



# ELC-MC01

**Motion Control Unit** Instruction Sheet

# M WARNING

- This Instruction Sheet only provides descriptions for installation, wiring and trial run. For further infromation, please refer to special module of ELC Application Manual.
- ٠ Do NOT touch terminals when power on. Please must power OFF before wiring.
- This is an OPEN TYPE ELC. The ELC should be kept in an enclosure away from airborne dust, humidity, ٠ electric shock risk and vibration. Also, it is equipped with protective methods such as some special tools or keys to open the enclosure in order to prevent hazard to users or damage the ELC.
- Do NOT connect the AC input power to any of the input/output terminals, or it may damage the ELC. Check all the wiring prior to power up.
- Warning Do not disconnect while circuit is live unless area is known to be non-hazardous.
- Power, input and output (I/O) wiring must be in accordance with Class 1, Div. 2 wiring methods Article • 501-10(B)(1) of the National Electrical Code.
- Suitable for use in Class 1, Division 2, Groups A, B, C, D or Non-Hazardous locations only.
- ٠ Warning - Explosion hazard - Substitution of components may impair suitability for Class 1, Division 2.
- Warning - Explosion hazard - Do not disconnect equipment unless power has been switched off or the area is known to be Non-Hazardous.

# 2

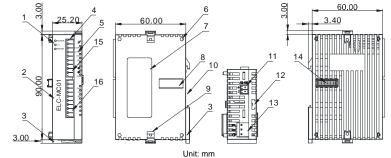
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# INTRODUCTION

### 2.1 Model Description and Peripherals

MC01 (positioning unit) is mainly applied to the speed/position control of step/servo driven system. The maximum output pulse can be up to 200 KPPS, and built-in various route control modes. The EATON ELC PB/PC/PH/PA series can read/write MC01 via FROM/TO instrucitons. There are 49 CRs (Control Register) with 16-bit for each register in MC01. The 32-bits data is composed of 2 continuous CR number.

# 2.2 Product Profile and Outline (LED Indicator and Terminal Block)



t:	mm	

1.	Status Indicator (Power, L.V. and ERROR)	2.	Model name	Upper Row	Lower Row
3.	DIN rail clip	4.	Terminal	S/S	A-
5.	Terminal layout	6.	Mounting hole	START	B+
7.	Nameplate	8.	Extension port to connect extension module	STOP	B-
9.	Extension unit/module clip	10.	DIN rail track (35mm)	DOG	CLR+
11.	RS-485 communication port	12.	Clip for combining extension modules	LSP	CLR-
13.	Power input	14.	Extension port to connect extension module	LSN	FP+
15.	Upper row terminals	16.	Lower row terminals	PG0+	FP-
				PG0-	RP+
				A+	RP-

# 2.3 LED Display

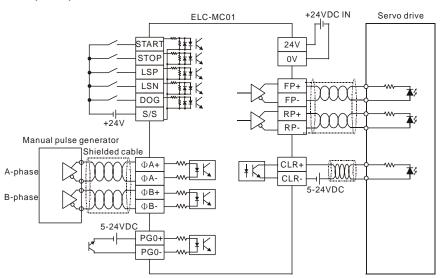
POWER	: Power indicator, +5V internal power	START	Start input
LV	: Low voltage indicator	STOP	: Stop input
	lit when external input power is lower than 19.5V	DOG	: DOG (near point signal) input
ERROR	: Error indicator (ON/OFF blinking).	FP	: CW pulse output
	It will blink when CR#39 is not 0.	RP	: CCW pulse output
LSP	: Right limit input indicator	ΦА	: A-phase input of manual pulse generator
LSN	: Left limit input indicator	ΦВ	: B-phase input of manual pulse generator
PG0	: Zero signal input indicator	CLR	: Output clear signal

# 2.4 Input/Output Terminal

Description	Terminal name	Content	Response
Power supply	+24V, 0V	Power input/DC24V (-15~+20%) Current consumption 70±10mA; Startup peak current 1.3 A	-
	START	Start input terminal	4ms/12ms
Input	STOP	Stop input terminal	4ms
-	LSP / LSN	Limit Stroke of right/left limit	1ms

	ΦΑ+, ΦΑ-	A-phase terminal (+, -) of manual pulse generator input (line driver input)	200KHz
	Φ <b>B+</b> , Φ <b>B-</b>	B-phase terminal (+, -) of manual pulse generator input (line driver input)	200KHz
	PG0+, PG0-	Zero signal input terminal +, - (line driver input)	4ms
Input	DOG	Offers two different functions depending on operation mode. (1) It is near-point signal in zero return mode. (2) It is start signal on interrupt 1st or interrupt 2nd speed mode.	1ms
	S/S	Signal common terminal of these Inputs (START, STOP, DOG, LSP, LSN)	-
	CLR+, CLR-	Clear signal (clear signal of internal error counter for Servo drive)	4ms
Output	FP+, FP-	FP/RP mode: CW pulse output I/O mode: Output pulse AB-phase mode: A-phase output	200KHz
	RP+, RP-	FP/RP mode: CCW pulse output I/O mode: direction output AB-phase mode: B-phase output	200KHz

#### Input/Output Circuit



1. Do NOT arrange the wiring of I/O signal wires or power supply in the same wiring duct.

2. Make sure the terminals 🕀 of power module and ELC-MC01 are properly grounded or connects to machine cover.

### 3. Do NOT wire to null terminal .

3	SPECIFICATIONS
3.1 Function Spe	ecifications
Item	Content
Power supply	DC24V(-15% ~ +20%) Current consumption 70±10mA; Startup peak current 1.3 A
Max. number of connected axes	8 units; (PB/PC/PA/PH series MPU can connect up to 8 extension modules without occupying any I/O.)
Distance instruction	Distance value is set by CR. 1. Setting range: -2, 147,483,648~+2,147,483,647; 2. Selectable unit: um, mdeg, 10 <sup>-4</sup> inch, Pulse 3. Selectable rate: 10 <sup>0</sup> , 10 <sup>1</sup> , 10 <sup>2</sup> , 10 <sup>3</sup> ; 4. Selectable position: absolute and relative position instruction
Speed instruction	Speed value is set by CR. 1. Setting range: -2,147,483,648~+2,147,483,647 (conversion value of 10~200KPPS pulse) 2. Selectable unit: pulse/s, cm/min, 10deg/min, inch/min
External output	Photo coupler is for insulation and there are LED indications for all output/input signals. Outputs: FP and RP (line driver output 5V) Output: CLR is the type of NPN open collector transistor output (5~24VDC, less than 20mA)
External input	Photo coupler is for insulation and there are LED indications for all output/input signals. Input point: START, STOP, LSP, LSN, DOG(contact or open collector transistor, 24VDC±10%, 5±1mA) Inputs: ΦA, ΦB(line driver or open collector transistor, 5~24VDC, 6~15mA) Input: PG0 (line driver or open collector transistor, 5~24VDC, 6~15mA)
Pulse output format	Three selectable modes: Pulse/Dir, FP (CW)/RP (CCW), A/B (all modes are line driver output)
Position program & data transmission	CR data can be read/write via FROM/TO intruction of ELC MPU. The 32-bit data is composed of 2 continuous CR number. The range of 16-bit CR is CR#0 ~ CR#48.
Connect to EATON ELC series	Modules are numbered from 0–7 with 0 closet and 7 farthest to the MPU. Up to 8 modules can be connected without occupying any digital I/O.

