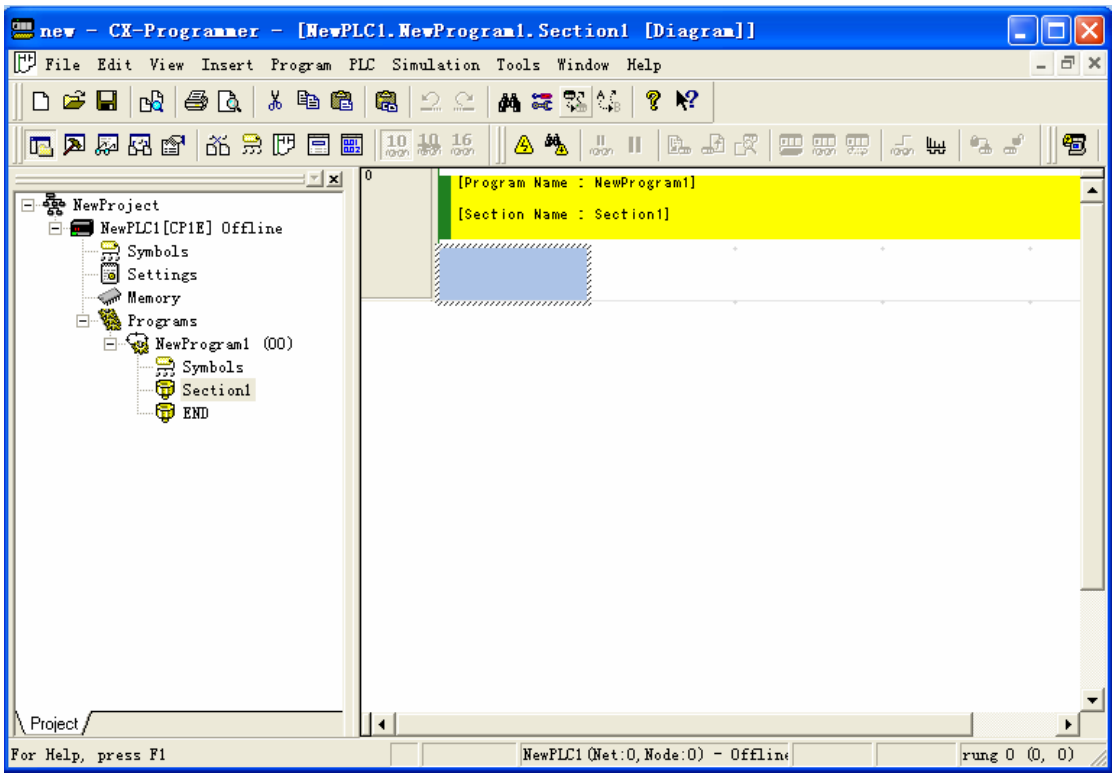

Fig.5-3 OMRON CX-Programmer View

(5) Paste the source program in the Diagram view or Mnemonics view. And the following dialogue box will be displayed.

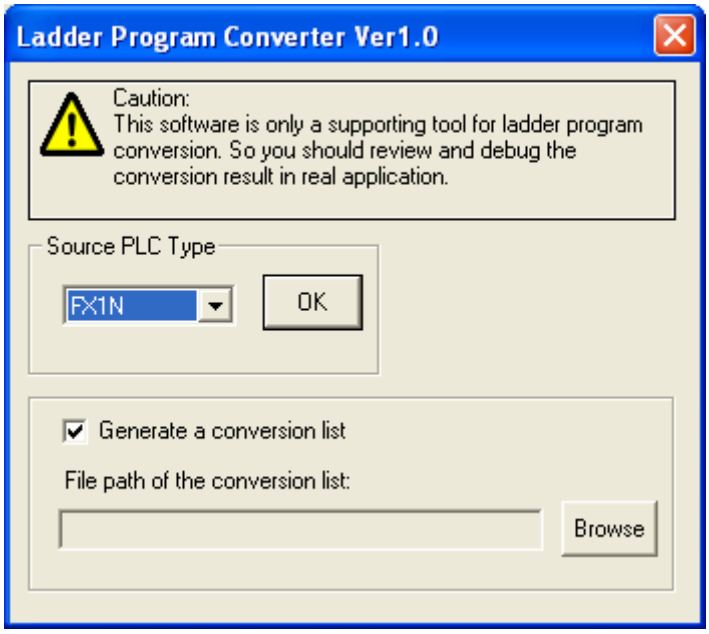

Fig. 5-4 Ladder Conversion Dialogue box

(6) Click the ***Browse*** Button; designate the name and path of conversion list file.(Fig.5-5)

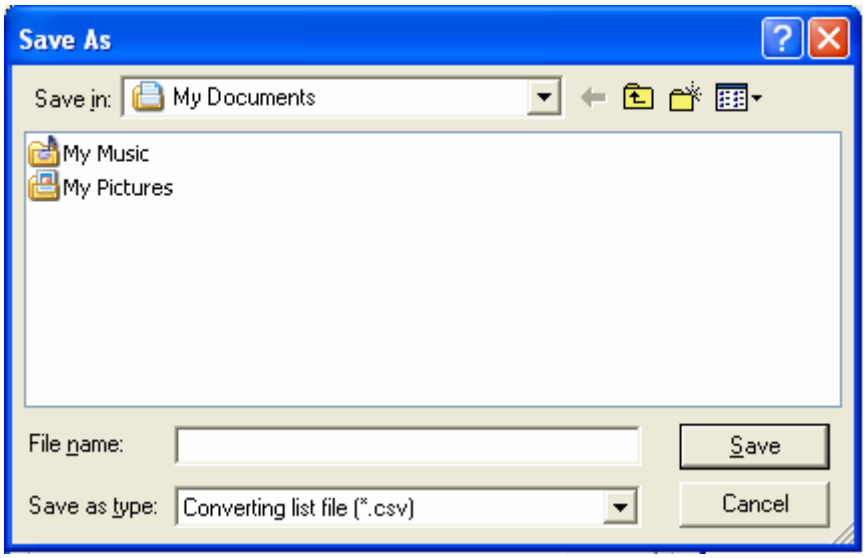

Fig. 5-5 Conversion list file saving dialogue box

(7) Select the conversion source PLC type. Click the ***OK*** Button and the Converting progress bar will be displayed.

Fig. 5-6Converting progress bar

(8) The converted program will be displayed in the CX-Programmer.

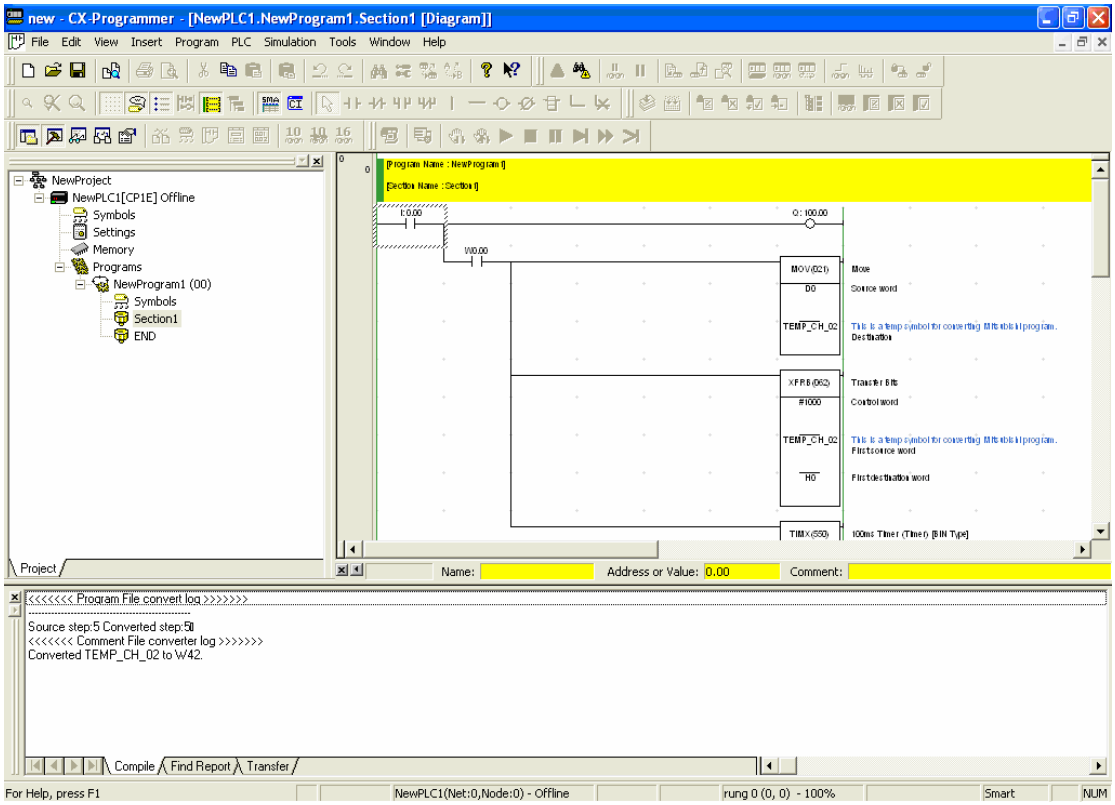

Fig.5-7 the result of conservation

(9) Insert the temporary variable created during the conversion into the global variable table.

