Ladder Logic Instruction List

(sec)

Class	Type	Inst.	Symbol	Speed (ON/OFF)
Contact Input	Normally Open	NO	⊣ ⊢	0.3/0.3
	Normally Closed	NC	⊣/⊢	0.3/0.3
	Positive Transition	PT	⊣P⊢	–/1.3
	Negative Transition	NT	⊣N⊢	–/1.5
Coil Output	Output Coil	OUT	–◯–	3.0/3.0
	Retention Coil	M	–Ⓜ–	3.0/3.0
	Negated Coil	NEG	–⊘–	3.0/3.0
	Negated Retention Coil	NM	–⊘Ⓜ–	3.0/3.0
	Unlatch Coil	RST	–Ⓡ–	1.1/1.1
	Unlatch Retention Coil	RM	–ⓇⓂ–	1.0/1.0
	Latch Coil	SET	–Ⓢ–	1.0/1.0
	Latch Retention Coil	SM	–ⓈⓂ–	1.1/1.1
Bit Arithmetic Instructions	Logical Multiply	AND	AND EN DN A C B	3.6/0.3
	Bit Negation	NOT	NOT EN DN A C	2.4/0.3
	Logical Add	OR	OR EN DN A C B	13.6/9.1
	Exclusive Logical Add	XOR	XOR EN DN A C B	3.6/0.3
Movement Instructions	Block Move	BMOV	BMOV EN DN A E B C D	18.0/0.3
	File Move	FMOV	FMOV EN DN A D B C	19.6/0.3
	Move	MOV	MOV EN DN IN OUT	2.3/0.3
	Rotate Left	ROL	ROL EN DN A C N	6.1/0.3
	Rotate Right	ROR	ROR EN DN A C N	6.3/0.3
	Shift Left	SHL	SHL EN DN A C N	6.0/0.3
	Shift Right	SHR	SHR EN DN A C N	6.0/0.3
Mathematical Instructions	Add	ADD	ADD EN DN A C B	4.8/0.3
	Subtract	SUB	SUB EN DN A C B	4.8/0.3
	Multiply	MUL	MUL EN DN A C B	4.8/0.3
	Divide	DIV	DIV EN DN A C B	5.2/0.3

(sec)

Class	Type	Inst.	Symbol	Speed (ON/OFF)
Mathematical Instructions	Residual Processing	MOD	MOD EN DN A C B	6.4/0.3
	BCD Conversion	BCD	BCD EN DN A B	23.5/2.7
	Binary Conversion	BIN	BIN EN DN A B	18.3/2.7
	Decrement	DEC	DEC EN DN A	3.5/0.3
	Increment	INC	INC EN DN A	3.5/0.3
	Equal To (=)	EQ	EQ EN Q A N	2.8/0.3
	Greater Than (>)	GT	GT EN Q A C B	2.8/0.3
	Greater or Equal To (>=)	GE	GE EN Q A B	2.8/0.3
	Less Than (<)	LT	LT EN Q A B	2.8/0.3
	Less or Equal To (<=)	LE	LE EN Q A B	2.8/0.3
	Not Equal (<>)	NE	NE EN Q A B	2.8/0.3
Timer/Counter Instructions	Timer On-Delay	TON	TON IN Q PT ET	16.9/17.7
	Timer Off-Delay	TOF	TOF IN Q PT ET	20.8/14.4
	Timer Pulse	TP	TP IN Q PT ET	5.2/4.0
	Counter Up	CTU	CTU CE Q R PV CV	22.3/13.5
	Counter Down	CTD	CTD CE Q R PV CV	8.4/4.8
	Counter Up Down	CTUD	CTUD CE Q UP QU R QD PV CV	21.1/18.8
Jump/Branch	Jump	JMP	–>>LabelName	—
	Jump to Subroutine	JSR	–>>SubroutineName<<	—
	Return from Subroutine	RET	–<RETURN>–I	—

* All instruction speeds given here are for your reference only. Instruction execution speed can vary slightly from the above value, depending on program and memory conditions.

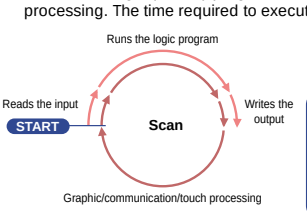
Logic Execution Speed (for reference only)

Approx. 1 Kstep	Approx. 3 Kstep	Approx. 5 Kstep
4ms	12ms	20ms

As a guideline, the maximum program capacity is approximately 6K steps.

LogiTouch Scan Time (Program Execution Cycle)

As shown in this diagram, the LogiTouch scan time consists of the time to execute the logic (ladder) program and the time for graphic/communication/touch processing. The time required to execute the logic program is called "logic time."



Example
Scan time: 10ms
Logic time: 4ms (from the "Logic Execution Speed" reference above)
Graphic/communication/touch processing time: 10-4 = 6ms

- **Read** Reads all input from the I/O driver.
- **Run** Executes the logic program.
- **Write** Writes all output to the I/O driver.
- **Graphic Phase** Screen refresh, communication and touch processing (including SIO communication)

*The scan time is set by the operator, but it is automatically adjusted every 64 scans and includes an error of approximately 0.2%.

Connectable Controllers

Temperature controllers, inverters and other equipment with communication functions can be connected via SIO I/F.

