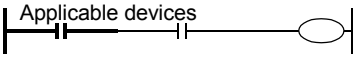
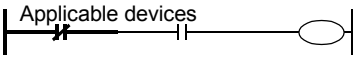
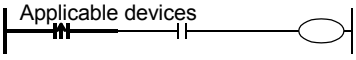
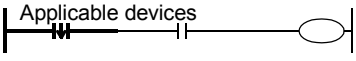
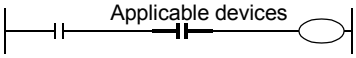
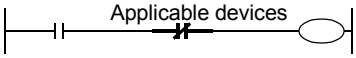
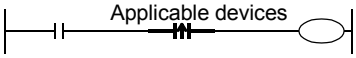
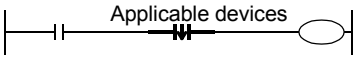
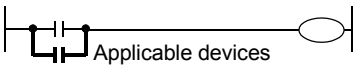
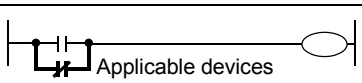
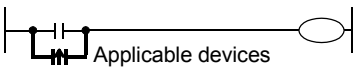
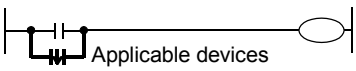
3. Instruction List

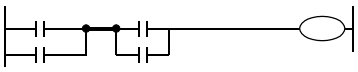
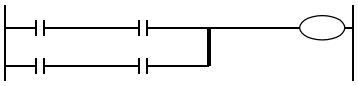
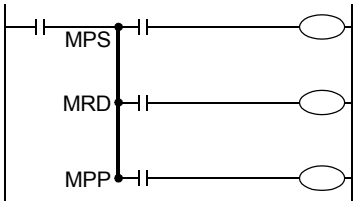
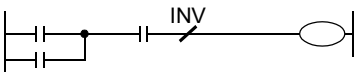
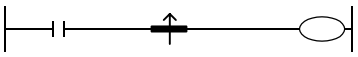
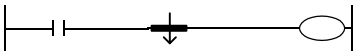
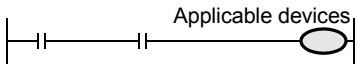
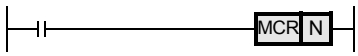
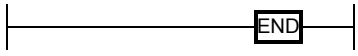
This chapter introduces a list of instructions available in programming.

3.1 Basic Instructions

The basic instructions are provided in the following series. The table below shows differences in applicable devices.

Applicable PLC	FX3S	FX3G	FX3GC	FX3U	FX3UC	FX1S	FX1N	FX1NC	FX2N	FX2NC
Basic instructions other than MEP and MEF instructions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MEP and MEF instructions	✓	✓	✓	Ver. 2.30 or later	Ver. 2.30 or later	–	–	–	–	–
Absence/presence of applicable devices (D□. b)	–	–	–	✓	✓	–	–	–	–	–
Absence/presence of applicable devices (R)	–	✓	✓	✓	✓	–	–	–	–	–

Mnemonic	Name	Symbol	Function	Applicable devices	Reference
Contact Instruction					
LD	Load		Initial logical operation contact type NO (normally open)	X,Y,M,S,D□.b,T,C	Section 7.1
LDI	Load Inverse		Initial logical operation contact type NC (normally closed)	X,Y,M,S,D□.b,T,C	Section 7.1
LDP	Load Pulse		Initial logical operation of Rising edge pulse	X,Y,M,S,D□.b,T,C	Section 7.5
LDF	Load Falling Pulse		Initial logical operation of Falling/trailing edge pulse	X,Y,M,S,D□.b,T,C	Section 7.5
AND	AND		Serial connection of NO (normally open) contacts	X,Y,M,S,D□.b,T,C	Section 7.3
ANI	AND Inverse		Serial connection of NC (normally closed) contacts	X,Y,M,S,D□.b,T,C	Section 7.3
ANDP	AND Pulse		Serial connection of Rising edge pulse	X,Y,M,S,D□.b,T,C	Section 7.5
ANDF	AND Falling Pulse		Serial connection of Falling/trailing edge pulse	X,Y,M,S,D□.b,T,C	Section 7.5
OR	OR		Parallel connection of NO (normally open) contacts	X,Y,M,S,D□.b,T,C	Section 7.4
ORI	OR Inverse		Parallel connection of NC (normally closed) contacts	X,Y,M,S,D□.b,T,C	Section 7.4
ORP	OR Pulse		Parallel connection of Rising edge pulse	X,Y,M,S,D□.b,T,C	Section 7.5
ORF	OR Falling Pulse		Parallel connection of Falling/trailing edge pulse	X,Y,M,S,D□.b,T,C	Section 7.5