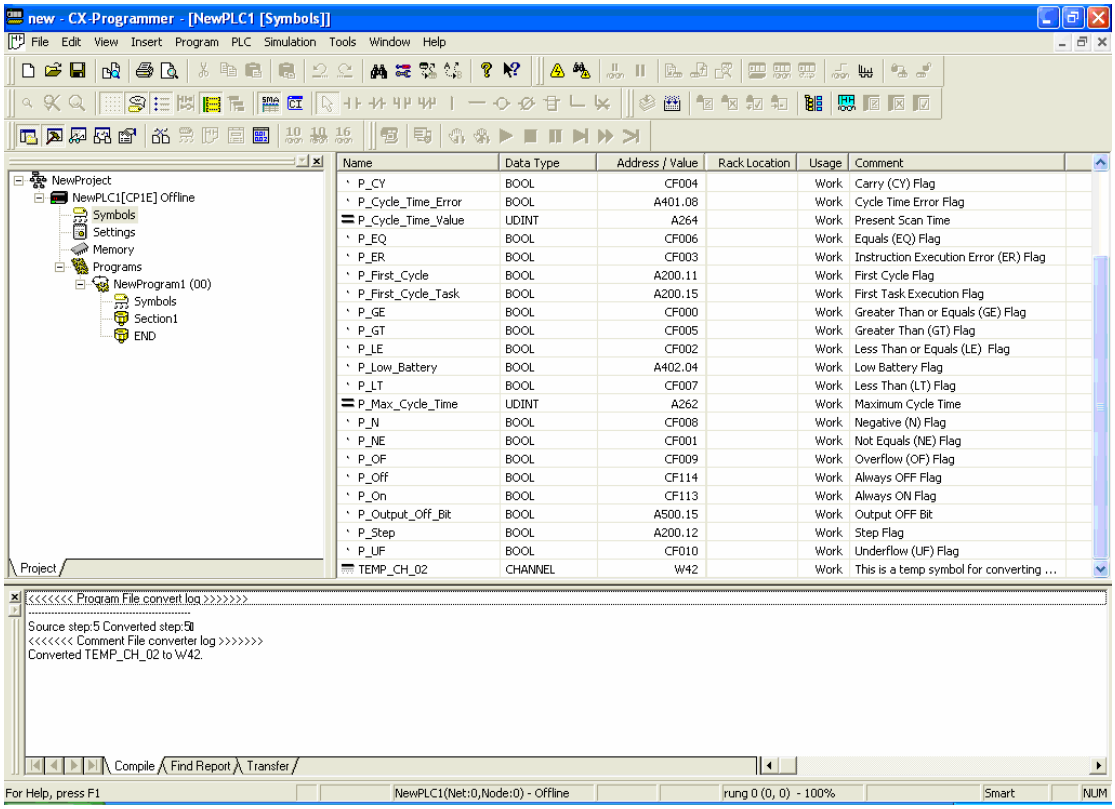

Fig. 5-8 insert the temporary variable

5.2. Copy Program from STEP 7 MicroWIN of Siemens

S7-200 series PLC of Siemens can be selected as the copy source.

(1) Open the program needed to be converted by STEP 7 MicroWIN of Siemens.

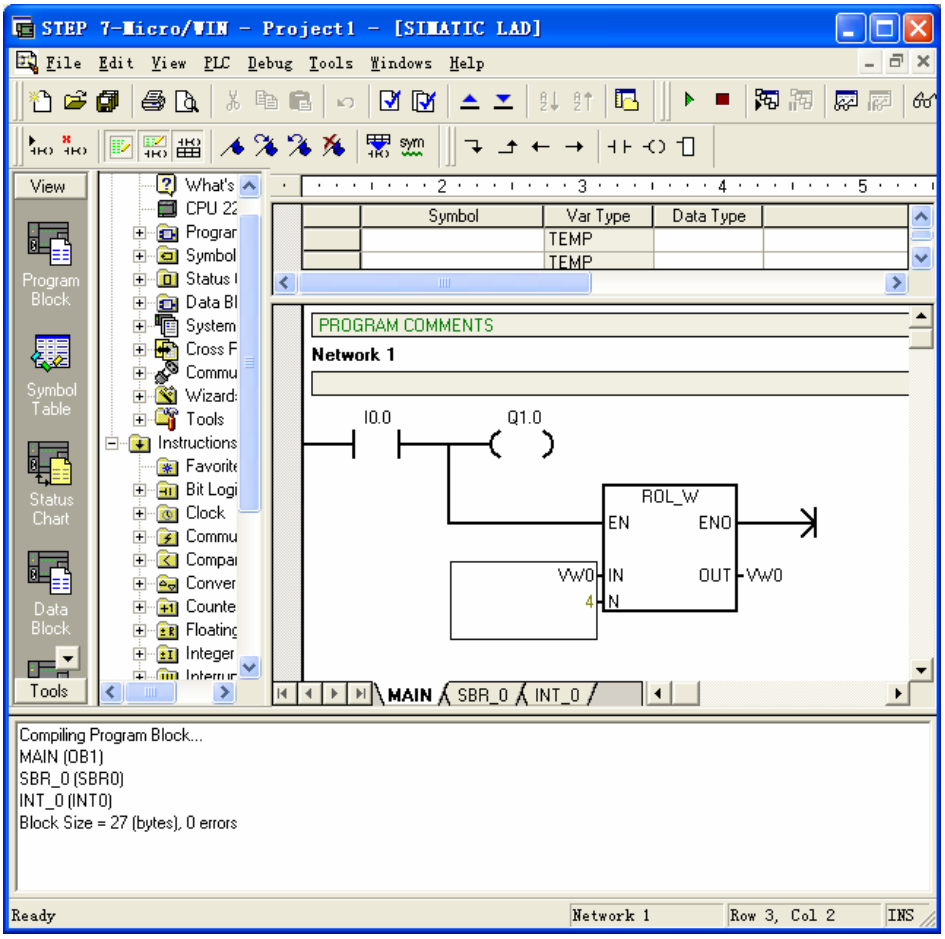

Fig.5-9 STEP 7 MicroWIN of Siemens

(2) Convert Siemens SIMATIC to International Symbol

When STEP 7 MicroWIN is started, click ***Tools*** menu or right button, select ***Options***, the "Options" screen is displayed.

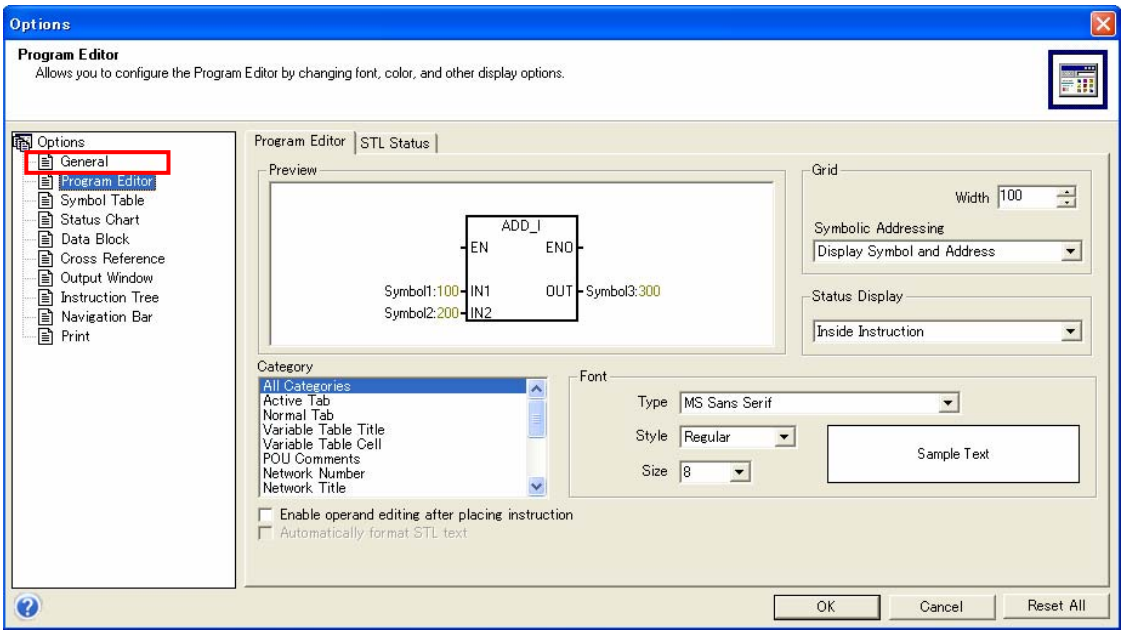

Fig.5-10 "Options" Screen of Siemens

Select ***General*** in the left tree menu and ***International*** in the item of ***Mnemonic Set***.