### 3.2 Other Specification

	Environmental specifications
Operation/Storage	1. Operation: 0°C ~55°C (Temperature), 50~95% (Humidity), pollution degree 2 2. Storage: -25°C ~70°C (Temperature), 5~95% (Humidity)
loise Immunity	ESD(IEC 61131-2, IEC 61000-4-2): 8KV Air Discharge EFT(IEC 61131-2, IEC 61000-4-4): Power Line: 2KV, Digital I/O: 1KV, Analog & Communication I/O: 1KV RS(IEC 61131-2, IEC 61000-4-3): 26MHz~1GHz, 10V/m
Grounding	The diameter of the grounding wire cannot be smaller than that of terminals 24V and 0V (if numerous ELCs are used at the same time, make sure that each ELC is grounded respectively to the ground poles)
gency Approvals	UL508 UL1604, Class1,Div2 Operating temperature code: T5 European community EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC
/ibration/Shock mmunity	Standard: IEC61131-2, IEC 68-2-6 (TEST Fc)/ IEC61131-2 & IEC 68-2-27 (TEST Ea)

4	1 6						CR	(Co	ntro	ol F	Rec	ist	er)							
						ELC-						·								
		CR No.	r					1 1010		001			<u>n</u>							
нw	LW	Address	Latched	Attribute	С	ontent							S	ettin	g Ra	nge				
	#0	H'4190	0	R	Model N	0.	_			-										110.)
#2	#1	H'4191	0	R/W	Pulse ra	te (A)		-						'5/RE	:v, tao	ctory	setti	ng: 2,00	J	
#4	#3	H'4193	0	R/W	Feed rat	e (B)		-							V,					
								1		1				b9	b8	b7	b6	b5 b4	4 b3 b2	b1 b0
	#5	H'4195	0	R/W		•	STOP input polarity	START input polarity	START response time	Acceleration curve entione		DOG polarity	DOG trigger time	Pulse direction	Zero return direction	LSN input polarity	LSP input polarity	Pulse output format	Position rate setting	Unit setting
b1	b	) Unit			Motor	Combined				b3	b2	Po	ositior	n rate	settir	ng	b5	b4 Pul	se outpu	t format
0	0	_		u	unit pulse			nıt	┨┢	0	0	t		10 <sup>0</sup>	_	-	0	0		
0	1	Machi	_	ositic	pulse	m d	eg			0	1			10 <sup>1</sup>			0	1 P		
1	0	(`ombin	ned					/min	$\exists$	1	0 1	$\vdash$		10 <sup>2</sup> 10 <sup>3</sup>			1	0 1 A	'B Phase	pulse
				peed																
				S	pul	se/sec	inch	/min												
bit #	¥			<u> </u>					Con	tent										
6					•					-	-									
7	V	/hen b[7]=	:0: po	ositive I	ogic. LSN	input signal is	ON a	nd LS	SN si	gnal	is g	given								
				-						-		-		Vhen	b[8]=	1 ze	ro re	turn is e	xecuted t	o the
8								0. 0.	0 4			g ra			.[0]=	., 20				.0 110
9	V			-				-				-			-	avai	able	for Inter	runt 1st a	nd
10	ir	terrupt 2n	d sp	eed pos	sition mod	es)						-	-						apt lota	
11					•							•			-					
12	V	/hen b[12]	=0: t	rapezo	id acceler	ation line is ch	osen.	Wher	n b[1	2]=1	, S	acce	lerati	on lin	e is cl	hose	n.			
13 14	V	/hen b[14]	=0: p	ositive	logic. Wh	en START inp	ut sigr	nal is												
15	V	/hen b[15]	=0: p	ositive	logic. Wh	en STOP inpu	t sign	al is C	)N, S	STO	⊃ inp	put.								
#7	#6	H'4196	0	R/W	Maximur	m speed V <sub>max</sub>	Fa	ctory :	settii	ng: 2	200,0	000 ι	unit*1					,		
#9	#8	H'4198	0	R/W	Bias spe	ed V <sub>bias</sub>							47 un	it*1 (0	) ~ 20	OK F	PS	oulse tra	nsfer val	ue) *2
#11	#10	H'419A	0	R/W	JOG spe	ed Ving	Ra	nge: (	)~+	2,14	17,4	83,6		it*1 (1	10 ~ 2	200K	PPS	pulse tr	ansfer va	alue) *2
														it*1 (1	10 ~ 2	200K	PPS	pulse tr	ansfer va	alue) *2
#13	#12	H'419C	0	rt/ VV	V <sub>RT</sub>									`						
#15	#14	H'419E	0	R/W	W       Pulse rate (A)       Range: 1 - +2:147:483.647 PPS/REV. factory setting: 2,000         WW       Feed rate (B)       Range: 1 - +2:147.483.647 PPS/REV. factory setting: 2,000         WW       Feed rate (B)       Range: 1 - +2:147.483.647 unit/REV.         Range: 1 - +2:147.483.647 unit/REV.       Factory setting: 1,000 (unit'/REV.         Range: 1 - +2:147.483.647 unit/REV.       Factory setting: 1,000 (unit'/REV.         Reading and the setting: 1,000 (unit'/REV.       Factory setting: 1,000 (unit'/REV.         Reading and the setting: 1,000 (unit'/REV.       Image: 1,000 (unit'/REV.         Reading and the setting: 1,000 (unit'/REV.       Image: 1,000 (unit'/REV.         Reading and the setting: 1,000 (unit'/REV.       Image: 1,000 (unit'/REV.         Reading and the setting: 1,000 (unit'/REV.       Image: 1,000 (unit'/REV.         Reading and the setting: 1,000 (unit'/REV.       Image: 1,000 (unit'/REV.         Reading and the setting: 1,000 (unit'/REV.       Image: 1,000 (unit'/REV.         Reading and the setting: 1,000 (unit'/REV.       Image: 1,000 (unit'/REV.         Reading and the setting: 1,000 (unit'/REV.       Image: 1,000 (unit'/REV.         Reading and the setting: 1,000 (unit'/REV.       Image: 1,000 (unit'/REV.         Reading and the setting: 1,000 (unit'/REV.       Image: 1,000 (unit'/REV.         Reading and the setting: 1,000 (unit'/REV.       Image: 1,000 (unit'/REV.<															
	#16	H'41A0	0	R/W																
	#17	H'41A1	0	R/W	The num	ber of pulse	Ra	nge: -	32,7	68 ~	+32	2,767	7 PLS							
	#18	H'41A2	0	R/W	Zero retu								: dete	ct DC	)G fal	ling-e	edge	in zero	return mo	ode
bit #	ŧ								Cont	ent										
0	b[	0]=0: norn	nal m	node, b	[0]=1: ove	rride mode														
1	b[	1]=0: DOC	G falli	ing-edg	e detectin	g is on in zero	retur	n mod	le. b	[1]=′	1: D	OG f	alling	-edge	e dete	cting	is of	f in zero	return m	iode.
#20				R/W		t setting (HP)		Range			-									
<u> </u>	#21 #22	H'41A5 H'41A6	0	R/W R/W		ion time T <sub>acc</sub>		Range Range								-				
#24		H'41A7	x	R/W		sition (I) P(I)	F	Range	: -2,	147,	483	,648	~ +2	,147,4	483,6	47 ur	nit*1		183,648 ·	-
#26	#25	H'41A9	х	R/W	Running	speed (I) V(I)	F		: -2,	147,	483	,648	~ +2	,147,4	483,6	47 ur	nit*1		OK PPS	pulse
#28	#27	H'41AB	х	R/W	Target po	sition (II)P(II)	F	Range	: -2,	147,	483	,648	~ +2	,147,4	483,6	47 ur	nit*1	(-2,147,4 setting: (	483,648 ) unit*1	~
#30	#29	H'41AD	х	R/W	Running	speed (II) V(II)	F		:0~	- +2,	147	,483	,647	unit*1					transfer	value)
									,		-									