Mnemonic	Name	Symbol	Function	Applicable devices	Reference
Connection Instruction					
ANB	AND Block		Serial connection of multiple parallel circuits	–	Section 7.7
ORB	OR Block		Parallel connection of multiple contact circuits	–	Section 7.6
MPS	Memory Point Store		Stores the current result of the internal PLC operations	–	Section 7.8
MRD	Memory Read		Reads the current result of the internal PLC operations		Section 7.8
MPP	Memory POP		Pops (recalls and removes) the currently stored result		Section 7.8
INV	Inverse		Invert the current result of the internal PLC operations	–	Section 7.10
MEP	MEP		Conversion of operation result to leading edge pulse	–	Section 7.11
MEF	MEF		Conversion of operation result to trailing edge pulse	–	Section 7.11
Out Instruction					
OUT	OUT		Final logical operation type coil drive	Y,M,S,D□.b,T,C	Section 7.2
SET	SET		SET Bit device latch ON	Y,M,S,D□.b	Section 7.13
RST	Reset		RESET Bit device OFF	Y,M,S,D□.b,T,C, D,R,V,Z	Section 7.13
PLS	Pulse		Rising edge pulse	Y,M	Section 7.12
PLF	Pulse Falling		Falling/trailing edge pulse	Y,M	Section 7.12
Master Control Instruction					
MC	Master Control		Denotes the start of a master control block	Y,M	Section 7.9
MCR	Master Control Reset		Denotes the end of a master control block	–	Section 7.9
Other Instruction					
NOP	No Operation		No operation or null step	–	Section 7.14
End Instruction					
END	END		Program END, I/O refresh and Return to Step 0	–	Section 7.15

3.2 Step Ladder Instructions

Mnemonic	Name	Symbol	Function	Applicable devices	Reference
STL	Step Ladder	STL Applicable devices	Starts step ladder	S	Chapter 35
RET	Return	RET	Completes step ladder	–	Chapter 35

3.3 Applied Instructions ... in Ascending Order of FNC Number

Applied instructions such as Arithmetic operation, Rotation and Shift, Handy instructions etc. are used especially when numeric data is handled.

*1: The instruction is provided in the FX2N/FX2NC Series Ver. 3.00 or later.
*2: The function is changed in the FX3UC Series Ver. 1.30 or later.
*3: The instruction is provided in the FX3UC Series Ver. 1.30 or later.
*4: The function is changed in the FX3UC Series Ver. 2.20 or later.
*5: The instruction is provided in the FX3UC Series Ver. 2.20 or later
*6: The instruction is provided in the FX3G Series Ver. 1.10 or later..
*7: The instruction is provided in the FX3U/FX3UC Series Ver. 2.61 or later.
*8: The instruction is provided in the FX3G Series Ver. 1.40 or later.
*9: The instruction is provided in the FX3U/FX3UC Series Ver. 2.70 or later.
*10: The instruction is provided in the FX3G Series Ver. 1.30 or later.
*11: The instruction is provided in the FX3U/FX3UC Series Ver. 2.40 or later.

FNC No.	Mnemonic	Symbol	Function	Applicable PLC										Reference
				FX3S	FX3G	FX3GC	FX3U	FX3UC	FX1S	FX1N	FX1NC	FX2N	FX2NC	
Program Flow														
00	CJ	CJ Pn	Conditional Jump	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 8.1
01	CALL	CALL Pn	Call Subroutine	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 8.2
02	SRET	SRET	Subroutine Return	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 8.3
03	IRET	IRET	Interrupt Return	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 8.4
04	EI	EI	Enable Interrupt	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 8.5
05	DI	DI	Disable Interrupt	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 8.6
06	FEND	FEND	Main Routine Program End	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 8.7
07	WDT	WDT	Watchdog Timer Refresh	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 8.8
08	FOR	FOR S	Start a FOR/NEXT Loop	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 8.9
09	NEXT	NEXT	End a FOR/NEXT Loop	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 8.10
Move and Compare														
10	CMP	CMP S1 S2 D	Compare	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 9.1
11	ZCP	ZCP S1 S2 S D	Zone Compare	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 9.2
12	MOV	MOV S D	Move	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 9.3