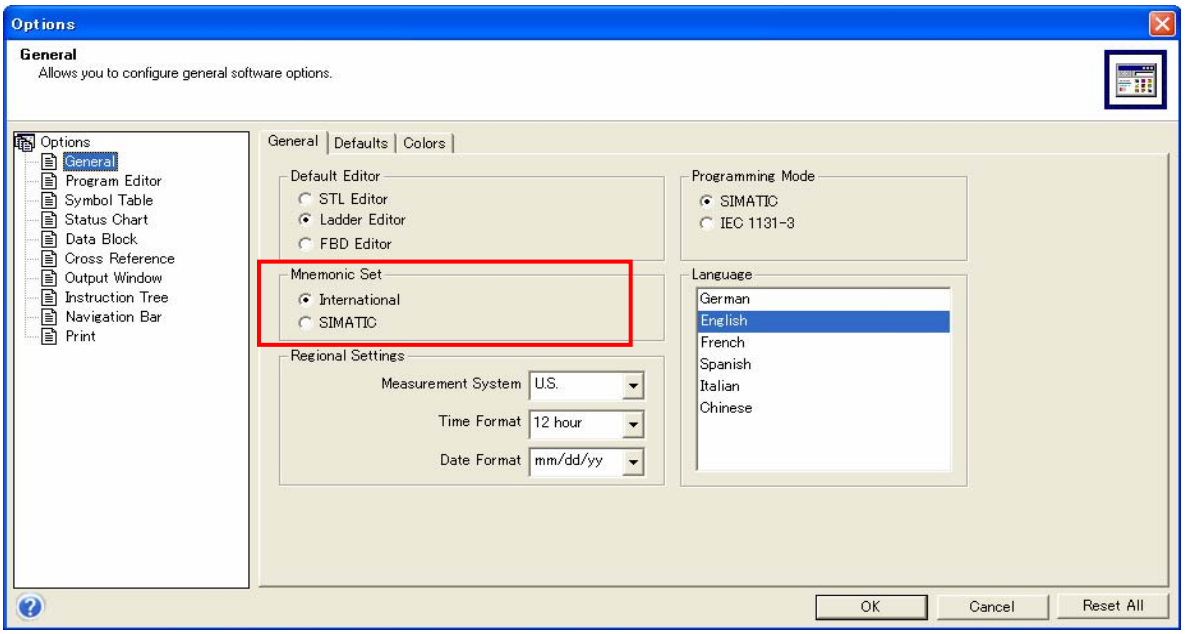

Fig.5-11 "General" Screen of Siemens

(3) Select ***view – STL***. View the program in STL mode (Mnemonic list).

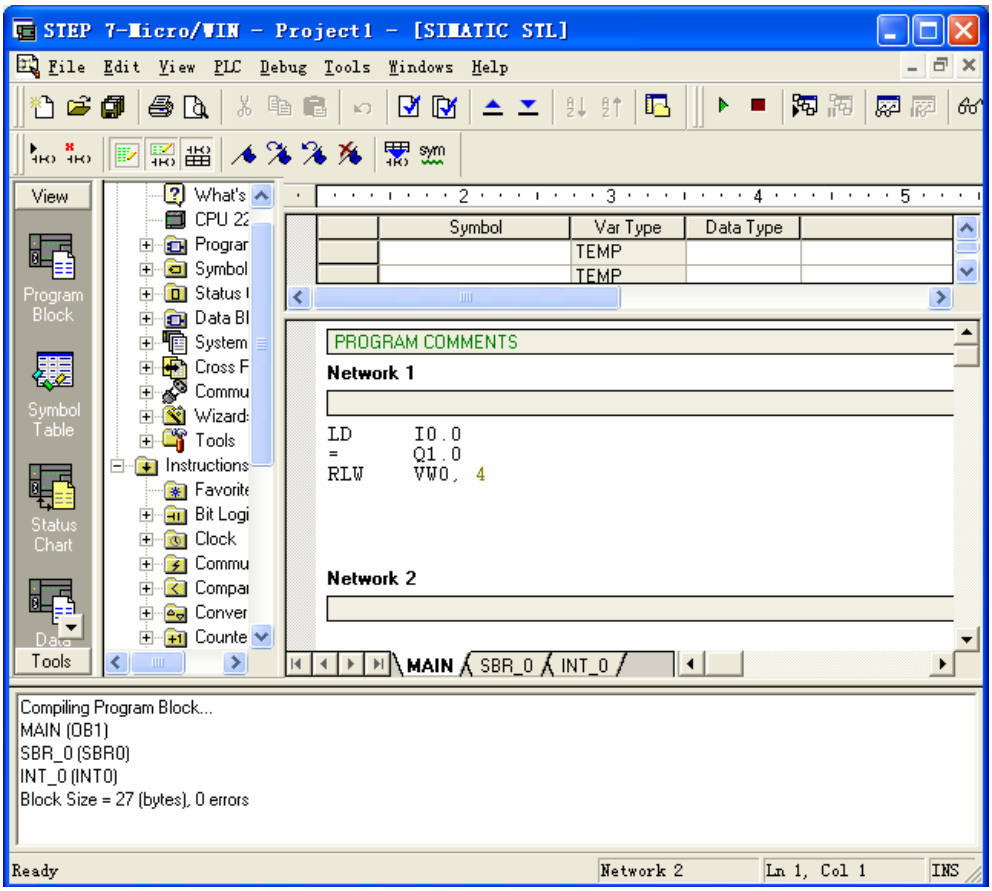

Fig. 5-12 Siemens Instruction （Mnemonic） list View

(4) Select the program needed to be converted.

Note: It has to start from Network1, and the minimum copy unit is one Network.

(5) Start up CX-Programmer for CP1E 1.00 and create a new project.

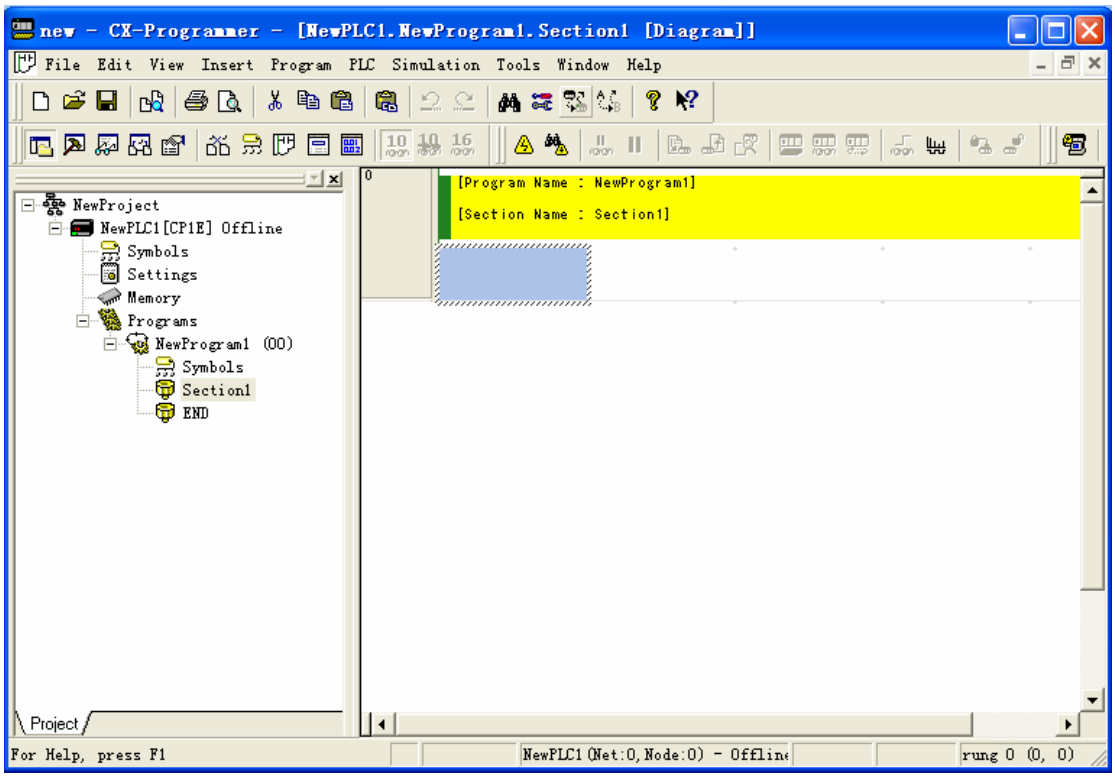

Fig. 5-13 OMRON CX-Programmer

(6) Paste the source program in the Diagram view or Mnemonics view. And the in following dialogue box will be displayed.

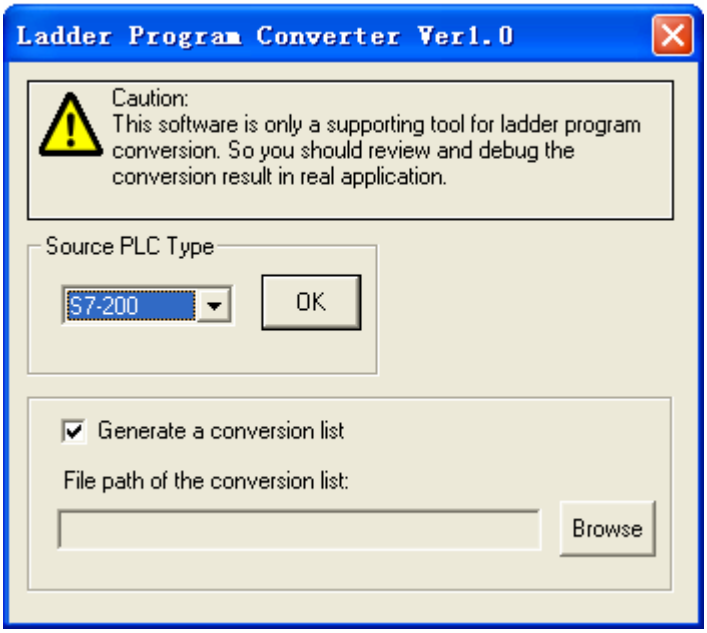

Fig. 5-14 Ladder Conversion Dialogue box

(7) Click the ***Browse*** Button; Designate the name and path of conversion list file.