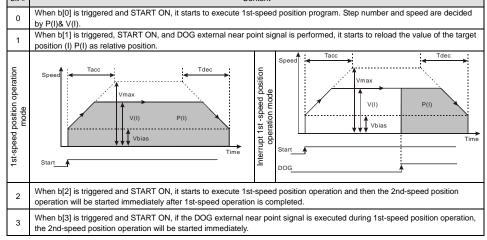
_						CR (Control Register)
		CR No.			ELC-N	MC01 Motion control Unit
нw	LW	Address	Latched	Attribute	Content	Setting Range
	#0	H'4190	0	R	Model No.	System setting, Read-only (The model number of ELC-MC01 is H'0110.)
#2	#1	H'4191	0	R/W	Pulse rate (A)	Range: 1 ~ +2,147,483,647 PPS/REV, factory setting: 2,000 Pulse/Revolution (PLS/REV)
#4	#3	H'4193	0	R/W	Feed rate (B)	Range: 1 ~ +2,147,483,647 unit/REV, Factory setting: 1,000 (unit*1/REV)
						b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0
	#5	H'4195	0	R/W	Parameter setting Factory setting: H'0000	STOP input polarity START input polarity START response time Acceleration curve options DOG polarity DOG trigger time Pulse direction Zero return direction LSN input polarity LSP input polarity LSP input polarity Pulse output format Pulse output format
b1	b	0 Unit			Motor Combined	Machine b3 b2 Position rate setting b5 b4 Pulse output format
0	0			Ĕ	unit unit pulse um	
0	1	Machi		Position	pulse m de	eg 0 1 10 <sup>1</sup> 0 1 Pulse + direction
1 1	0	- Combir	ned		pulse 10 <sup>-4</sup> ine pulse/sec	ich         1         0         10 <sup>2</sup> 1         0         A/B Phase pulse           cm/min         1         1         10 <sup>3</sup> 1         1         A/B Phase pulse
				Speed		10deg/min
					pulse/sec	inch/min
bit #			_			Content
6					• • •	ON and LPS signal is given. OFF and LPS signal is given.
7					• • •	ON and LSN signal is given. SOFF and LSN signal is given.
8				-		ection of CP's decreasing value. When b[8]=1, zero return is executed to the
9					asing value.	receipe CD value but [0] 4 for decreasing
-	_			-		reasing CP value, but [9]=1 for decreasing.
10	v 1		<b>]=</b> 0:	DOG ri	sing-edge is triggered. Wh	hen b[10]=1,DOG falling-edge is triggered. (available for Interrupt 1st and
10	in	terrupt 2n	id sp	eed po	sition modes)	
10 11	in W W	terrupt 2n /hen b[11] /hen b[11]	id sp  =0:    =1:	eed po positive negativ	sition modes) logic. When DOG input s e logic. When DOG input	signal is ON, DOG near point signal is given.
11 12	in W W	terrupt 2n /hen b[11] /hen b[11] /hen b[12]	id sp  =0: p  =1: i ]=0: t	eed po positive negative trapezo	sition modes) logic. When DOG input s e logic. When DOG input id acceleration line is cho	signal is ON, DOG near point signal is given. signal is OFF, DOG near point signal is given. ssen. When b[12]=1, S acceleration line is chosen.
11 12 13	in M M M	terrupt 2n /hen b[11] /hen b[11] /hen b[12] /hen b[13]	id sp  =0:    =1:   ]=0:	eed po positive negative trapezo 4ms; w	sition modes) logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi	signal is ON, DOG near point signal is given. signal is OFF, DOG near point signal is given. ssen. When b[12]=1, S acceleration line is chosen.
11 12	in M M M M M M	terrupt 2n /hen b[11] /hen b[12] /hen b[12] /hen b[13] /hen b[14] /hen b[14]	id sp  =0:    =1:   ]=0:   ]=0:   ]=0:	eed po positive negative trapezo 4ms; w positive negativ	sition modes) logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi e logic. When START inpu e logic When START inpu	signal is ON, DOG near point signal is given. signal is OFF, DOG near point signal is given. osen. When b[12]=1, S acceleration line is chosen. oise filter). ut signal is ON, START input. ut signal is OFF, START input.
11 12 13	in M M M M M M M	terrupt 2n /hen b[11] /hen b[12] /hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[15]	id sp  =0:    =1:   ]=0:   ]=0:   ]=1:   ]=0:	eed po positive negative trapezo 4ms; w positive negative positive	sition modes) logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi e logic. When START inpu e logic. When START inpu e logic. When STOP input	signal is ON, DOG near point signal is given. signal is OFF, DOG near point signal is given. osen. When b[12]=1, S acceleration line is chosen. oise filter). ut signal is ON, START input.
11 12 13 14	in M M M M M M M	terrupt 2n /hen b[11] /hen b[12] /hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[15]	id sp  =0: p  =1: n ]=0: f ]=0: p ]=0: p ]=1: n ]=1: n	eed po positive negative trapezo 4ms; w positive negative positive	sition modes) logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi e logic. When START inpu e logic. When START inpu e logic. When STOP input	signal is ON, DOG near point signal is given. signal is OFF, DOG near point signal is given. osen. When b[12]=1, S acceleration line is chosen. bise filter). ut signal is ON, START input. ut signal is OFF, START input. t signal is OFF, STOP input. Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1
11 12 13 14 15	in	Iterrupt 2n /hen b[11] /hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[14] /hen b[15] /hen b[15]	=0:    =1:    =0:    =0:    =0:    =1:    =1:    =1:	eed po positive negative trapezo 4ms; w positive negativ negativ	sition modes) logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic When START inpu e logic. When STOP input e logic. When STOP input	signal is ON, DOG near point signal is given. signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. bise filter). It signal is ON, START input. It signal is OFF, START input. It signal is OFF, STOP input. Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (0 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 unit*1
11 12 13 14 15 #7 #9	in W W W W W W W W W W W W W W W W W W W	Atterrupt 2n /hen b[11] /hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[15] /hen b[15] /hen b[15] /hen b[15]	=0:    =1:    =0:    =0:    =0:    =1:    =1:    =1:	eed po positive negative trapezo 4ms; w positive negativ positive negativ	sition modes) logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic When START input e logic. When STOP input e logic. When STOP input	signal is ON, DOG near point signal is given. signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. sise filter). It signal is ON, START input. ut signal is ON, START input. It signal is OFF, START input. It signal is OFF, START input. Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (0 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 unit*1