FNC No.	Mnemonic	Symbol	Function	Applicable PLC										Reference
				FX3S	FX3G	FX3GC	FX3U	FX3UC	FX1S	FX1N	FX1NC	FX2N	FX2NC	
Move and Compare														
13	SMOV	SMOV S m1 m2 D n	Shift Move	✓	✓	✓	✓	✓	–	–	–	✓	✓	Section 9.4
14	CML	CML S D	Complement	✓	✓	✓	✓	✓	–	–	–	✓	✓	Section 9.5
15	BMOV	BMOV S D n	Block Move	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 9.6
16	FMOV	FMOV S D n	Fill Move	✓	✓	✓	✓	✓	–	–	–	✓	✓	Section 9.7
17	XCH	XCH D1 D2	Exchange	–	–	–	✓	✓	–	–	–	✓	✓	Section 9.8
18	BCD	BCD S D	Conversion to Binary Coded Decimal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 9.9
19	BIN	BIN S D	Conversion to Binary	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 9.10
Arithmetic and Logical Operation (+, –, ×, ÷)														
20	ADD	ADD S1 S2 D	Addition	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 10.1
21	SUB	SUB S1 S2 D	Subtraction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 10.2
22	MUL	MUL S1 S2 D	Multiplication	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 10.3
23	DIV	DIV S1 S2 D	Division	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 10.4
24	INC	INC D	Increment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 10.5
25	DEC	DEC D	Decrement	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 10.6
26	WAND	WAND S1 S2 D	Logical Word AND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 10.7
27	WOR	WOR S1 S2 D	Logical Word OR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 10.8
28	WXOR	WXOR S1 S2 D	Logical Exclusive OR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 10.9
29	NEG	NEG D	Negation	–	–	–	✓	✓	–	–	–	✓	✓	Section 10.10
Rotation and Shift Operation														
30	ROR	ROR D n	Rotation Right	✓	✓	✓	✓	✓	–	–	–	✓	✓	Section 11.1
31	ROL	ROL D n	Rotation Left	✓	✓	✓	✓	✓	–	–	–	✓	✓	Section 11.2
32	RCR	RCR D n	Rotation Right with Carry	–	–	–	✓	✓	–	–	–	✓	✓	Section 11.3
33	RCL	RCL D n	Rotation Left with Carry	–	–	–	✓	✓	–	–	–	✓	✓	Section 11.4

FNC No.	Mnemonic	Symbol	Function	Applicable PLC										Reference
				FX3S	FX3G	FX3GC	FX3U	FX3UC	FX1S	FX1N	FX1NC	FX2N	FX2NC	
Rotation and Shift Operation														
34	SFTR	SFTR S D n1 n2	Bit Shift Right	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 11.5
35	SFTL	SFTL S D n1 n2	Bit Shift Left	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 11.6
36	WSFR	WSFR S D n1 n2	Word Shift Right	✓	✓	✓	✓	✓	–	–	–	✓	✓	Section 11.7
37	WSFL	WSFL S D n1 n2	Word Shift Left	✓	✓	✓	✓	✓	–	–	–	✓	✓	Section 11.8
38	SFWR	SFWR S D n	Shift write [FIFO/FILO control]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 11.9
39	SFRD	SFRD S D n	Shift Read [FIFO Control]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 11.10
Data Operation														
40	ZRST	ZRST D1 D2	Zone Reset	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 12.1
41	DECO	DECO S D n	Decode	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 12.2
42	ENCO	ENCO S D n	Encode	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 12.3
43	SUM	SUM S D	Sum of Active Bits	✓	✓	✓	✓	✓	–	–	–	✓	✓	Section 12.4
44	BON	BON S D n	Check Specified Bit Status	✓	✓	✓	✓	✓	–	–	–	✓	✓	Section 12.5
45	MEAN	MEAN S D n	Mean	✓	✓	✓	✓	✓	–	–	–	✓	✓	Section 12.6
46	ANS	ANS S m D	Timed Annunciator Set	–	✓	✓	✓	✓	–	–	–	✓	✓	Section 12.7
47	ANR	ANR	Annunciator Reset	–	✓	✓	✓	✓	–	–	–	✓	✓	Section 12.8
48	SQR	SQR S D	Square Root	–	–	–	✓	✓	–	–	–	✓	✓	Section 12.9
49	FLT	FLT S D	Conversion to Floating Point	✓	*6	✓	✓	✓	–	–	–	✓	✓	Section 12.10
High-speed Processing														
50	REF	REF D n	Refresh	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 13.1
51	REFF	REFF n	Refresh and Filter Adjust	–	–	–	✓	✓	–	–	–	✓	✓	Section 13.2
52	MTR	MTR S D1 D2 n	Input Matrix	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 13.3
53	HSCS	HSCS S1 S2 D	High-speed Counter Set	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 13.4
54	HSCR	HSCR S1 S2 D	High-speed Counter Reset	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 13.5