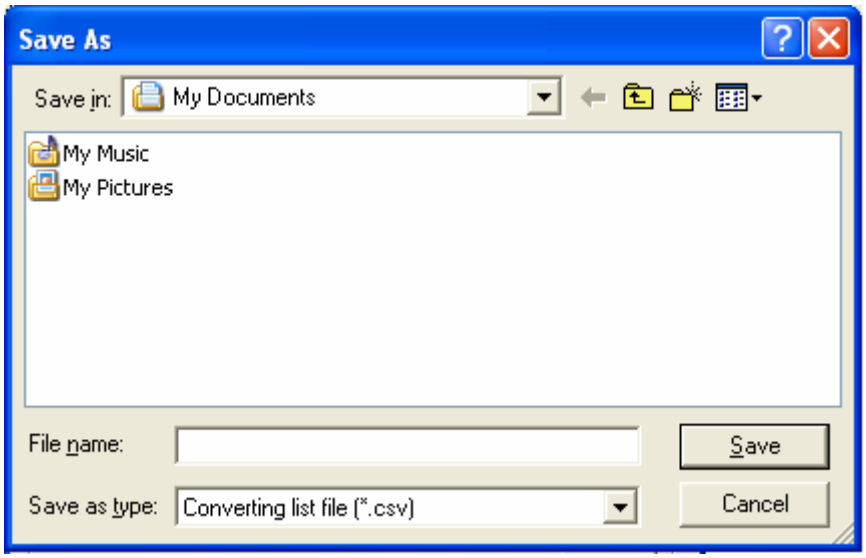

Fig.5-15 conversion list file selection Dialogue box

(8) Select the conversion destination PLC type. Click the ***OK*** Button and the Converting progress bar will be displayed.

Fig. 5-16 Converting Progress Bar

(9) The converted program will be displayed in the CX-Programmer. Corresponding converter information will display in the output window.If the conversion list file designated in step 6, the conversion results will be output to this file.

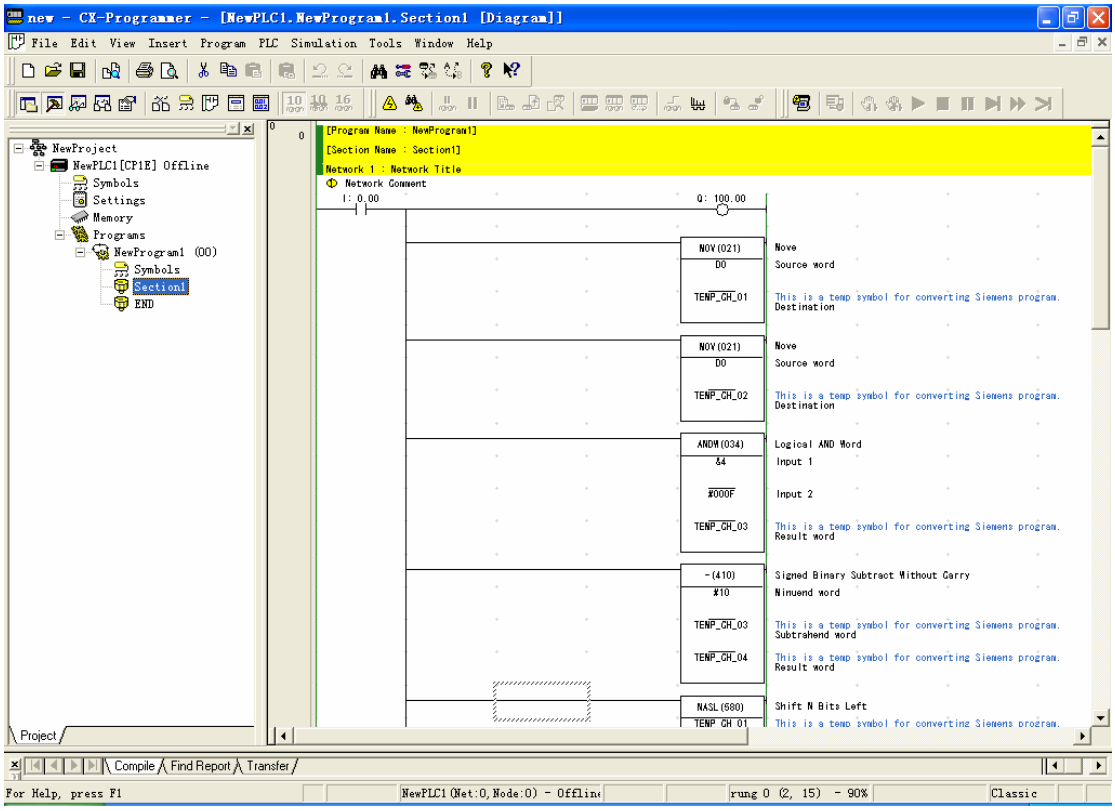

Fig. 5-17 the result of conversion

(10)Insert the temporary variables created during the conversion into the global variable table.

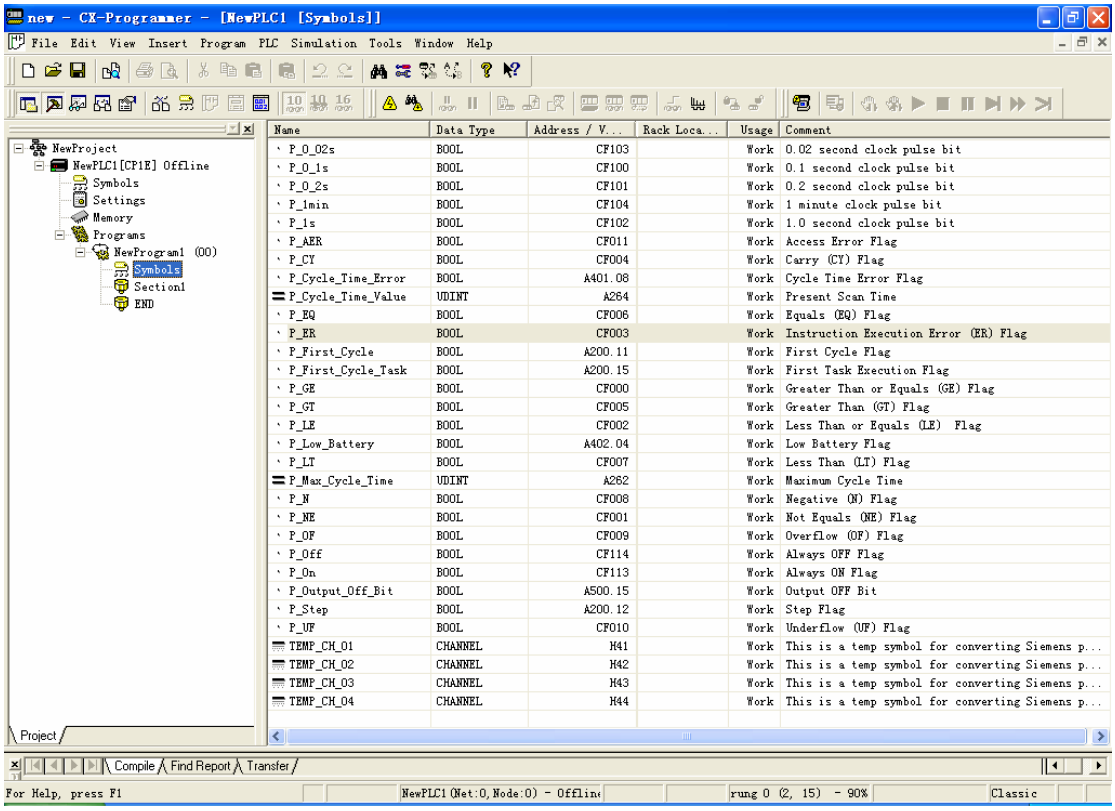

Fig. 5-18 Insert temporary variable

5.3. Conversion List File

Conversion List File is the instruction list before and after the conversion. It is a CSV file.

(1) Conversion List File specification

6 columns:

1) Conversion Source Step (Step No. for Mitsubishi instruction, NetWork No. for Siemens instruction)
2) Conversion Source Instruction
3) Conversion Source Operand
4) Conversion Destination Step
5) Conversion Destination Instruction
6) Conversion Destination Operand

When the conversion type is 1:N*[Note1], only the first OMRON instruction of conversion destination has the Step No.

When the instruction conversion error occurs, the instruction of conversion destination has not Step No.

When the operand conversion error occurs, the Step No. will be generated normally.

When converting the Mitsubishi program by the COPY-PASTE conversion method, the content of CSV file first column (Conversion Source Step) is not the Step No. in GX-D but the Instruction Quantity No.

