ML50 Compact Logic Controller

AUTOMATION
MADE EASY & COMPACT

Honeywell Solutions for Machine Automation

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MasterLogic 50 Series **MAIN UNIT**

Modular "SU" type(MLI-D_ _ SU) and Economic "E"(MLI-D_ _ E)

General specification

	Item	Descriptions				Standard
1	Ambient	0~55℃				
2	Storage	-25~+75℃				
3	Ambient humidity	5~95%RH (Non-condensing)				
4	Storage humidity	5~95%RH (Non-condensing)				
5	Vibration resistance	Occasional vibration			10 times each direction (X, Y and Z)	IEC61131-2
		Frequency	Acceleration	Pulse width		
		10 ≤ f < 57Hz	-	0.075mm		
		57 ≤ f < 150Hz	9.8m/s²(1G)	-		
		Continuous vibration				
		Frequency	Acceleration	Pulse width		
		10 ≤ f < 57Hz	-	0.035mm		
		57 ≤ f < 150Hz	4.9m/s²(0.5G)	-		
6	Shock resistance	- Peak Acceleration : 147m/s₂(15G) - Duration : 11ms - Pulse waveform : Half-sine, 3times each direction per each axis				IEC61131-2
7	Noise resistance	Square wave impulse noise	±1,500V			Internal Standard
		Electrostatic discharge	4kV			IEC61131-2 IEC61000-4-2
		Radiated electromagnetic	27 ~ 500MHz, 10V/m			IEC61131-2 IEC61000-4-3
		Fast transient/ Burst noise	Main unit	Expansion module		IEC61131-2 IEC61000-4-4
			2kV	1kV		
8	Operating Ambience	Free from corrosive gasses and excessive dust				
9	Altitude	Up to 2,000m				
10	Pollution level *1	Less than equal to 2				
11	Cooling	Air-cooling				

*1 Pollution level indicates the degree to which conductive material is generated in the environment where the equipment is used. Pollution level 2 is the condition that only non-conductive pollution occurred but temporary conductivity may be produced due to condensing.

Performance

Item		Model							
		MLI-DN20SU MLI-DR20SU	MLI-DN30SU MLI-DR30SU	MLI-DN40SU MLI-DR40SU	MLI-DN60SU MLI-DR60SU	MLI-DN10E MLI-DR10E	MLI-DN14E MLI-DR14E	MLI-DN20E MLI-DR20E	MLI-DN30E MLI-DR30E
Control method		Repetitive, cyclic, interrupt, constant scan				Repetitive, cyclic			
I/O control mode		Refresh mode (Batch processing by scan synchronization)							
		Direct mode by instruction							
Programming language		Ladder Diagram(LD), Sequential Function Chart(SFC), Instruction List(IL), Structured Text(ST)							
Processing speed		94ns /Step (for basic instruction)				240ns /Step			
Program capacity		200kB(15k steps)				50kB(4k steps)			
Main module I/O points		20 points	30 points	40 points	60 points	10 points	14 points	20 points	30 points
Max. I/O points		244 points	254 points	264 points	284 points	14 points	18 points	28 points	38 points
Data memory	A	16KB (Max. 16KB retain setting available)				8KB (Max. 8KB retain setting available)			
	I	2KB(%IX 15.15.63)				256 Byte (%IX15.15.63)			
	Q	2KB (%QX 15.15.63)				256 Byte (%QX15.15.63)			
	M	8KB (Max. retain setting available)				4KB			
	R	20KB (1 block)				10KB (1 block)			
	W	20KB, Same area as 'R'				10KB			
	F	2KB, System flag				768 bytes			
	K	8KB, Built-in special flag				5,120 bytes			
	L	4KB, High speed link flag				2,560 bytes			
	U	1KB, Analog Flag				704 bytes			
Flash		20KB (2 block), R device used				-			
Number of program		128				128			
Operation mode		RUN, STOP, DEBUG				RUN, STOP, DEBUG			
Self diagnosis		Operation delay monitoring, memory error, I/O error, battery error, power error, etc.				Operation delay monitoring, memory error, I/O error, etc			
Program port		RS-232C (Loader) Remote connection using RS-232C, RS-485				1ch RS-232C (Loader)			
Data retention at power failure		Latch range setting at Basic parameter				Latch range setting at Basic parameter			
Built-in function		RS-232C, RS485, High-speed counter, PID control, Pulse catch, Input filter, Position control				RS-232C or RS485, High-speed counter, Pulse catch, Input filter *2			
		External interrupt, Positioning *1				-			
Internal current consumption		252mA / 478mA	270mA / 626mA	288mA / 684mA	340mA / 942mA	180 / 250 mA	190 / 315mA	200 / 355 mA	210 / 485 mA
Weight(g)		475g (1.05lb)	474g (1.045lb)	578g (1.27lb)	636g (1.40lb)	313(0.69lb)	315(0.694lb)	418(0.92lb)	423(0.93lb)
		514g (1.13lb)	528g (1.16lb)	594g (1.31lb)	804g (1.77lb)	330((0.72lb)	340(0.75lb)	450(0.992lb)	465(1.03lb)