FNC No.	Mnemonic	Symbol	Function	Applicable PLC										Reference
				FX3S	FX3G	FX3GC	FX3U	FX3UC	FX1S	FX1N	FX1NC	FX2N	FX2NC	
High-speed Processing														
55	HSZ	HSZ S1 S2 S D	High-speed Counter Zone Compare	✓	✓	✓	✓	✓	–	–	–	✓	✓	Section 13.6
56	SPD	SPD S1 S2 D	Speed Detection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 13.7
57	PLSY	PLSY S1 S2 D	Pulse Y Output	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 13.8
58	PWM	PWM S1 S2 D	Pulse Width Modulation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 13.9
59	PLSR	PLSR S1 S2 S3 D	Acceleration/Deceleration Setup	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 13.10
Handy Instruction														
60	IST	IST S D1 D2	Initial State	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 14.1
61	SER	SER S1 S2 D n	Search a Data Stack	✓	✓	✓	✓	✓	–	–	–	✓	✓	Section 14.2
62	ABSD	ABSD S1 S2 D n	Absolute Drum Sequencer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 14.3
63	INCD	INCD S1 S2 D n	Incremental Drum Sequencer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 14.4
64	TTMR	TTMR D n	Teaching Timer	–	–	–	✓	✓	–	–	–	✓	✓	Section 14.5
65	STMR	STMR S m D	Special Timer	–	–	–	✓	✓	–	–	–	✓	✓	Section 14.6
66	ALT	ALT D	Alternate State	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 14.7
67	RAMP	RAMP S1 S2 D n	Ramp Variable Value	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 14.8
68	ROTC	ROTC S m1 m2 D	Rotary Table Control	–	–	–	✓	✓	–	–	–	✓	✓	Section 14.9
69	SORT	SORT S m1 m2 D n	SORT Tabulated Data	–	–	–	✓	✓	–	–	–	✓	✓	Section 14.10
External FX I/O Device														
70	TKY	TKY S D1 D2	Ten Key Input	–	–	–	✓	✓	–	–	–	✓	✓	Section 15.1
71	HKY	HKY S D1 D2 D3	Hexadecimal Input	–	–	–	✓	✓	–	–	–	✓	✓	Section 15.2
72	DSW	DSW S D1 D2 n	Digital Switch (Thumbwheel Input)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 15.3
73	SEGD	SEGD S D	Seven Segment Decoder	–	–	–	✓	✓	–	–	–	✓	✓	Section 15.4
74	SEGL	SEGL S D n	Seven Segment With Latch	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 15.5

FNC No.	Mnemonic	Symbol	Function	Applicable PLC										Reference
				FX3S	FX3G	FX3GC	FX3U	FX3UC	FX1S	FX1N	FX1NC	FX2N	FX2NC	
External FX Device														
75	ARWS	ARWS S D1 D2 n	Arrow Switch	–	–	–	✓	✓	–	–	–	✓	✓	Section 15.6
76	ASC	ASC S D	ASCII Code Data Input	–	–	–	✓	✓	–	–	–	✓	✓	Section 15.7
77	PR	PR S D	Print (ASCII Code)	–	–	–	✓	✓	–	–	–	✓	✓	Section 15.8
78	FROM	FROM m1 m2 D n	Read From A Special Function Block	–	✓	✓	✓	✓	–	✓	✓	✓	✓	Section 15.9
79	TO	TO m1 m2 S n	Write To A Special Function Block	–	✓	✓	✓	✓	–	✓	✓	✓	✓	Section 15.10
80	RS	RS S m D n	Serial Communication	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 16.1
81	PRUN	PRUN S D	Parallel Run (Octal Mode)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 16.2
82	ASCI	ASCI S D n	Hexadecimal to ASCII Conversion	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 16.3
83	HEX	HEX S D n	ASCII to Hexadecimal Conversion	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 16.4
84	CCD	CCD S D n	Check Code	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 16.5
85	VRRD	VRRD S D	Volume Read	✓	*6	–	*9	*9	✓	✓	–	✓	–	Section 16.6
86	VRSC	VRSC S D	Volume Scale	✓	*6	–	*9	*9	✓	✓	–	✓	–	Section 16.7
87	RS2	RS2 S m D n n1	Serial Communication 2	✓	✓	✓	✓	✓	–	–	–	–	–	Section 16.8
88	PID	PID S1 S2 S3 D	PID Control Loop	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 16.9
Data Transfer 2														
102	ZPUSH	ZPUSH D	Batch Store of Index Register	–	–	–	✓	*5	–	–	–	–	–	Section 17.1
103	ZPOP	ZPOP D	Batch POP of Index Register	–	–	–	✓	*5	–	–	–	–	–	Section 17.2
Floating Point														
110	ECMP	ECMP S1 S2 D	Floating Point Compare	✓	*6	✓	✓	✓	–	–	–	✓	✓	Section 18.1
111	EZCP	EZCP S1 S2 S D	Floating Point Zone Compare	–	–	–	✓	✓	–	–	–	✓	✓	Section 18.2
112	EMOV	EMOV S D	Floating Point Move	✓	*6	✓	✓	✓	–	–	–	–	–	Section 18.3
116	ESTR	ESTR S1 S2 D	Floating Point to Character String Conversion	–	–	–	✓	✓	–	–	–	–	–	Section 18.4
117	EVAL	EVAL S D	Character String to Floating Point Conversion	–	–	–	✓	✓	–	–	–	–	–	Section 18.5