***Note 1:**

One source instruction is converted to more than one destination instruction or one source instruction being converted to one destination instruction with different number and order of operands

(2) Open the CSV File in Excel

When Opening the CSV file in Excel, please pay attention to the following items:

1) When the operand of OMRON instruction is bool type and the decimal fraction part is 0, the decimal fraction part will be lost. For example 0.00 will be displayed as 0.
2) The +L、-L、++L and --L instruction of OMRON will be displayed as "#NAME？". Please modify it manually.
3) The +、-、++ and -- instruction of OMRON in excel will be as maths symbols .Please modify it manually.
4) Please edit the CSV file in *Notepad*, not in Excel.

(3) Conversion Example

Example of Mitsubishi:

SrcStep	SrcInst	SrcMem	DstStep	DstInst	DstMem
0	LD	X000	0	LD	0.00
1	BIN	T0	1	BIN（023）	T0
		T1	(No Step number)		T1
6	LD	X001	2	LD	0.01
7	REF	X000	(No Step number)	MI_REF	X000
		K0	(No Step number)		K0
12	END		3	END	

Example of Siemens:

SrcStep	SrcInst	SrcMem	DstStep	DstInst	DstMem
NetWork 1	LD	I0.0	0	LD	0.00
NetWork 1	MOVW	VW0	1	MOV（021）	D0
		VW2	(No Step number)		D2
NetWork 2	LD	I0.1	2	LD	0.01
NetWork 2	STR	VB0	(No Step number)	SI_STR	VB0
		VB1	(No Step number)		VB1
		VB2	(No Step number)		VB2
END ORGANIZATION BLOCK	ENDP		3	END	

6. ERROR List and Solutions

Error List	Solutions
	Choose the "*Generated a conversion list"* and click the "**OK**" button when the path and name of conversion list file is not designated. The warning will be displayed.

7. Appendix

7.1. Instruction Convert list

Conversion status：

○: Complete conversion　△: Incomplete conversion (Restrict Condition)　×: No conversion

(1) Mitsubishi PLC Instruction Convert List

(Note: Specific conversion information, refer to Appendix: Mitsubishi Convert Specification)

No.	Instruction (FX1S/FX1N)	Class	Function	Convert Status	Remark
1	LD	Basic Program instructions	Load	○	
2	LDI	Basic Program instructions	Load Inverse	○	
3	AND	Basic Program instructions	And	○	
4	ANI	Basic Program instructions	And Inverse	○	
5	OR	Basic Program instructions	Or	○	
6	ORI	Basic Program instructions	Or Inverse	○	
7	LDP	Basic Program instructions	Load Pulse	○	
8	LDF	Basic Program instructions	Load Falling Pulse	○	
9	ANDP	Basic Program instructions	And Pulse	○	
10	ANDF	Basic Program instructions	And Falling Pulse	○	
11	ORP	Basic Program instructions	Or Pulse	○	
12	ORF	Basic Program instructions	Or Falling Pulse	○	
13	ANB	Basic Program instructions	And Block	○	
14	ORB	Basic Program instructions	Or Block	○	
15	MPS	Basic Program instructions	Point Store	○	
16	MRD	Basic Program instructions	Read	○	
17	MPP	Basic Program instructions	PoP	○	
18	INV	Basic Program instructions	Inverse	○	
19	OUT	Basic Program instructions	Out	○	
20	OUT [T]	Basic Program instructions	Out	○	
21	OUT [C]	Basic Program instructions	Out	○	
22	SET	Basic Program instructions	Set	○	
23	RST	Basic Program instructions	Reset	○	
24	PLS	Basic Program instructions	Pulse	○	
25	PLF	Basic Program instructions	Falling pulse	○	
26	MC	Basic Program instructions	Master Control	○	
27	MCR	Basic Program instructions	Master control reset	○	
28	END	Basic Program instructions	End	○	

No.	Instruction (FX1S/FX1N)	Class	Function	Convert Status	Remark
29	NOP	Basic Program instructions	No Operation	○	
30	CJ	Program Flow-Functins	Conditional jump	○	
31	CJP	Program Flow-Functins	Conditional jump pulse	○	
32	CALL	Program Flow-Functins	Call Subroutine	○	
33	CALLP	Program Flow-Functins	Call Subroutine	○	
34	SRET	Program Flow-Functins	Subroutine Return	○	
35	IRET	Program Flow-Functins	Interrupt Return	×	
36	EI	Program Flow-Functins	Enable Iinterrupt	○	
37	DI	Program Flow-Functins	Disable Interrupt	○	
38	FEND	Program Flow-Functins	First End	○	
39	WDT	Program Flow-Functins	Watchdog Timer	○	
40	WDTP	Program Flow-Functins	Watchdog Timer	○	
41	FOR	Program Flow-Functins	Start of a For/Next loop	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
42	NEXT	Program Flow-Functins	End a For/Next loop	○	
43	Pn	Lable No.	Lable No	×	
44	CMP	Move and Compare	Compare	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
45	CMPP	Move and Compare	Compare	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
46	DCMP	Move and Compare	Compare	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
47	DCMPP	Move and Compare	Compare	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
48	ZCP	Move and Compare	Zone Compare	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
49	ZCPP	Move and Compare	Zone Compare	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
50	DZCP	Move and Compare	Zone Compare	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
51	DZCPP	Move and Compare	Zone Compare	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
52	MOV	Move and Compare	Move	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
53	MOVP	Move and Compare	Move	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
54	DMOV	Move and Compare	Move	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
55	DMOVP	Move and Compare	Move	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.

No.	Instruction (FX1S/FX1N)	Class	Function	Convert Status	Remark
56	BMOV	Move and Compare	Block Move	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
57	BMOVP	Move and Compare	Block Move	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
58	BCD	Move and Compare	Binary Coded Decimal	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
59	BCDP	Move and Compare	Binary Coded Decimal	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
60	DBCD	Move and Compare	Binary Coded Decimal	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
61	DBCDP	Move and Compare	Binary Coded Decimal	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
62	BIN	Move and Compare	Binary	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
63	BINP	Move and Compare	Binary	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
64	DBIN	Move and Compare	Binary	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
65	DBINP	Move and Compare	Binary	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
66	ADD	Arithmetic and Logical operations	Addition	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
67	ADDP	Arithmetic and Logical operations	Addition	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
68	DADD	Arithmetic and Logical operations	Addition	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
69	DADDP	Arithmetic and Logical operations	Addition	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
70	SUB	Arithmetic and Logical operations	Subtraction	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
71	SUBP	Arithmetic and Logical operations	Subtraction	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
72	DSUB	Arithmetic and Logical operations	Subtraction	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
73	DSUBP	Arithmetic and Logical operations	Subtraction	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
74	MUL	Arithmetic and Logical operations	Multiplication	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
75	MULP	Arithmetic and Logical operations	Multiplication	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
76	DMUL	Arithmetic and Logical operations	Multiplication	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
77	DMULP	Arithmetic and Logical operations	Multiplication	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.

No.	Instruction (FX1S/FX1N)	Class	Function	Convert Status	Remark
78	DIV	Arithmetic and Logical operations	Division	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
79	DIVP	Arithmetic and Logical operations	Division	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
80	DDIV	Arithmetic and Logical operations	Division	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
81	DDIVP	Arithmetic and Logical operations	Division	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
82	INC	Arithmetic and Logical operations	Increment	△	Operand includes KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
83	INCP	Arithmetic and Logical operations	Increment	△	Operand includes KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
84	DINC	Arithmetic and Logical operations	Increment	△	Operand includes KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
85	DINCP	Arithmetic and Logical operations	Increment	△	Operand includes KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
86	DEC	Arithmetic and Logical operations	Decrement	△	Operand includes KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
87	DECP	Arithmetic and Logical operations	Decrement	△	Operand includes KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
88	DDEC	Arithmetic and Logical operations	Decrement	△	Operand includes KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
89	DDECP	Arithmetic and Logical operations	Decrement	△	Operand includes KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
90	WAND	Arithmetic and Logical operations	Word And	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
91	WANDP	Arithmetic and Logical operations	Word And	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
92	DAND	Arithmetic and Logical operations	Word And	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
93	DANDP	Arithmetic and Logical operations	Word And	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
94	WOR	Arithmetic and Logical operations	Word Or	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
95	WORP	Arithmetic and Logical operations	Word Or	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
96	DOR	Arithmetic and Logical operations	Word Or	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
97	DORP	Arithmetic and Logical operations	Word Or	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
98	WXOR	Arithmetic and Logical operations	Word exclusive Or	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
99	WXORP	Arithmetic and Logical operations	Word exclusive Or	△	Operand includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.