11 12 13 14 15 #7 #9 #11	in W W W W W W W W W W W W W W W W W W W	Iterrupt 2n Ihen b[11] Ihen b[12] Ihen b[12] Ihen b[13] Ihen b[14] Ihen b[14] Ihen b[15] Ihen b[16] Ihen b[17] Ihen	d sp        =0:          =1:          =0:          =0:          =0:          =0:          =1:          =0:          =1:         0       0       0       0	eed po positive negative trapezo 4ms; w positive negative negative R/W R/W	sition modes) logic. When DOG input s e logic. When DOG input s e logic. When DOG input s of logic. When START input e logic. When START input e logic. When START input e logic. When STOP input e logic. When STOP input maximum speed V <sub>max</sub> Bias speed V <sub>bias</sub> JOG speed V <sub>JOG</sub> Zero return speed	signal is ON, DOG near point signal is given. signal is OFF, DOG near point signal is given. osen. When b[12]=1, S acceleration line is chosen. bise filter). It signal is ON, START input. It signal is OFF, START input. It signal is OFF, STOP input. Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (0 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1
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11 12 13 14 15 #7 #9 #11 #13 #15 bit # 0 1 #20	in           in           With           With <td>Herrupi 2n           Interrupi 2n           Inter b[11]           Inter b[12]           Inter b[13]           Inter b[14]           Inter b</td> <td>d sp           =0:             =1:             =0:             =0:             =0:             =0:             =0:             =0:             =1:             =0:             =1:             0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0</td> <td>eed po boositivever arapezo 4ms; woositive eegativity arapezo 4ms; woositive eegativity arapeso 4ms; woositive arapeso 4ms; woositive 4ms; woosi</td> <td>sition modes) logic. When DOG input s e logic. When DOG input s e logic. When DOG input s e logic. When DOG input s logic. When START inpu e logic. When START inpu e logic. When START inpu e logic. When STOP input e logic. When STOP input maximum speed V<sub>max</sub> Bias speed V<sub>bias</sub> JOG speed V<sub>JOG</sub> Zero return speed V<sub>RT</sub> Zero return mode N The number of PG0 in zero return mode N The number of pulse in zero return mode P Zero return mode P Zero return mode P (0]=1: override mode ge detecting is on in zero I Zero point setting (HP) Acceleration time T<sub>acc</sub> Deceleration time T<sub>dec</sub></td> <td>signal is ON, DOG near point signal is given. signal is OFF, DOG near point signal is given. Desen. When b[12]=1, S acceleration line is chosen. isse filter). It signal is ON, START input. It signal is OFF, START input. It signal is OFF, START input. It signal is OFF, STOP input. 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Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 50,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 50,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 0,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 PLS Range: -2,768 -+32,767 PLS Factory setting: 0 PLS b0: Zero return mode, b1: detect DOG falling-edge in zero return mode Content Range: 0 ~ ±999,999 unit*1; factory setting: 0 unit*1 Range: 10 ~ +32,767 ms; factory setting: 100 ms Range: 10 ~ +32,767 ms; factory setting: 100 ms Range: -2,147,483,648 ~ +2,147,483,647 unit*1 (-2,147,483,648 ~
11 12 13 14 15 #7 #9 #11 #13 #15 bit # 0 1 #20 #24	in           in           With           With <td>Herrupi 2n           Interrupi 2n           Inter b[11]           Inter b[12]           Inter b[13]           Inter b[14]           Inter b[14]           Inter b[14]           Inter b[14]           Inter b[15]           Inter b[14]           Inter b[15]           Inter b[16]           Inter b</td> <td>d sp           =0:             =1: 1           =0: -           =0: -           =0: -           =0: -           =0: -           =0: -           =1: -           =0: -           =0: -           =1: -           =0: -           =1: -           =0: -           =1: -           =0: -           =1: -           =0: -           =1: -           =0: -           =1: -           =0: -           0</td> <td>eed po positivever rapezativ trapezativ megativ positive negativ R/W R/W R/W R/W R/W R/W R/W R/W R/W R/W</td> <td>sition modes) logic. When DOG input s e logic. When DOG input s e logic. When DOG input s e logic. When DOG input s logic. When START input logic. When START input logic. When START input e logic. When STOP input e logic. When STOP input maximum speed V<sub>max</sub> Bias speed V<sub>bias</sub> JOG speed V<sub>JOG</sub> Zero return speed V<sub>RT</sub> Zero return speed V<sub>RT</sub> Zero return mode P The number of PG0 in zero return mode P Zero point setting (HP) Acceleration time T<sub>acc</sub> Deceleration time T<sub>dec</sub> Target position (I) P(I)</td> <td>signal is ON, DOG near point signal is given. signal is OFF, DOG near point signal is given. osen. When b[12]=1, S acceleration line is chosen. isse filter). It signal is ON, START input. It signal is OFF, START input. It signal is OFF, START input. It signal is OFF, STOP input. 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						CR (Control Register)
		CR No.			ELC-N	IC01 Motion control Unit
нw	LW	Address	Latched	Attribute	Content	Setting Range
	#0	H'4190	0	R	Model No.	System setting, Read-only (The model number of ELC-MC01 is H'0110.) Range: 1 ~ +2,147,483,647 PPS/REV, factory setting: 2,000
#2	#1	H'4191	0	R/W	Pulse rate (A)	Pulse/Revolution (PLS/REV)
#4	#3	H'4193	0	R/W	Feed rate (B)	Range: 1 ~ +2,147,483,647 unit/REV, Factory setting: 1,000 (unit*1/REV)
	#5	H'4195	o	R/W	Parameter setting Factory setting: H'0000	STOP input polarity     51       START input polarity     1       START response time     1       Acceleration curve options     1       Acceleration curve options     1       DOG polarity     1       DOG trigger time     0       Duse direction     8       Zero returm direction     8       LSN input polarity     2       Pulse output format     9       Pulse output format     9       Position rate setting     1
h1	h	Linit			Motor Combined	Machine b2 b2 Regiting rate setting b5 b4 Bulas output form
b1	bC				unit unit	unit         b3         b2         Position rate setting         b5         b4         Pulse output form           0         0         10°         0         0         FP + RP
0	0	Machi		Position	pulse um pulse m de	g 0 1 10 <sup>1</sup> 0 1 Pulse + direction