FNC No.	Mnemonic	Symbol	Function	Applicable PLC										Reference
				FX3S	FX3G	FX3GC	FX3U	FX3UC	FX1S	FX1N	FX1NC	FX2N	FX2NC	
Floating Point														
118	EBCD	EBCD S D	Floating Point to Scientific Notation Conversion	–	–	–	✓	✓	–	–	–	✓	✓	Section 18.6
119	EBIN	EBIN S D	Scientific Notation to Floating Point Conversion	–	–	–	✓	✓	–	–	–	✓	✓	Section 18.7
120	EADD	EADD S1 S2 D	Floating Point Addition	✓	*6	✓	✓	✓	–	–	–	✓	✓	Section 18.8
121	ESUB	ESUB S1 S2 D	Floating Point Subtraction	✓	*6	✓	✓	✓	–	–	–	✓	✓	Section 18.9
122	EMUL	EMUL S1 S2 D	Floating Point Multiplication	✓	*6	✓	✓	✓	–	–	–	✓	✓	Section 18.10
123	EDIV	EDIV S1 S2 D	Floating Point Division	✓	*6	✓	✓	✓	–	–	–	✓	✓	Section 18.11
124	EXP	EXP S D	Floating Point Exponent	–	–	–	✓	✓	–	–	–	–	–	Section 18.12
125	LOGE	LOGE S D	Floating Point Natural Logarithm	–	–	–	✓	✓	–	–	–	–	–	Section 18.13
126	LOG10	LOG10 S D	Floating Point Common Logarithm	–	–	–	✓	✓	–	–	–	–	–	Section 18.14
127	ESQR	ESQR S D	Floating Point Square Root	✓	*6	✓	✓	✓	–	–	–	✓	✓	Section 18.15
128	ENEG	ENEG D	Floating Point Negation	–	–	–	✓	✓	–	–	–	–	–	Section 18.16
129	INT	INT S D	Floating Point to Integer Conversion	✓	*6	✓	✓	✓	–	–	–	✓	✓	Section 18.17
130	SIN	SIN S D	Floating Point Sine	–	–	–	✓	✓	–	–	–	✓	✓	Section 18.18
131	COS	COS S D	Floating Point Cosine	–	–	–	✓	✓	–	–	–	✓	✓	Section 18.19
132	TAN	TAN S D	Floating Point Tangent	–	–	–	✓	✓	–	–	–	✓	✓	Section 18.20
133	ASIN	ASIN S D	Floating Point Arc Sine	–	–	–	✓	✓	–	–	–	–	–	Section 18.21
134	ACOS	ACOS S D	Floating Point Arc Cosine	–	–	–	✓	✓	–	–	–	–	–	Section 18.22
135	ATAN	ATAN S D	Floating Point Arc Tangent	–	–	–	✓	✓	–	–	–	–	–	Section 18.23
136	RAD	RAD S D	Floating Point Degrees to Radians Conversion	–	–	–	✓	✓	–	–	–	–	–	Section 18.24
137	DEG	DEG S D	Floating Point Radians to Degrees Conversion	–	–	–	✓	✓	–	–	–	–	–	Section 18.25
Data Operation 2														
140	WSUM	WSUM S D n	Sum of Word Data	–	–	–	✓	*5	–	–	–	–	–	Section 19.1
141	WTOB	WTOB S D n	WORD to BYTE	–	–	–	✓	*5	–	–	–	–	–	Section 19.2