No.	Instruction (FX1S/FX1N)	Class	Function	Convert Status	Remark
100	DXOR	Arithmetic and Logical operations	Word exclusive Or	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
101	DXORP	Arithmetic and Logical operations	Word exclusive Or	△	Operand includes KZ、KXZ、KYZ、KSZ、KMZ、TZ、CZ. NO conversion.
102	SFTR	Rotation and Shift	(Bit)Shift Right	△	
103	SFTRP	Rotation and Shift	(Bit)Shift Right	△	
104	SFTL	Rotation and Shift	(Bit)Shift Left	△	
105	SFTLP	Rotation and Shift	(Bit)Shift Left	△	
106	SFWR	Rotation and Shift	Shift Register Write	△	Operand 1 includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion. Operand 2 isn't T、C、D. NO conversion.
107	SFWRP	Rotation and Shift	Shift Register Write	△	Operand 1 includes KZ、KV、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion. Operand 2 isn't T、C、D. NO conversion.
108	SFRD	Rotation and Shift	Shift Register Read	△	Operand 1 isn't T、C、D. NO conversion. Operand 2 isn't T、C、D、V、Z、DV、DZ. NO conversion.
109	SFRDP	Rotation and Shift	Shift Register Read	△	Operand 1 isn't T、C、D. NO conversion. Operand 2 isn't T、C、D、V、Z、DV、DZ. NO conversion.
110	ZRST	Data Operation	Zone Reset	△	Operand includes TZ，TV，CZ，CV. NO conversion.
111	ZRSTP	Data Operation	Zone Reset	△	Operand includes TZ，TV，CZ，CV. NO conversion.
112	DECO	Data Operation	Decode	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
113	DECOP	Data Operation	Decode	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV. NO conversion.
114	ENCO	Data Operation	Encode	△	Operand 1 isn't T、C、D、V、Z、DZ、DV. NO conversion. Operand 2 isn't T、C、D、V、Z、DV、DZ. NO conversion.
115	ENCOP	Data Operation	Encode	△	Operand 1 isn't T、C、D、V、Z、DZ、DV. NO conversion. Operand 2 isn't T、C、D、V、Z、DV、DZ. NO conversion.
116	LD=	Inline Comparisons	(S1)=(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
117	LDD=	Inline Comparisons	(S1)=(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
118	LD>	Inline Comparisons	(S1)>(S1)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
119	LDD>	Inline Comparisons	(S1)>(S1)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.

No.	Instruction (FX1S/FX1N)	Class	Function	Convert Status	Remark
120	LD<	Inline Comparisons	(S1)<(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
121	LDD<	Inline Comparisons	(S1)<(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
122	LD<>	Inline Comparisons	(S1)≠(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
123	LDD<>	Inline Comparisons	(S1)≠(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
124	LD<=	Inline Comparisons	(S1)≦(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
125	LDD<=	Inline Comparisons	(S1)≦(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
126	LD>=	Inline Comparisons	(S1)≧(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
127	LDD>=	Inline Comparisons	(S1)≧(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
128	AND=	Inline Comparisons	(S1)=(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
129	ANDD=	Inline Comparisons	(S1)=(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
130	AND>	Inline Comparisons	(S1)>(S1)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
131	ANDD>	Inline Comparisons	(S1)>(S1)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
132	AND<	Inline Comparisons	(S1)<(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
133	ANDD<	Inline Comparisons	(S1)<(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
134	AND<>	Inline Comparisons	(S1)≠(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
135	ANDD<>	Inline Comparisons	(S1)≠(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
136	AND<=	Inline Comparisons	(S1)≦(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.

No.	Instruction (FX1S/FX1N)	Class	Function	Convert Status	Remark
137	ANDD<=	Inline Comparisons	(S1)≦(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
138	AND>=	Inline Comparisons	(S1)≧(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
139	ANDD>=	Inline Comparisons	(S1)≧(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
140	OR=	Inline Comparisons	(S1)=(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
141	ORD=	Inline Comparisons	(S1)=(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
142	OR>	Inline Comparisons	(S1)>(S1)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
143	ORD>	Inline Comparisons	(S1)>(S1)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
144	OR<	Inline Comparisons	(S1)<(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
145	ORD<	Inline Comparisons	(S1)<(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
146	OR<>	Inline Comparisons	(S1)≠(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
147	ORD<>	Inline Comparisons	(S1)≠(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
148	OR<=	Inline Comparisons	(S1)≦(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
149	ORD<=	Inline Comparisons	(S1)≦(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
150	OR>=	Inline Comparisons	(S1)≧(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
151	ORD>=	Inline Comparisons	(S1)≧(S2)	△	Operand includes KZ、KV、KX、KY、KS、KM、KXZ、KYZ、KSZ、KMZ、TZ、TV、CZ、CV、DZ、DV. NO conversion.
152	REF	High Speed Processing	Refresh	×	
153	DREF	High Speed Processing	Refresh	×	
154	MTR	High Speed Processing	Input matrix	×	
155	DHSCS	High Speed Processing	High speed cunter set	×	

No.	Instruction (FX1S/FX1N)	Class	Function	Convert Status	Remark
156	DHSCR	High Speed Processing	High speed cunter reset	×	
157	SPD	High Speed Processing	Speed detect	×	
158	PLSY	High Speed Processing	Pulse Y output	×	
159	DPLSY	High Speed Processing	Pulse Y output	×	
160	PWM	High Speed Processing	Pulse width modulation	×	
161	PLSR	High Speed Processing	Ramp Pulse output	×	
162	DPLSR	High Speed Processing	Ramp Pulse output	×	
163	IST	Handy Instructions	Initial State	×	
164	ABSD	Handy Instructions	Absolute Drum	×	
165	DABSD	Handy Instructions	Absolute Drum	×	
166	INCD	Handy Instructions	Incremental Drum	×	
167	ALT	Handy Instructions	Altermate State	×	
168	ALTP	Handy Instructions	Altermate State	×	
169	RAMP	Handy Instructions	Ramp-Variable Value	×	
170	DSW	External FX I/O Devices	Digital Switch	×	
171	SEGL	External FX I/O Devices	Seven Segment With Latch	×	
172	FROM(FX1N)	External FX I/O Devices	Read From A Special Function Block	×	
173	FROMP(FX1N)	External FX I/O Devices	Read From A Special Function Block	×	
174	DFROM(FX1N)	External FX I/O Devices	Read From A Special Function Block	×	
175	DFROMP(FX1N)	External FX I/O Devices	Read From A Special Function Block	×	
176	TO(FX1N)	External FX I/O Devices	Write To A Special Function Block	×	
177	TOP(FX1N)	External FX I/O Devices	Write To A Special Function Block	×	
178	DTO(FX1N)	External FX I/O Devices	Write To A Special Function Block	×	
179	DTOP(FX1N)	External FX I/O Devices	Write To A Special Function Block	×	
180	RS	External FX Serial Devices	RS Communications	×	
181	PRUN	External FX Serial Devices	Parallel run	×	
182	PRUNP	External FX Serial Devices	Parallel run	×	
183	DPRUN	External FX Serial Devices	Parallel run	×	
184	DPRUNP	External FX Serial Devices	Parallel run	×	
185	ASCI	External FX Serial Devices	HEX to ASCII	×	

No.	Instruction (FX1S/FX1N)	Class	Function	Convert Status	Remark
186	ASCIP	External FX Serial Devices	HEX to ASCII	×	
187	HEX	External FX Serial Devices	ASCII to HEX	×	
188	HEXP	External FX Serial Devices	ASCII to HEX	×	
189	CCD	External FX Serial Devices	Check Code	×	
190	CCDP	External FX Serial Devices	Check Code	×	
191	VRRD	External FX Serial Devices	Volume Read	×	
192	VRRDP	External FX Serial Devices	Volume Read	×	
193	VRSC	External FX Serial Devices	Volume Scale	×	
194	VRSCP	External FX Serial Devices	Volume Scale	×	
195	PID	External FX Serial Devices	PID Control Loop	×	
196	DABS	Positioning Control	Absolute current value read	×	
197	ZRN	Positioning Control	Zero return	×	
198	DZRN	Positioning Control	Zero return	×	
199	PLSV	Positioning Control	Pulse V	×	
200	DPLSV	Positioning Control	Pulse V	×	
201	DRVI	Positioning Control	Drive to increment	×	
202	DDRVI	Positioning Control	Drive to increment	×	
203	DRVA	Positioning Control	Drive to absolute	×	
204	DDRVA	Positioning Control	Drive to absolute	×	
205	TCMP	Real Time clock Control	Time Compare	×	
206	TCMPP	Real Time clock Control	Time Compare	×	
207	TZCP	Real Time clock Control	Time Zone Compare	×	
208	TZCPP	Real Time clock Control	Time Zone Compare	×	
209	TADD	Real Time clock Control	Time Add	×	
210	TADDP	Real Time clock Control	Time Add	×	
211	TSUB	Real Time clock Control	Time Subtract	×	
212	TSUBP	Real Time clock Control	Time Subtract	×	
213	TRD	Real Time clock Control	Read RTC data	×	
214	TRDP	Real Time clock Control	Read RTC data	×	
215	TWR	Real Time clock Control	Set RTC data	×	
216	TWRP	Real Time clock Control	Set RTC data	×	
217	HOUR	Real Time clock Control	Hour meter	×	
218	DHOUR	Real Time clock Control	Hour meter	×	
219	RD3A(FX1N)	Gray Codes	Read Analog Bolck	×	

No.	Instruction (FX1S/FX1N)	Class	Function	Convert Status	Remark
220	RD3AP(FX1N)	Gray Codes	Read Analog Bolck	×	
221	WR3A(FX1N)	Gray Codes	Write to Analog Bolck	×	
222	WR3AP(FX1N)	Gray Codes	Write to Analog Bolck	×	
223	STL	STL Program	STL ladder	×	
224	RET	STL Program	Return	×	

(2) Siemens PLC Instruction Convert List

(Note: Specific conversion information, refer to Appendix: Siemens Convert Specification)