1	0	<ul> <li>Combin</li> </ul>	ned		pulse 10 <sup>-4</sup> ine pulse/sec	th         1         0         10 <sup>2</sup> 1         0           cm/min         1         1         10 <sup>3</sup> 1         1         A/B Phase pulse
-				Speed	pulse/sec	10deg/min
				0 U	pulse/sec	inch/min
bit #			_			Content
6					• • •	DN and LPS signal is given. OFF and LPS signal is given.
7					• • •	DN and LSN signal is given. OFF and LSN signal is given.
8	W	/hen b[8]=	=0: ze	ero retu	Irn is executed to the direct	tion of CP's decreasing value. When b[8]=1, zero return is executed to the
9					asing value.	easing CP value, but [9]=1 for decreasing.
10				-		en b[10]=1,DOG falling-edge is triggered. (available for Interrupt 1st and
					sition modes)	
11					logic. When DOG input s	ignal is ON. DOG near point signal is given.
<u> </u>			=1: r	negativ	e logic. When DOG input	ignal is ON, DOG near point signal is given. signal is OFF, DOG near point signal is given.
12	W	/hen b[12]	=1: r ]=0: t	negativ trapezo	e logic. When DOG input id acceleration line is cho	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen.
13	\ \ \ \	/hen b[12] /hen b[13] /hen b[14]	=1: r ]=0: 1 ]=0: 4 ]=0: 1	negativ trapezo 4ms; w positive	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi e logic. When START inpu	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). : signal is ON, START input.
		/hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[15]	=1: r  =0: 1  =0: 4 ]=0:   ]=1: 1	rapezo 4ms; w bositive negativ positive	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic When START inpu logic. When STOP input	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter).
13 14		/hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[15]	=1: r ]=0: 1 ]=0:   ]=0:   ]=1: 1 ]=1: 1	rapezo 4ms; w bositive negativ positive	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic When START inpu logic. When STOP input	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is OFF, START input. signal is OFF, STOP input. signal is OFF, STOP input. Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1
13 14 15	W W W W W	/hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[15] /hen b[15]	=1: r  =0: 1  =0: 4  =0: 1  =1: 1  =1: 1	negative rrapezo 4ms; w positive negative negative	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi e logic. When START inpu e logic When START input e logic. When STOP input e logic. When STOP input	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. t signal is OFF, START input. signal is ON, STOP input. signal is OFF, STOP input. Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS) *2
13 14 15 #7 #9	W W W W W #6 #8	/hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[15] /hen b[15]	=1: r  =0: 1  =0: 4  =0: 1  =1: 1  =1: 1  =1: 1	rapezo 4ms; w positive negativ positive negativ R/W	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic. When START inpu e logic. When STOP input e logic. When STOP input e logic. When STOP input	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is OFF, START input. signal is OFF, STOP input. signal is OFF, STOP input. Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2
13 14 15 #7 #9 #11	W W W W W W W W W W W W W W W W W W W	/hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[15] /hen b[15] H'4196 H'4198	=1: r  =0: 1  =0: 4  =0:    =1: 1  =1: 1  =1: 1  =1: 1 0 0	rapezo 4ms; w positive negativ positive negativ R/W R/W	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi e logic. When START inpu e logic When START inpu logic. When STOP input e logic. When STOP input e logic. When STOP input Maximum speed V <sub>max</sub> Bias speed V <sub>bias</sub>	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is OFF, START input. signal is OFF, STOP input. signal is OFF, STOP input. Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (0 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 unit*1
13 14 15 #7 #9 #11 #13	WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW	/hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[15] /hen b[15] /hen b[15] H'4196 H'4198	=1: r  =0: 1  =0: 4  =0: 1  =1: 1  =0: 1  =1: 1  =1: 1 0 0 0 0	rapezo 4ms; w oositive negativ oositive negativ R/W R/W R/W	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi o logic. When START inpu e logic When START inpu logic. When STOP input e logic. When STOP input Maximum speed V <sub>max</sub> Bias speed V <sub>blas</sub> JOG speed V <sub>JOG</sub> Zero return speed	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is ON, START input. signal is ON, STOP input. signal is ON, STOP input. Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (0 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1
13 14 15 #7 #9 #11 #13	WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW	/hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[15] /hen b[15] H'4196 H'4198 H'4198 H'419A	=1: r  =0: 1  =0: 1  =0:    =1: 1  =	rapezo 4ms; w boositive negativ boositive negativ R/W R/W R/W R/W	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic When START inpu logic. When STOP input logic. When STOP input Maximum speed V <sub>max</sub> Bias speed V <sub>bias</sub> JOG speed V <sub>JoG</sub> Zero return speed V <sub>RT</sub> Zero return speed V <sub>RT</sub> The number of PG0 in zero return mode N	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is ON, START input. signal is ON, STOP input. signal is OFF, STOP input. Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (0 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 50,000 unit*1
13 14 15 #7 #9 #11 #13	W           W	(hen b[12] (hen b[13] (hen b[14] (hen b[14] (hen b[15] (hen b[15] H'4196 H'4198 H'419A H'419C H'419E	=1: r =0: 1 =0: 0 0 0 0 0 0 0 0	R/W R/W R/W	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic. When START inpu e logic. When STOP input e logic. When STOP input dogic. When STOP input e logic. When STOP input Bias speed V <sub>JOG</sub> Jog speed V <sub>JOG</sub> Zero return speed V <sub>RT</sub> Zero return deceleration speed V <sub>CR</sub> The number of PG0 in zero return mode N The number of pulse in zero return mode P	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is ON, START input. signal is ON, STOP input. signal is OFF, STOP input. Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (0 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 50,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 1,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 50,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 50,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 50,000 unit*1 Range: 0 ~ +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 1,000 unit*1