FNC No.	Mnemonic	Symbol	Function	Applicable PLC										Reference
				FX3S	FX3G	FX3GC	FX3U	FX3UC	FX1S	FX1N	FX1NC	FX2N	FX2NC	
Data Operation 2														
142	BTOW	BTOW S D n	BYTE to WORD	–	–	–	✓	*5	–	–	–	–	–	Section 19.3
143	UNI	UNI S D n	4-bit Linking of Word Data	–	–	–	✓	*5	–	–	–	–	–	Section 19.4
144	DIS	DIS S D n	4-bit Grouping of Word Data	–	–	–	✓	*5	–	–	–	–	–	Section 19.5
147	SWAP	SWAP S	Byte Swap	–	–	–	✓	✓	–	–	–	✓	✓	Section 19.6
149	SORT2	SORT2 S m1 m2 D n	Sort Tabulated Data 2	–	–	–	✓	*5	–	–	–	–	–	Section 19.7
Positioning Control														
150	DSZR	DSZR S1 S2 D1 D2	DOG Search Zero Return	✓	✓	✓	✓	*4	–	–	–	–	–	Section 20.1
151	DVIT	DVIT S1 S2 D1 D2	Interrupt Positioning	–	–	–	✓	*2, 4	–	–	–	–	–	Section 20.2
152	TBL	TBL D n	Batch Data Positioning Mode	–	✓	✓	✓	*5	–	–	–	–	–	Section 20.3
155	ABS	ABS S D1 D2	Absolute Current Value Read	✓	✓	✓	✓	✓	✓	✓	✓	*1	*1	Section 20.4
156	ZRN	ZRN S1 S2 S3 D	Zero Return	✓	✓	✓	✓	*4	✓	✓	✓	–	–	Section 20.5
157	PLSV	PLSV S D1 D2	Variable Speed Pulse Output	✓	✓	✓	✓	✓	✓	✓	✓	–	–	Section 20.6
158	DRVI	DRVI S1 S2 D1 D2	Drive to Increment	✓	✓	✓	✓	✓	✓	✓	✓	–	–	Section 20.7
159	DRVA	DRVA S1 S2 D1 D2	Drive to Absolute	✓	✓	✓	✓	✓	✓	✓	✓	–	–	Section 20.8
Real Time Clock Control														
160	TCMP	TCMP S1 S2 S3 S D	RTC Data Compare	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 21.1
161	TZCP	TZCP S1 S2 S D	RTC Data Zone Compare	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 21.2
162	TADD	TADD S1 S2 D	RTC Data Addition	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 21.3
163	TSUB	TSUB S1 S2 D	RTC Data Subtraction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 21.4
164	HTOS	HTOS S D	Hour to Second Conversion	–	–	–	✓	✓	–	–	–	–	–	Section 21.5
165	STOH	STOH S D	Second to Hour Conversion	–	–	–	✓	✓	–	–	–	–	–	Section 21.6
166	TRD	TRD D	Read RTC data	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 21.7
167	TWR	TWR S	Set RTC data	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 21.8
169	HOUR	HOUR S D1 D2	Hour Meter	✓	✓	✓	✓	✓	✓	✓	✓	*1	*1	Section 21.9

FNC No.	Mnemonic	Symbol	Function	Applicable PLC										Reference
				FX3S	FX3G	FX3GC	FX3U	FX3UC	FX1S	FX1N	FX1NC	FX2N	FX2NC	
External Device														
170	GRY	GRY S D	Decimal to Gray Code Conversion	✓	✓	✓	✓	✓	–	–	–	✓	✓	Section 22.1
171	GBIN	GBIN S D	Gray Code to Decimal Conversion	✓	✓	✓	✓	✓	–	–	–	✓	✓	Section 22.2
176	RD3A	RD3A m1 m2 D	Read form Dedicated Analog Block	–	✓	✓	✓	✓	–	✓	✓	*1	*1	Section 22.3
177	WR3A	WR3A m1 m2 S	Write to Dedicated Analog Block	–	✓	✓	✓	✓	–	✓	✓	*1	*1	Section 22.4
Extension Function														
180	EXTR	EXTR S SD1 SD2 SD3	External ROM Function (FX2N/FX2NC)	–	–	–	–	–	–	–	–	*1	*1	–
Others														
182	COMRD	COMRD S D	Read Device Comment Data	–	–	–	✓	*5	–	–	–	–	–	Section 24.1
184	RND	RND D	Random Number Generation	–	–	–	✓	✓	–	–	–	–	–	Section 24.2
186	DUTY	DUTY n1 n2 D	Timing Pulse Generation	–	–	–	✓	*5	–	–	–	–	–	Section 24.3
188	CRC	CRC S D n	Cyclic Redundancy Check	–	–	–	✓	✓	–	–	–	–	–	Section 24.4
189	HCMOV	HCMOV S D n	High-speed Counter Move	–	–	–	✓	*4	–	–	–	–	–	Section 24.5
Block Data Operation														
192	BK+	BK+ S1 S2 D n	Block Data Addition	–	–	–	✓	*5	–	–	–	–	–	Section 25.1
193	BK-	BK- S1 S2 D n	Block Data Subtraction	–	–	–	✓	*5	–	–	–	–	–	Section 25.2
194	BKCMP=	BKCMP= S1 S2 D n	Block Data Compare (S1) = (S2)	–	–	–	✓	*5	–	–	–	–	–	Section 25.3
195	BKCMP>	BKCMP> S1 S2 D n	Block Data Compare (S1) > (S2)	–	–	–	✓	*5	–	–	–	–	–	Section 25.3
196	BKCMP<	BKCMP< S1 S2 D n	Block Data Compare (S1) < (S2)	–	–	–	✓	*5	–	–	–	–	–	Section 25.3
197	BKCMP<>	BKCMP<> S1 S2 D n	Block Data Compare (S1) ≠ (S2)	–	–	–	✓	*5	–	–	–	–	–	Section 25.3
198	BKCMP<=	BKCMP<= S1 S2 D n	Block Data Compare (S1) ≤ (S2)	–	–	–	✓	*5	–	–	–	–	–	Section 25.3
199	BKCMP>=	BKCMP>= S1 S2 D n	Block Data Compare (S1) ≥ (S2)	–	–	–	✓	*5	–	–	–	–	–	Section 25.3
Character String Control														
200	STR	STR S1 S2 D	BIN to Character String Conversion	–	–	–	✓	*5	–	–	–	–	–	Section 26.1
201	VAL	VAL S D1 D2	Character String to BIN Conversion	–	–	–	✓	*5	–	–	–	–	–	Section 26.2