No.	Instruction (S7-200)	Class	Function	Convert Status	Remark
1	AENO	Bit Logic Instructions	And ENO	○	
2	LD	Bit Logic Instructions	Load	○	
3	LDN	Bit Logic Instructions	Load Not	○	
4	A	Bit Logic Instructions	And	○	
5	AN	Bit Logic Instructions	And Not	○	
6	O	Bit Logic Instructions	Or	○	
7	ON	Bit Logic Instructions	Or Not	○	
8	LDI	Bit Logic Instructions	Load immediate	○	
9	LDNI	Bit Logic Instructions	Load Not immediate	○	
10	AI	Bit Logic Instructions	And immediate	○	
11	ANI	Bit Logic Instructions	And Not immediate	○	
12	OI	Bit Logic Instructions	Or immediate	○	
13	ONI	Bit Logic Instructions	Or Not immediate	○	
14	ALD	Bit Logic Instructions	And Block	○	
15	OLD	Bit Logic Instructions	Or Block	○	
16	NOT	Bit Logic Instructions	Not	○	
17	EU	Bit Logic Instructions	Pulse	○	
18	ED	Bit Logic Instructions	Falling Pulse	○	
19	=	Bit Logic Instructions	Output	○	
20	=I	Bit Logic Instructions	Output immediate	○	
21	S	Bit Logic Instructions	Set	○	
22	R	Bit Logic Instructions	Reset	○	
23	SI	Bit Logic Instructions	Set immediate	×	
24	RI	Bit Logic Instructions	Reset immediate	×	
25	SR	Bit Logic Instructions	Set Dominant Bistable	○	
26	RS	Bit Logic Instructions	Reset Dominant Bistable instruction	×	
27	NOP	Bit Logic Instructions	Nop	×	
28	LDB=	Compare Instructions	Compare Load Byte N1=N2	○	
29	LDB<	Compare Instructions	Compare Load Byte N1<N2	○	

No.	Instruction (S7-200)	Class	Function	Convert Status	Remark
30	LDB>	Compare Instructions	Compare Load Byte N1>N2	○	
31	LDB<>	Compare Instructions	Compare Load Byte N1<>N2	○	
32	LDB<=	Compare Instructions	Compare Load Byte N1<=N2	○	
33	LDB>=	Compare Instructions	Compare Load Byte N1>=N2	○	
34	LDW=	Compare Instructions	Compare Load Word N1=N2	○	
35	LDW<	Compare Instructions	Compare Load Word N1<N2	○	
36	LDW>	Compare Instructions	Compare Load Word N1>N2	○	
37	LDW<>	Compare Instructions	Compare Load Word N1<>N2	○	
38	LDW<=	Compare Instructions	Compare Load Word N1<=N2	○	
39	LDW>=	Compare Instructions	Compare Load Word N1>=N2	○	
40	LDD=	Compare Instructions	Compare Load Double Word N1=N2	○	
41	LDD<	Compare Instructions	Compare Load Double Word N1<N2	○	
42	LDD>	Compare Instructions	Compare Load Double Word N1>N2	○	
43	LDD<>	Compare Instructions	Compare Load Double Word N1<>N2	○	
44	LDD<=	Compare Instructions	Compare Load Double Word N1<=N2	○	
45	LDD>=	Compare Instructions	Compare Load Double Word N1>=N2	○	
46	LDR=	Compare Instructions	Compare Load Real N1=N2	○	
47	LDR<	Compare Instructions	Compare Load Real N1<N2	○	
48	LDR>	Compare Instructions	Compare Load Real N1>N2	○	
49	LDR<>	Compare Instructions	Compare Load Real N1<>N2	○	
50	LDR<=	Compare Instructions	Compare Load Real N1<=N2	○	
51	LDR>=	Compare Instructions	Compare Load Real N1>=N2	○	
52	AB=	Compare Instructions	Compare And Byte N1=N2	○	
53	AB<	Compare Instructions	Compare And Byte N1<N2	○	
54	AB>	Compare Instructions	Compare And Byte N1>N2	○	
55	AB<>	Compare Instructions	Compare And Byte N1<>N2	○	
56	AB<=	Compare Instructions	Compare And Byte N1<=N2	○	
57	AB>=	Compare Instructions	Compare And Byte N1>=N2	○	

No.	Instruction (S7-200)	Class	Function	Convert Status	Remark
58	AW=	Compare Instructions	Compare And Word N1=N2	○	
59	AW<	Compare Instructions	Compare And Word N1<N2	○	
60	AW>	Compare Instructions	Compare And Word N1>N2	○	
61	AW<>	Compare Instructions	Compare And Word N1<>N2	○	
62	AW<=	Compare Instructions	Compare And Word N1<=N2	○	
63	AW>=	Compare Instructions	Compare And Word N1=>N2	○	
64	AD=	Compare Instructions	Compare And Double Word N1=N2	○	
65	AD<	Compare Instructions	Compare And Double Word N1<N2	○	
66	AD>	Compare Instructions	Compare And Double Word N1>N2	○	
67	AD<>	Compare Instructions	Compare And Double Word N1<>N2	○	
68	AD<=	Compare Instructions	Compare And Double Word N1<=N2	○	
69	AD>=	Compare Instructions	Compare And Double Word N1>=N2	○	
70	AR=	Compare Instructions	Compare And Real N1=N2	○	
71	AR<	Compare Instructions	Compare And Real N1<N2	○	
72	AR>	Compare Instructions	Compare And Real N1>N2	○	
73	AR<>	Compare Instructions	Compare And Real N1<>N2	○	
74	AR<=	Compare Instructions	Compare And Real N1<=N2	○	
75	AR>=	Compare Instructions	Compare And Real N1>=N2	○	
76	OB=	Compare Instructions	Compare Or Byte N1=N2	○	
77	OB<	Compare Instructions	Compare Or Byte N1<N2	○	
78	OB>	Compare Instructions	Compare Or Byte N1>N2	○	
79	OB<>	Compare Instructions	Compare Or Byte N1<>N2	○	
80	OB<=	Compare Instructions	Compare Or Byte N1<=N2	○	
81	OB>=	Compare Instructions	Compare Or Byte N1>=N2	○	
82	OW=	Compare Instructions	Compare Or Word N1=N2	○	
83	OW<	Compare Instructions	Compare Or Word N1<N2	○	
84	OW>	Compare Instructions	Compare Or Word N1>N2	○	
85	OW<>	Compare Instructions	Compare Or Word N1<>N2	○	

No.	Instruction (S7-200)	Class	Function	Convert Status	Remark
86	OW<=	Compare Instructions	Compare Or Word N1<=N2	○	
87	OW>=	Compare Instructions	Compare Or Word N1=>N2	○	
88	OD=	Compare Instructions	Compare Or Double Word N1=N2	○	
89	OD<	Compare Instructions	Compare Or Double Word N1<N2	○	
90	OD>	Compare Instructions	Compare Or Double Word N1>N2	○	
91	OD<>	Compare Instructions	Compare Or Double Word N1<>N2	○	
92	OD<=	Compare Instructions	Compare Or Double Word N1<=N2	○	
93	OD>=	Compare Instructions	Compare Or Double Word N1>=N2	○	
94	OR=	Compare Instructions	Compare Or Real N1=N2	○	
95	OR<	Compare Instructions	Compare Or Real N1<N2	○	
96	OR>	Compare Instructions	Compare Or Real N1>N2	○	
97	OR<>	Compare Instructions	Compare Or Real N1<>N2	○	
98	OR<=	Compare Instructions	Compare Or Real N1<=N2	○	
99	OR>=	Compare Instructions	Compare Or Real N1>=N2	○	
100	LDS=	Compare Instructions	Compare Load String IN1=IN2	×	
101	LDS<>	Compare Instructions	Compare Load String IN1<>IN2	×	
102	AS=	Compare Instructions	Compare And String IN1=IN2	×	
103	AS<>	Compare Instructions	Compare And String IN1<>IN2	×	
104	OS=	Compare Instructions	Compare Or String IN1=IN2	×	
105	OS<>	Compare Instructions	Compare Or String IN1<>IN2	×	
106	TON	Timer Instructions	On-Delay Timer	○	
107	TONR	Timer Instructions	Retentive On-Delay Timer	○	
108	TOF	Timer Instructions	Off-Delay Timer	×	
109	TP	Timer Instructions	Pulse Timer	×	
110	BGN_ITIME	Timer Instructions	Beginning Interval Time	×	
111	CAL_ITIME	Timer Instructions	Calculate Interval Time	×	
112	CTU	Counter Instructions	CU increments the current value	○	