13 14 15 #7 #9 #11 #13	W           W	(hen b[12] (hen b[13] (hen b[14] (hen b[14] (hen b[15] (hen b[15] H'4196 H'4198 H'419A H'419A H'419C H'419E H'4140	=1: r =0: 1 =0: 1 =0: 1 =0: 1 =0: 1 =1: 1 =0: 1 =1: 1 0 0 0 0 0 0 0	rapezo rapezo 4ms; w voositive negativ poositive negativ R/W R/W R/W R/W R/W R/W	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic. When START inpu logic. When STOP input e logic. When STOP input dogic. When STOP input Maximum speed V <sub>max</sub> Bias speed V <sub>bias</sub> JOG speed V <sub>JOG</sub> Zero return speed V <sub>RT</sub> Zero return speed V <sub>CR</sub> The number of PG0 in zero return mode N The number of pulse	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is OFF, START input. signal is OFF, STOP input. signal is OFF, STOP input. Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 1,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 1,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1
13 14 15 #7 #11 #13 #15	W           W	/hen b[12]           /hen b[13]           /hen b[14]           /hen b[14]           /hen b[15]           H'4196           H'4198           H'419A           H'419E           H'419E           H'41A1           H'41A2	=1: r =0: 1 =0: 4 =0: 4 =0: 4 =0: 7 =1: 1 0 0 0 0 0 0 0 0 0 0 0 0 0	rapezotiv rapezo 4ms; w eegativ eegativ R/W R/W R/W R/W R/W R/W R/W R/W	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic. When START inpu e logic. When STOP input e logic. When STOP input dogic. When STOP input e logic. When STOP input Maximum speed V <sub>max</sub> Bias speed V <sub>JOG</sub> Zero return speed V <sub>RT</sub> Zero return speed V <sub>CR</sub> The number of PG0 in zero return mode N The number of pulse in zero return mode P Zero return mode H Mode	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is ON, START input. signal is OFF, START input. signal is OFF, STOP input. Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 1,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1
13 14 15 #7 #11 #13 #15	W           W	/hen b[12]           /hen b[13]           /hen b[14]           /hen b[14]           /hen b[15]           H'4196           H'4198           H'419A           H'419E           H'419E           H'41A1           H'41A2	=1: r  =0: 1  =0: 4  =0: 4  =0: 4  =1: 1  =	rapezotiv rapezo 4ms; w voositive negativ enegativ R/W R/W R/W R/W R/W R/W R/W R/W R/W R/W	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic. When START inpu e logic. When STOP input e logic. When STOP input ologic. When STOP input e logic. When STOP input Maximum speed V <sub>max</sub> Bias speed V <sub>Jog</sub> Zero return speed V <sub>RT</sub> Zero return speed V <sub>CR</sub> The number of PG0 in zero return mode N The number of pulse in zero return mode P Zero return mode P Zero return mode P Zero return mode P Zero return mode H Mode	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is OFF, START input. signal is OFF, START input. signal is OFF, STOP input. Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 0 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +32,767 PLS Factory setting: 0 PLS b0: Zero return mode, b1: detect DOG falling-edge in zero return mode Content
13 14 15 #7 #11 #13 #15 bit # 0 1	W           W	(hen b[12] (hen b[13] (hen b[14] (hen b[14] (hen b[15] (hen b[15] (h'4196) (h'4196) (h'4198) (h'4198) (h'4194) (h'4194) (h'4194) (h'4140) (h'41A1) (h'41A2)(	=1: r =0: 1 =0: 1 =0: 4 =0: 4 =0: 4 =0: 4 =0: 4 =0: 7 =0: 7 0 0 0 0 0 0 0 0 0 0 0 0 0	negativ/ rapezo 4ms; w positive/ positive/ positive/ positive/ R/W R/W R/W R/W R/W R/W R/W R/W R/W	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic When START inpu e logic. When STOP input logic. When STOP input Maximum speed V <sub>max</sub> Bias speed V <sub>bias</sub> JOG speed V <sub>JOG</sub> Zero return speed V <sub>RT</sub> Zero return speed V <sub>RT</sub> Zero return mode N The number of PG0 in zero return mode P Zero return mode P Zero return mode P Zero return mode P In e number of pulse in zero return mode P Zero return mode P Zero return mode P In e number of pulse in zero return mode P Zero return mode P Zero return mode P In e number of pulse in zero return mode P Zero return mode P	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is ON, START input. signal is OFF, START input. signal is OFF, STOP input. Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 00,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (0 ~ 200K PPS pulse transfer value) *2 Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *
13 14 15 #7 #11 #13 #15	W           W	(hen b[12]           (hen b[13]           (hen b[14]           (hen b[14]           (hen b[15]           H'4196           H'4198           H'4198           H'4198           H'4198           H'4198           H'4198           H'4190           H'4191           H'4192           H'4193           H'4194           H'4196           H'4196           H'4198           H'4198           H'4198           H'4190           H'4190           H'4190           H'4190           H'4130           H'41A1           H'41A2           D]=0: norm           I]=0: DOC	=1: r =0: 1 =0: 1 =0: 4 =0: 4 =0: 4 =0: 4 =0: 4 =0: 7 =0: 7 0 0 0 0 0 0 0 0 0 0 0 0 0	rapezo rapezo 4ms; w positive positive positive positive positive R/W R/W R/W R/W R/W R/W R/W R/W R/W R/W	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic When START inpu logic. When STOP input Maximum speed V <sub>max</sub> Bias speed V <sub>bias</sub> JOG speed V <sub>JOG</sub> Zero return speed V <sub>RT</sub> Zero return speed V <sub>RT</sub> The number of PG0 in zero return mode N The number of pulse in zero return mode P Zero return mode P Zero return mode P In enumber of pulse in zero return mode P Zero return mode P	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is ON, STOP input. signal is OFF, START input. signal is OFF, STOP input. Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 1,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 1,000 unit*1 Range: 0 - +32,767 PLS Factory setting: 0 PLS b0: Zero return mode, b1: detect DOG falling-edge in zero return mode Content eturn mode. b[1]=1: DOG falling-edge detecting is off in zero return mode. Range: 0 - ±999,999 unit*1; factory setting: 0 unit*1