FNC No.	Mnemonic	Symbol	Function	Applicable PLC										Reference
				FX3S	FX3G	FX3GC	FX3U	FX3UC	FX1S	FX1N	FX1NC	FX2N	FX2NC	
Character String Control														
202	$+	$+ S1 S2 D	Link Character Strings	–	–	–	✓	✓	–	–	–	–	–	Section 26.3
203	LEN	LEN S D	Character String Length Detection	–	–	–	✓	✓	–	–	–	–	–	Section 26.4
204	RIGHT	RIGHT S D n	Extracting Character String Data from the Right	–	–	–	✓	✓	–	–	–	–	–	Section 26.5
205	LEFT	LEFT S D n	Extracting Character String Data from the Left	–	–	–	✓	✓	–	–	–	–	–	Section 26.6
206	MIDR	MIDR S1 D S2	Random Selection of Character Strings	–	–	–	✓	✓	–	–	–	–	–	Section 26.7
207	MIDW	MIDW S1 D S2	Random Replacement of Character Strings	–	–	–	✓	✓	–	–	–	–	–	Section 26.8
208	INSTR	INSTR S1 S2 D n	Character string search	–	–	–	✓	*5	–	–	–	–	–	Section 26.9
209	$MOV	$MOV S D	Character String Transfer	–	–	–	✓	✓	–	–	–	–	–	Section 26.10
Data Operation 3														
210	FDEL	FDEL S D n	Deleting Data from Tables	–	–	–	✓	*5	–	–	–	–	–	Section 27.1
211	FINS	FINS S D n	Inserting Data to Tables	–	–	–	✓	*5	–	–	–	–	–	Section 27.2
212	POP	POP S D n	Shift Last Data Read [FILO Control]	–	–	–	✓	✓	–	–	–	–	–	Section 27.3
213	SFR	SFR D n	Bit Shift Right with Carry	–	–	–	✓	✓	–	–	–	–	–	Section 27.4
214	SFL	SFL D n	Bit Shift Left with Carry	–	–	–	✓	✓	–	–	–	–	–	Section 27.5
Data Comparison														
224	LD=	LD= S1 S2	Load Compare (S1) = (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.1
225	LD>	LD> S1 S2	Load Compare (S1) > (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.1
226	LD<	LD< S1 S2	Load Compare (S1) < (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.1
228	LD<>	LD<> S1 S2	Load Compare (S1) ≠ (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.1
229	LD<=	LD<= S1 S2	Load Compare (S1) ≤ (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.1
230	LD>=	LD>= S1 S2	Load Compare (S1) ≥ (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.1
232	AND=	AND= S1 S2	AND Compare (S1) = (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.2
233	AND>	AND> S1 S2	AND Compare (S1) > (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.2