No.	Instruction (S7-200)	Class	Function	Convert Status	Remark
113	CTUD	Counter Instructions	CU increments the current value CD decrements the current value	○	
114	CTD	Counter Instructions	CD decrements the current value	○	
115	ADD_I	Math Instructions	Add Integer IN1+OUT=OUT	○	
116	SUB_I	Math Instructions	Subtract Integer IN1-OUT=OUT	○	
117	ADD_DI	Math Instructions	Add double Integer IN1+OUT=OUT	○	
118	SUB_DI	Math Instructions	Subtract Integer IN1-OUT=OUT	○	
119	MUL_I	Math Instructions	Multiply Interger IN1*OUT=OUT	○	
120	DIV_I	Math Instructions	Divide Interger IN1/OUT=OUT	○	
121	MUL_DI	Math Instructions	Multiply Double Interger IN1*OUT=OUT	○	
122	DIV_DI	Math Instructions	Divide Double Interger IN1/OUT=OUT	○	
123	MUL	Math Instructions	Multiply Integer to Double Interger（16*16-〉32）	○	
124	DIV	Math Instructions	Divide Interger （16/16-〉32）	○	
125	INCB	Math Instructions	Bit Increment	○	
126	DECB	Math Instructions	Bit Decrement	○	
127	INCW	Math Instructions	Word Increment	○	
128	DECW	Math Instructions	Word Decrement	○	
129	INCD	Math Instructions	Double Word Increment	○	
130	DECD	Math Instructions	Double Word Decrement	○	
131	ADD_R	Real Math Instructions	Add Real IN1+OUT=OUT	○	
132	SUB_R	Real Math Instructions	Subtract Real IN1-OUT=OUT	○	
133	MUL_R	Real Math Instructions	Multiply Real IN1*OUT=OUT	○	
134	DIV_R	Real Math Instructions	Divide Real IN1/OUT=OUT	○	
135	SQRT	Real Math Instructions	Square Root	×	
136	LN	Real Math Instructions	Natural Logarithm	×	
137	EXP	Real Math Instructions	Natural Exponential	×	
138	SIN	Real Math Instructions	Sine	×	
139	COS	Real Math Instructions	Cosine	×	

No.	Instruction (S7-200)	Class	Function	Convert Status	Remark
140	TAN	Real Math Instructions	Tangent	×	
141	PID	Real Math Instructions	PID Loop	×	
142	MOV_B	Move Instructions	Move Byte	○	
143	MOV_W	Move Instructions	Move Word	○	
144	MOV_DW	Move Instructions	Move Double Word	○	
145	MOV_R	Move Instructions	Move Real	○	
146	BLKMOV_B	Move Instructions	Block Move Byte	×	
147	BLKMOV_W	Move Instructions	Block Move Word	○	
148	BLKMOV_D	Move Instructions	Block Move Double Word	○	
149	SWAP	Move Instructions	Conversion Byet	○	
150	MOV_BIR	Move Instructions	Move Byte Immediate Read	×	
151	MOV_BIW	Move Instructions	Move Byte Immediate Write	×	
152	WAND_B	Logical Operations Instructions	And Byte	○	
153	WOR_B	Logical Operations Instructions	Or Byte	○	
154	WXOR_B	Logical Operations Instructions	Exclusive Or Byet	○	
155	WAND_W	Logical Operations Instructions	And Word	○	
156	WOR_W	Logical Operations Instructions	Or Word	○	
157	WXOR_W	Logical Operations Instructions	Exclusive Or Word	○	
158	WAND_DW	Logical Operations Instructions	And Double Word	○	
159	WOR_DW	Logical Operations Instructions	Or Double Word	○	
160	WXOR_DW	Logical Operations Instructions	Exclusive Or Double Word	○	
161	INV_B	Logical Operations Instructions	Invert Byte	○	
162	INV_W	Logical Operations Instructions	Invert Word、	○	
163	INV_DW	Logical Operations Instructions	Invert Double Word	○	

No.	Instruction (S7-200)	Class	Function	Convert Status	Remark
164	SHR_B	Shift and Rotate Instructions	Shift Right Byte	×	
165	SHL_B	Shift and Rotate Instructions	Shift Left Byte	×	
166	SHR_W	Shift and Rotate Instructions	Shift Right Word	○	
167	SHL_W	Shift and Rotate Instructions	Shift Left Word	○	
168	SHR_DW	Shift and Rotate Instructions	Shift Right Double Word	○	
169	SHL_DW	Shift and Rotate Instructions	Shift Left Double Word	○	
170	ROR_B	Shift and Rotate Instructions	Rotate Right Byte	×	
171	ROL_B	Shift and Rotate Instructions	Rotate Left Byte	×	
172	ROR_W	Shift and Rotate Instructions	Rotate Right Word	○	
173	ROL_W	Shift and Rotate Instructions	Rotate Left Word	○	
174	ROR_DW	Shift and Rotate Instructions	Rotate Right Double Word	○	
175	ROL_DW	Shift and Rotate Instructions	Rotate Left Double Word	○	
176	SHRB	Shift and Rotate Instructions	Shift and Rotate Register	×	
177	BCD_I	Conversion Instructions	BCD to integer	○	
178	I_BCD	Conversion Instructions	Integer to BCD	○	
179	DI_R(DTR)	Conversion Instructions	Double Integer to Real	○	
180	ROUND	Conversion Instructions	Round	○	
181	TRUNC	Conversion Instructions	Truncate	○	
182	DI_I	Conversion Instructions	Double Integer to Integer	×	
183	I_DI	Conversion Instructions	Integer to Double Integer	○	
184	B_I	Conversion Instructions	Byte to Integer	×	
185	I_B	Conversion Instructions	Interger to byte	×	
186	DECO	Conversion Instructions	Decode	○	
187	ENCO	Conversion Instructions	Encode	○	

No.	Instruction (S7-200)	Class	Function	Convert Status	Remark
188	SEG	Conversion Instructions	Segment	○	
189	ATH	Conversion Instructions	ASCII to Hexadecimal	×	
190	HTA	Conversion Instructions	Hexadecimal to ASCII	×	
191	ITA	Conversion Instructions	Integer to ASCII	×	
192	DTA	Conversion Instructions	Double Integer to ASCII	×	
193	RTA	Conversion Instructions	Real to ASCII	×	
194	I_S	Conversion Instructions	Integer to String	×	
195	DI_S	Conversion Instructions	Double Integer to String	×	
196	R_S	Conversion Instructions	Real to String	○	
197	S_I	Conversion Instructions	String to Integer	×	
198	S_DI	Conversion Instructions	String to Double Integer	×	
199	S_R	Conversion Instructions	String to Real	○	
200	JMP	Program Control Instructions	Jump to Label	○	
201	LBL	Program Control Instructions	Label	○	
202	SBR	Program Control Instructions	Subroutine Start	○	
203	CRET	Program Control Instructions	Condutional Return from Subroutine	×	
204	FOR	Program Control Instructions	For/Next Loop	○	
205	NEXT	Program Control Instructions	For/Next Loop	○	
206	SCR	Program Control Instructions	Load SCR	○	
207	SCRT	Program Control Instructions	SCR Transition	○	
208	CSCRE	Program Control Instructions	Conditional SCR End	×	
209	SCRE	Program Control Instructions	SCR End	×	
210	CALL	Program Control Instructions	Call Subroutine	○	
211	FINAL	Program Control Instructions	FOR/NEXT loop number (Included in FOR when converted)	○	

No.	Instruction (S7-200)	Class	Function	Convert Status	Remark
212	END	Program Control Instructions	END	×	
213	DIAG_LED	Program Control Instructions	Diagnostic LED	×	
214	STOP	Program Control Instructions	Stop	×	
215	WDR	Program Control Instructions	Watchdot Reset （300ms）	×	
216	LPS	Logic Stack Instructions	Logic Push	○	
217	LRD	Logic Stack Instructions	Logic Read	○	
218	LPP	Logic Stack Instructions	Logic Pop	○	
219	LDS	Logic Stack Instructions	Load Stack	×	
220	HDEF	High-Speed Counter Instructions	High-Speed Counter Definition	×	
221	HSC	High-Speed Counter Instructions	High-Speed Counter	×	
222	PLS	High-Speed Counter Instructions	Pulse Output	×	
223	READ_RTC	Clock Instructions	Read-Time Clock	×	
224	SET_RTC	Clock Instructions	Set Read-Time Clock	×	
225	READ_RTCX	Clock Instructions	Read Real Time Clock Extended	×	
226	SET_RTCX	Clock Instructions	Set Real Time Clock Extended	×	
227	ATT	Table Instructions	Add to Table	×	
228	FND=	Table Instructions	Table Find	×	
229	FND<>	Table Instructions	Table Find	×	
230	FND<	Table Instructions	Table Find	×	
231	FND>	Table Instructions	Table Find	×	
232	FIFO	Table Instructions	First-In-First-Out	×	
233	LIFO	Table Instructions	Last-In-First-Out	×	
234	FILL	Table Instructions	Memory Fill	×	
235	ATCH	Interrupt Instructions	Attach Interrupt	×	
236	DTCH	Interrupt Instructions	Detach Interrupt	×	
237	CRETI	Interrupt Instructions	Conditional Return from Interrupt	×	
238	ENI	Interrupt Instructions	Enable Interrupt	×	

No.	Instruction (S7-200)	Class	Function	Convert Status	Remark
239	DISI	Interrupt Instructions	Disable Interrupt	×	
240	CEVNT	Interrupt Instructions	Clear Interrupt Event	×	
241	NETR	Communications Instructions	Network Read	×	
242	NETW	Communications Instructions	Network Write	×	
243	XMT	Communications Instructions	Transmit	×	
244	RCV	Communications Instructions	Receive	×	
245	GET_ADDR	Communications Instructions	Get Port Address	×	
246	SET_ADDR	Communications Instructions	Set Port Address	×	
247	STR_LEN	String Instructions	String Length	×	
248	STR_CPY	String Instructions	Copy String	×	
249	STR_CAT	String Instructions	Concatenate String	×	
250	SSTR_CPY	String Instructions	Copy Substring from String	×	
251	STR_FIND	String Instructions	Find String Within String	×	
252	CHR_FIND	String Instructions	Find First Character Within String	×	