*1. MLC-DR_H or MLI-DR_H are not supported.
*2. Not allowable to use RS232C and RS485 at the same time.

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MasterLogic 50 Series **INPUT & OUTPUT**

Main Unit for MLI "SU", "E"

Digital Input | DC24V

Model / Specification		DC24V							
		MLI-DN10E MLI-DR10E	MLI-DN14E MLI-DR14E	MLI-DN20E MLI-DR20E	MLI-DN30E MLI-DR30E	MLI-DN20SU MLI-DR20SU	MLI-DN30SU MLI-DR30SU	MLI-DN40SU MLI-DR40SU	MLI-DN60SU MLI-DR60SU
Input points		6 points	8 points	12 points	18 points	12points	18points	24points	36points
Insulation method		Photo-coupler insulation							
Rated input voltage/current		DC24V / 4mA (Contact 00~03 : 7mA)				DC24V / 4mA (Contact 0~7 : 9mA)			
Operation voltage range		DC20.4~28.8V (Ripple rate < 5%)							
On voltage/On current		DC19V or more / 3mA or more							
Off voltage/Off current		DC6V or less / 1mA or less							
Input resistance		5.6kΩ (Contact 00~03 : 3.3kΩ)				5.6kΩ (P00~P07 : 2.kΩ)			
Response time	Off→On	1 / 3 / 5 / 10 / 20 / 70 / 100ms (setting by CPU parameter) Initial value : 3ms							
	On→Off								
Insulation pressure		AC560Vrms / 3 Cycle (altitude 2000m)							
Insulation resistance		10MΩ or more by megger							
COMMON method		6 points	8 points	12 points	18 points	12points	18points	24points	36points
Proper cable size		Twisted wire 0.3 mm2							
Operation indication		Input On LED On							
External connection method		14 points connector		24 points connector		24 points connecting connector		42 points connecting connector	

*Connecting method : M3 x 6 screws

Digital Output | Relay

Specification / Model		Relay							
		MLI-DR10E	MLI-DR14E	MLI-DR20E	MLI-DR30E	MLI-DR20SU	MLI-DR30SU	MLI-DR40SU	MLI-DR60SU
Output point		4 points	6 points	8 points	12 points	8points	12points	16points	24points
Insulation method		Relay insulation							
Rated load voltage/current		DC24V 2A(resistive load)/AC220V 2A(COSΨ = 1), 5A/COM							
Min. load voltage/current		DC5V/1mA							
Max. load voltage/current		AC250V or DC125V / 2A							
Off leakage current		0.1mA (AC220V, 60Hz)							
Max. on/off frequency		3,600 times/hr							
Surge absorber		None							
Service life	Mechanical	20 million times or more							
	Electrical	Rated load voltage/current 100,000 times or more							
		AC200V/1.5A, AC240V/1A (COSΨ = 0.7) 100,000 times or more							
		AC200V/1A, AC240V/0.5A (COSΨ = 0.35) 100,000 times or more							
		DC24V/1A, DC100V/0.1A (L / R = 7ms) 100,000 times or more							
Response time	Off→On	10 ms or less							
	On→Off	12 ms or less							
COMMON method		2 points/COM	4 points/COM			4 points/COM			
Operation indicator		Output On, LED On							
External connection method		24-pin terminal block connector				24-pin terminal block connector		30 pin teminal	42 pin terminal