FNC No.	Mnemonic	Symbol	Function	FX3S	FX3G	FX3GC	FX3U	FX3UC	Applicable PLC					Reference
									FX1S	FX1N	FX1NC	FX2N	FX2NC	
Data Comparison														
234	AND<	AND< S1 S2	AND Compare (S1) < (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.2
236	AND<>	AND<> S1 S2	AND Compare (S1) ≠ (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.2
237	AND<=	AND<= S1 S2	AND Compare (S1) ≤ (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.2
238	AND>=	AND>= S1 S2	AND Compare (S1) ≥ (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.2
240	OR=	OR= S1 S2	OR Compare (S1) = (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.3
241	OR>	OR> S1 S2	OR Compare (S1) > (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.3
242	OR<	OR< S1 S2	OR Compare (S1) < (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.3
244	OR<>	OR<> S1 S2	OR Compare (S1) ≠ (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.3
245	OR<=	OR<= S1 S2	OR Compare (S1) ≤ (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.3
246	OR>=	OR>= S1 S2	OR Compare (S1) ≥ (S2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Section 28.3
Data Table Operation														
256	LIMIT	LIMIT S1 S2 S3 D	Limit Control	–	–	–	✓	✓	–	–	–	–	–	Section 29.1
257	BAND	BAND S1 S2 S3 D	Dead Band Control	–	–	–	✓	✓	–	–	–	–	–	Section 29.2
258	ZONE	ZONE S1 S2 S3 D	Zone Control	–	–	–	✓	✓	–	–	–	–	–	Section 29.3
259	SCL	SCL S1 S2 D	Scaling (Coordinate by Point Data)	–	–	–	✓	✓	–	–	–	–	–	Section 29.4
260	DABIN	DABIN S D	Decimal ASCII to BIN Conversion	–	–	–	✓	*5	–	–	–	–	–	Section 29.5
261	BINDA	BINDA S D	BIN to Decimal ASCII Conversion	–	–	–	✓	*5	–	–	–	–	–	Section 29.6
269	SCL2	SCL2 S1 S2 D	Scaling 2 (Coordinate by X/Y Data)	–	–	–	✓	*3	–	–	–	–	–	Section 29.7
External Device Communication														
270	IVCK	IVCK S1 S2 D n	Inverter Status Check	✓	*6	✓	✓	✓	–	–	–	–	–	Section 30.1

FNC No.	Mnemonic	Symbol	Function	Applicable PLC										Reference
				FX3S	FX3G	FX3GC	FX3U	FX3UC	FX1S	FX1N	FX1NC	FX2N	FX2NC	
External Device Communication														
271	IVDR	IVDR S1 S2 S3 n	Inverter Drive	✓	*6	✓	✓	✓	–	–	–	–	–	Section 30.2
272	IVRD	IVRD S1 S2 D n	Inverter Parameter Read	✓	*6	✓	✓	✓	–	–	–	–	–	Section 30.3
273	IVWR	IVWR S1 S2 S3 n	Inverter Parameter Write	✓	*6	✓	✓	✓	–	–	–	–	–	Section 30.4
274	IVBWR	IVBWR S1 S2 S3 n	Inverter Parameter Block Write	–	–	–	✓	✓	–	–	–	–	–	Section 30.5
275	IVMC	IVMC S1 S2 S3 D n	Inverter Multi Command	✓	*8	✓	*9	*9	–	–	–	–	–	Section 30.6
276	ADPRW	ADPRW S S1 S2 S3 S4/D	MODBUS Read / Write	✓	*10	✓	*11	*11	–	–	–	–	–	Section 30.7
Data Transfer 3														
278	RBFM	RBFM m1 m2 D n1 n2	Divided BFM Read	–	–	–	✓	*5	–	–	–	–	–	Section 31.1
279	WBFM	WBFM m1 m2 S n1 n2	Divided BFM Write	–	–	–	✓	*5	–	–	–	–	–	Section 31.2
High-speed Processing 2														
280	HSCT	HSCT S1 m S2 D n	High-speed Counter Compare With Data Table	–	–	–	✓	✓	–	–	–	–	–	Section 32.1
Extension File Register Control														
290	LOADR	LOADR S n	Load From ER	–	✓	✓	✓	✓	–	–	–	–	–	Section 33.1
291	SAVER	SAVER S m D	Save to ER	–	–	–	✓	✓	–	–	–	–	–	Section 33.2
292	INITR	INITR S n	Initialize R and ER	–	–	–	✓	✓	–	–	–	–	–	Section 33.3
293	LOGR	LOGR S m D1 n D2	Logging R and ER	–	–	–	✓	✓	–	–	–	–	–	Section 33.4
294	RWER	RWER S n	Rewrite to ER	–	✓	✓	✓	*3	–	–	–	–	–	Section 33.5
295	INITER	INITER S n	Initialize ER	–	–	–	✓	*3	–	–	–	–	–	Section 33.6
FX3U-CF-ADP Applied Instructions														
300	FLCRT	FLCRT S1 S2 S3 n	File create / check	–	–	–	*7	*7	–	–	–	–	–	Section 34.1
301	FLDEL	FLDEL S1 S2 n	File delete / CF card format	–	–	–	*7	*7	–	–	–	–	–	Section 34.2
302	FLWR	FLWR S1 S2 S3 D n	Data write	–	–	–	*7	*7	–	–	–	–	–	Section 34.3
303	FLRD	FLRD S1 S2 D1 D2 n	Data read	–	–	–	*7	*7	–	–	–	–	–	Section 34.4
304	FLCMD	FLCMD S n	FX3U-CF-ADP command	–	–	–	*7	*7	–	–	–	–	–	Section 34.5
305	FLSTRD	FLSTRD S D n	FX3U-CF-ADP status read	–	–	–	*7	*7	–	–	–	–	–	Section 34.6