13 14 15 #7 #11 #13 #15 bit # 0 1	W           W	(hen b[12] (hen b[13] (hen b[14] (hen b[14] (hen b[15] (hen b[12] (hen b[14]) (hen b[15]) (hen b[14]) (hen b[15]) (hen b[15]	=1: r =0: 1 =0: 1 =0: 4 =0: 1 =0: 1 =0: 1 =1: 1 =0: 1 =1: 1 =0: 1 =0: 1 =1: 1 =0: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	negativ/ rapezo 4ms; w positive/ positive/ positive/ positive/ R/W R/W R/W R/W R/W R/W R/W R/W R/W	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic When START inpu e logic. When STOP input logic. When STOP input Maximum speed V <sub>max</sub> Bias speed V <sub>bias</sub> JOG speed V <sub>JOG</sub> Zero return speed V <sub>RT</sub> Zero return speed V <sub>RT</sub> Zero return mode N The number of PG0 in zero return mode P Zero return mode P Zero return mode P Zero return mode P In e number of pulse in zero return mode P Zero return mode P Zero return mode P In e number of pulse in zero return mode P Zero return mode P Zero return mode P In e number of pulse in zero return mode P Zero return mode P	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is ON, START input. signal is OFF, START input. signal is OFF, STOP input. Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 00,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (0 ~ 200K PPS pulse transfer value) *2 Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 0,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *
13 14 15 #7 #11 #13 #15 bit # 0 1	W           W           W           W           W           W           W           #46           #10           #12           #14           #16           #17           #18           b[0]           b[1]           #19           #21	(hen b[12] (hen b[13] (hen b[14] (hen b[14] (hen b[15] (hen b[15] (hen b[15] (hen b[15] (hen b[15] (hen b[15] (hen b[15] (hen b[15] (hen b[15] (hen b[14] (hen b[14]) (hen b[14] (hen b[14]) (hen b[14]	=1: r =0: 1 =0: 1 =0: 4 =0: 1 =0: 1 =0: 1 =1: 1 =0: 1 =1: 1 =0: 1 =0: 1 =1: 1 =0: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	rapezo rapezo 4ms; w positive egativ positive egativ R/W R/W R/W R/W R/W R/W R/W R/W R/W R/W	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic When START inpu e logic. When STOP input logic. When STOP input Maximum speed V <sub>max</sub> Bias speed V <sub>bias</sub> JOG speed V <sub>JoG</sub> Zero return speed V <sub>RT</sub> Zero return speed V <sub>CR</sub> The number of PGO in zero return mode N The number of pulse in zero return mode P Zero return mode P	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is ON, STOP input. signal is OFF, START input. signal is OFF, STOP input. Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 1,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 1,000 unit*1 Range: 0 - +32,767 PLS Factory setting: 0 PLS b0: Zero return mode, b1: detect DOG falling-edge in zero return mode Content eturn mode. b[1]=1: DOG falling-edge detecting is off in zero return mode. Range: 0 - ±999,999 unit*1; factory setting: 0 unit*1 Range: 10 - ±32,767 ms; factory setting: 100 ms
13 14 15 #7 #9 #11 #13 #15 bit # 0 1 #20	W           W	//hen b[12]           //hen b[14]           //hen b[14]           //hen b[15]           //hen b	=1: r =0: 1 =0: 1 =0: 1 =0: 1 =1: 1 0 0 0 0 0 0 0 0 0 0 0 0 0	rapezo rapezo 4ms; w oositiveve negativ R/W R/W R/W R/W R/W R/W R/W R/W	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic When START inpu e logic. When STOP input e logic. When STOP input glogic. When STOP input Maximum speed V <sub>max</sub> Bias speed V <sub>bias</sub> JOG speed V <sub>JoG</sub> Zero return speed V <sub>RT</sub> Zero return speed V <sub>CR</sub> The number of PG0 in zero return mode N The number of pulse in zero return mode P Zero return mode P Zero return mode P detecting is on in zero I Zero point setting (HP) Acceleration time T <sub>acc</sub>	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is ON, STOP input. signal is OFF, START input. signal is OFF, STOP input. signal is OFF, STOP input. Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS) *2 Factory setting: 200,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) *2 Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 5,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 1,000 unit*1 Range: 0 - +2,147,483,647 unit*1 (10 ~ 200K PPS pulse transfer value) * Factory setting: 1,000 unit*1 Range: 0 - +32,767 PLS Factory setting: 0 PLS b0: Zero return mode, b1: detect DOG falling-edge in zero return mode Content Range: 0 - +32,767 ms; factory setting: 0 unit*1 Range: 0 - ±999,999 unit*1; factory setting: 0 unit*1 Range: 0 - ±91,47,483,648 - ±2,147,483,647 unit*1 (0 - 200K PPS pulse transfer value) * Range: -2,147,483,648 - ±2,147,483,647 unit*1 (0 - 200K PPS pulse transfer value) *2; factory setting: 0 unit*1 Range: -2,147,483,648 - ±2,147,483,647 unit*1 (0 - 200K PPS pulse transfer value) *2; factory setting: 0 unit*1
13 14 15 #7 #11 #13 #15 bit # 0 1 #20 #24	W           W	(hen b[12]           (hen b[13]           (hen b[14]           (hen b[15]           (h'4196           (h'41A1           (h'41A3)           (h'41A3)           (h'41A7)           (h'41A7)	=1: r =0: 1 =0: -1 =0: -1 =0: -1 =1: -1 =0: -1 =1: -1 =0 0 0 0 0 0 0 0 0 0 0 0 0 0	rapezo rapezo Ams; w poositive regativ R/W R/W R/W R/W R/W R/W R/W R/W	e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for noi logic. When START inpu e logic. When START inpu e logic. When STOP input e logic. When STOP input ologic. When STOP input Maximum speed V <sub>max</sub> Bias speed V <sub>Jog</sub> Zero return speed V <sub>RT</sub> Zero return speed V <sub>CR</sub> The number of PG0 in zero return mode N The number of pulse in zero return mode P Zero return mode P	signal is OFF, DOG near point signal is given. sen. When b[12]=1, S acceleration line is chosen. se filter). signal is ON, START input. signal is ON, START input. signal is OFF, START input. signal is OFF, START input. signal is OFF, STOP input. signal is OFF, STOP input. arrow of the state of