Digital Output | Open Collector

Specification / Model		Open Collector							
		MLI-DN10E	MLI-DN14E	MLI-DN20E	MLI-DN30E	MLI-DN20SU	MLI-DN30SU	MLI-DN40SU	MLI-DN60SU
Output point		4 points	6 points	8 points	12 points	8points	12points	16points	24points
Insulation method		Photo-coupler insulation							
Rated load voltage		DC 12/24V							
Load voltage range		DC 10.2 ~ 26.4V							
Max. Load current		0.5A/1 point, 2A / 1COM				0.5A/1 point, 2A / 1COM			
Off leakage current		0.1mA or less							
Max. voltage drop(On)		DC 0.4V							
Surge absorber		Zener diode							
Response time	Off→On	1mA or less							
	On→Off	1ms or less (Rated load, resistive load)							
COMMON Method		4 points/COM				4 points/COM			
External power supply	Voltage	DC12/24V ±10% (Ripple voltage ≤4 Vp-p)							
	Current	25mA or less (DC 24V connection)				25mA or less (DC 24V connection)			
Operation indication		Output On, LED On							
External connection method		14-pin connector		24-pin connector		24-pin connector		30-pin connector	42-pin connector

*Connecting method : M3 x 6 screws

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MasterLogic 50 Series **Product List**

Product List

Item	Model	Descriptions
Non-IEC	MLC-DN32H	100~240Vac, 16 points DC input, 16 points TR output
	MLC-DR32H	100~240Vac, 16 points DC input, 16 points Relay output
	MLC-DN64H	100~240Vac, 32 points DC input, 32 points TR output
Block type (High Performance)	MLC-DR64H	100~240Vac, 32 points DC input, 32 points Relay output
	MLC-DN32H/DC	24Vdc, 16 points DC input, 16 points TR output
	MLC-DR32H/DC	24Vdc, 16 points DC input, 16 points Relay output
	MLC-DN64H/DC	24Vdc, 32 points DC input, 32 points TR output
	MLC-DR64H/DC	24Vdc, 32 points DC input, 32 points Relay output
Non-IEC	MLM-DN16S	24Vdc, 8 points DC24V input, 8 points TR output
Modular type	MLM-DR16S	24Vdc, 8 points DC24V input, 8 points Relay output
	MLM-DN32S	24Vdc, 16 points DC24V input, 16 points TR output
IEC	MLI-DN32H	100~240Vac, 16 points DC input, 16 points TR output
	MLI-DR32H	100~240Vac, 16 points DC input, 16 points Relay output
Block type (High Performance)	MLI-DN64H	100~240Vac, 32 points DC input, 32 points TR output
	MLI-DR64H	100~240Vac, 32 points DC input, 32 points Relay output
	MLI-DR32H/D1	DC 12/24V, 16-point DC input, 16-point Relay output
	MLI-DR64H/D1	DC 12/24V, 32-point DC input, 32-point Relay output
IEC	MLI-DR10E	100~240Vac, 6 points DC input, 4 points Relay output
	MLI-DR14E	100~240Vac, 8 points DC input, 6 points Relay output
	MLI-DR20E	100~240Vac, 12 points DC input, 8 points Relay output
	MLI-DR30E	100~240Vac, 18 points DC input, 12 points Relay output
	MLI-DN10E	100~240Vac, 6 points DC input, 4 points TR output(Sink)
	MLI-DN14E	100~240Vac, 8 points DC input, 6 points TR output(Sink)
Block type "E" (Economic type)	MLI-DN20E	100~240Vac, 12 points DC input, 8 points TR output(Sink)
	MLI-DN30E	100~240Vac, 18 points DC input, 12 points TR output(Sink)
	MLI-DP10E	100~240Vac, 6 points DC input, 4 points TR output(Source)
	MLI-DP14E	100~240Vac, 8 points DC input, 6 points TR output(Source)
	MLI-DP20E	100~240Vac, 12 points DC input, 8 points TR output(Source)
	MLI-DP30E	100~240Vac, 18 points DC input, 12 points TR output(Source)
IEC	MLI-DN20SU	100~240Vac, 12 points DC input, 8 points TR output(Sink)
	MLI-DR20SU	100~240Vac, 12 points DC input, 8 points Relay output
	MLI-DN30SU	100~240Vac, 18 points DC input, 12 points TR output(Sink)
	MLI-DR30SU	100~240Vac, 18 points DC input, 12 points Relay output
Block type "SU" (Standard type)	MLI-DN40SU	100~240Vac, 24 points DC input, 16 points TR output(Sink)
	MLI-DR40SU	100~240Vac, 24 points DC input, 16 points Relay output
	MLI-DN60SU	100~240Vac, 36 points DC input, 24 points TR output(Sink)
	MLI-DR60SU	100~240Vac, 36 points DC input, 24 points Relay output