Type C

Temperature Controllers*1

Manufacturer	Series Name	Model
Fuji	Microcontroller X	PXR4 ▪▪▪▪-▪▪M00
		PXR4 ▪▪▪▪-▪▪V00
Omron	N Series Controller	E5EN - ▪▪▪▪▪-FLK
		E5CN - ▪▪▪▪▪-FLK
		E5GN - ▪▪▪▪▪-FLK
		E5AN - ▪▪▪▪▪-FLK
RKC	CB Series	CB100 Z - 1021
		CB400 Z - 1021
		CB500 Z - 1021
		CB700 Z - 1021
		CB900 Z - 1021
	SR-Mini	H-PCP-A Z-1021
Shinko Technos	C	CPT-20A
	FC	FCD-13A▪▪,C
		FCD-13A▪▪,C5
		FCD-15A▪▪,C
		FCD-15A▪▪,C5
		FCR-13A▪▪,C
		FCR-13A▪▪,C5
		FCR-15A▪▪,C
		FCR-15A▪▪,C5
	FIR	FIR-201-M▪▪,C
		FIR-201-M▪▪,C5
	GC	GCS-300▪▪,C5
	FCL	FCL-13A▪▪,C5
	PC-900	PC-935▪▪,C
		PC-935▪▪,C5
		PC-955▪▪,C
		PC-955▪▪,C5
Toho	TTM-004	TTM-004 - ▪ - A▪▪▪
	TTM-X04	TTM-X04 - ▪ - ▪▪▪▪
	TTM-00B	TTM-00B - ▪ - ▪▪▪▪
	TTM-10L	TTM-10L - ▪ - ▪ - ▪
	TTM-100B	TTM-100B4 - ▪▪ - ▪▪▪▪ - ▪▪▪
		TTM-100B8 - ▪▪ - ▪▪▪▪ - ▪▪▪
	TTM-110 Series	TTM-114 - ▪ - ▪▪ - ▪▪▪▪▪▪▪ - ▪
		TTM-115 - ▪ - ▪▪ - ▪▪▪▪▪▪ - ▪
		TTM-117 - ▪ - ▪▪ - ▪▪▪▪▪▪ - ▪
		TTM-119 - ▪ - ▪▪ - ▪▪▪▪▪▪ - ▪
	TTM-110B	TTM-110B - ▪ - ▪▪ - ▪▪▪▪▪▪ - ▪
	TTM-120 Series	TTM-124 - ▪ - ▪▪ - ▪▪▪▪▪▪ - ▪
		TTM-125 - ▪ - ▪▪ - ▪▪▪▪▪▪ - ▪
		TTM-127 - ▪ - ▪▪ - ▪▪▪▪▪▪ - ▪
		TTM-129 - ▪ - ▪▪ - ▪▪▪▪▪▪ - ▪
	TTM-300 Series	TTM-304 - ▪ - ▪N - ▪▪▪▪ - ▪
		TTM-305 - ▪ - ▪N - ▪▪▪▪ - ▪
		TTM-309 - ▪ - ▪N - ▪▪▪▪ - ▪
	TTM-300B	TTM-300B - ▪ - ▪N - ▪▪▪▪ - ▪
	TTM-1020 Series	TTM-1520 - ▪▪ - ▪▪ - ▪▪▪ - ▪
		TTM-1521 - ▪▪ - ▪▪ - ▪▪▪ - ▪
		TTM-1522 - ▪▪ - ▪▪ - ▪▪▪ - ▪
		TTM-1523 - ▪▪ - ▪▪ - ▪▪▪ - ▪
		TTM-1524 - ▪▪ - ▪▪ - ▪▪▪ - ▪
		TTM-1525 - ▪▪ - ▪▪ - ▪▪▪ - ▪
		TTM-1920 - ▪▪ - ▪▪ - ▪▪▪ - ▪
		TTM-1921 - ▪▪ - ▪▪ - ▪▪▪ - ▪
		TTM-1922 - ▪▪ - ▪▪ - ▪▪▪ - ▪
		TTM-1923 - ▪▪ - ▪▪ - ▪▪▪ - ▪
		TTM-1924 - ▪▪ - ▪▪ - ▪▪▪ - ▪
		TTM-1925 - ▪▪ - ▪▪ - ▪▪▪ - ▪
Yamatake	SDC	SDC20, SDC21
		SDC30, SDC31
		SDC40A, SDC40B
		SDC40G
	DMC	DMC10
Yokogawa	UT2000 Series	UT2400 - ▪
		UT2800 - ▪
Yokogawa M&C	GREEN Series	UT320 - ▪1
		UT350 - ▪1
		UT420 - ▪7
		UT450 - ▪1
		UT450 - ▪2

Inverters*2

Manufacturer	Series Name	Model
Fuji	FRENICS5000G11S	FRN▪▪G11S-2
		FRN▪▪G11S-4
	FRENICS5000P11S	FRN▪▪P11S-2
		FRN▪▪P11S-4
	FVR-E11S	FVR▪▪▪E11S-2
		FVR▪▪▪E11S-7
	FVR-C11S	FVR▪▪▪C11S-2
		FVR▪▪▪C11S-6
		FVR▪▪▪C11S-7
Mitsubishi	FREQROL-A500	FR-A520 - ▪K
		FR-A540 - ▪K
	FREQROL-A500L	FR-A520L - ▪K
		FR-A540L - ▪K
	FREQROL-E500	FR-E520 - ▪K
		FR-E540 - ▪K
		FR-E520S - ▪K
		FR-E510W - ▪K
	FREQROL-F500	FR-F520 - ▪K
		FR-F540 - ▪K
	FREQROL-F500L	FR-F520L - ▪K
		FR-F540L - ▪K
	FREQROL-S500	FR-S510W - ▪K-R
		FR-S520 - ▪K-R
		FR-S520S - ▪K-R
	FREQROL-B,B3	FR-B - ▪K
		FR-B3 - ▪▪▪K

Memory Link (General-Purpose Protocol)*3

*1 The ▪ indication varies depending on the temperature controller functions.
*2 The ▪ value in the inverter model number indicates the capacity of the standard operating motor.
*3 Communication is possible via the LogiTouch internal memory regardless of the external controller (PC, single-board controller, etc.).