						CR (				·									_
		CR No.			ELC-N	1001	iviotio	un c	ontro	ur.	ilt								
HW	LW	Address	Latched	Attribute	Content						S	ettin	g Ra	nge					
	#0	H'4190	0	R	Model No.													is H'0	110.)
#2	#1	H'4191	0	R/W	Pulse rate (A)					483,6 LS/R	i47 PF EV)	'5/RE	: v, tac	ctory	settii	ng: 2	,000		
#4	#3	H'4193	0	R/W	Feed rate (B)						i47 un nit*1/R		V,						
						b15	1	1			b10		b8	b7	b6	b5	b4	b3 b2	b1
	#5	H'4195	0	R/W	Parameter setting Factory setting: H'0000	STOP input polarity	START input polarity	START response time	Acceleration curve options	DOG polarity	DOG trigger time	Pulse direction	Zero return direction	LSN input polarity	LSP input polarity		Pulse output format	Position rate setting	lait cotting
h.1	h(				Motor Combined	Mach	ine	1	2 4				o o ddia		h.E.	<b>h</b> 4	Dula		4 60 00
b1	b	_			unit unit	uni	t		3 b2		ositior		settir	ng			Pulse	e outpu	
0	0			Position	pulse um pulse m de	g			) 0 ) 1			10 <sup>0</sup> 10 <sup>1</sup>		-	0	0	Pul	FP + F se + dii	
1	0	Combin		Ъ	pulse 10 <sup>-4</sup> in	ch			1 0	1		$10^2$			1	0		Phase	
1	1			Speed	pulse/sec pulse/sec	cm/m 10deg/			1 1			10 <sup>3</sup>			1	1			
				Spe	pulse/sec	inch/n													
bit #	¥		_		· .		C	onte	nt							_	_		_
		/hen b[6]=	=0: po	ositive	logic. LSP input signal is (	DN and				given				_	_				
6					logic. LSP input signal is logic. LSN input signal is														
7					logic. LSN input signal is														
8					Irn is executed to the dire	ction of	CP's	s dec	reasi	ng va	lue. V	Vhen	b[8]=	1, zei	ro rei	turn i	is exe	cuted	to the
9					xecuted, b[9]=0 is for incr	easing	CP v	alue	, but [	'9]=1	for de	oroog							
10	M			-	sing-edge is triggered. WI							cieas	រing.						
		torrent o	d		aitian mades)	ien bli	0]=1,	DOC	3 falliı				-	avail	able	for Ir	nterru	ipt 1st a	ind
44	In				sition modes) logic. When DOG input s	-				ng-ed	lge is	trigge	ered. (		able	for Ir	nterru	ıpt 1st a	ind
11	in W	/hen b[11] /hen b[11]	=0: p  =1: r	positive negativ	logic. When DOG input se logic. When DOG input	ignal is signal	s ON, is OF	, DO F, D	G nea OG n	ng-ed ar poir ear po	lge is nt sigr oint si	trigge nal is gnal i	given	i. en.		for Ir	nterru	ıpt 1st a	ind
11 12 13	IN W W	/hen b[11] /hen b[11] /hen b[12]	=0: p  =1: r ]=0: 1	positive negativ trapezo	e logic. When DOG input s e logic. When DOG input id acceleration line is cho	ignal is signal sen. W	s ON, is OF /hen I	, DO F, D	G nea OG n	ng-ed ar poir ear po	lge is nt sigr oint si	trigge nal is gnal i	given	i. en.		for Ir	nterru	ipt 1st a	Ind
12 13	IN W W W W	/hen b[11] /hen b[11] /hen b[12] /hen b[13] /hen b[14]	=0: p  =1: r ]=0: 1 ]=0: 4	positive negative trapezo 4ms; w positive	e logic. When DOG input s e logic. When DOG input iid acceleration line is cho hen b[13]=1: 12ms(for no e logic. When START inpu	ignal is signal sen. W se filte t signa	s ON, is OF /hen I r). I is O	, DO F, D b[12]	G nea OG n  =1, S TART	ng-ed ar poir ear po acce f inpu	dge is nt sigr oint si eleration	trigge nal is gnal i	given	i. en.		for Ir	nterru	ıpt 1st a	Ind
12	In N N N N N N N	/hen b[11] /hen b[12] /hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[15]	=0:	trapezo 4ms; w positive negative	logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for no	ignal is signal sen. W se filte t signa t signa signal	s ON, is OF /hen I r). I is O I is O is ON	, DO F, D b[12] N, S DFF, S	G nea OG ni  =1, S TART STAR	ng-ed ar poin ear point acce acce acce acce acce acce acce acc	dge is nt sigr oint si eleratio tt. out.	trigge nal is gnal i	given	i. en.		for Ir	nterru	ipt 1st a	ind
12 13 14 15		/hen b[11] /hen b[12] /hen b[13] /hen b[13] /hen b[14] /hen b[14] /hen b[15] /hen b[15]	=0: p  =1: r ]=0: 1 ]=0: 1 ]=0: p ]=1: 1	cositive negative trapezo 4ms; w positive negativ positive negativ	e logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for no e logic. When START inpu e logic When START inpu e logic. When STOP input e logic. When STOP input	ignal is signal sen. W se filte t signa t signal t signa Rang	s ON, is OF /hen I r). I is O I is O I is O I is O I is O	, DO F, D b[12] N, S DFF, S N, ST FF, S ~ +2	G nea OG no  =1, S TART STAR OP ir STOP	ng-ed ar poin ear poin acce acce acce acce acce acce acce acc	dge is nt sigr oint si eleration t. but. t. 647 un	trigge nal is gnal i on line it*1 (1	given is give e is cl	hoser	n.		nterru	ipt 1st a	Ind
12 13 14 15 #7	10 10 10 10 10 10 10 10 10 10	/hen b[11] /hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[15] /hen b[15] H'4196	=0: p  =1: r ]=0: 1 ]=0: 1 ]=0: p ]=1: 1 ]=1: 1	cositive negative trapezo 4ms; w positive negativ positive negativ	e logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for no e logic. When START inpu e logic. When START inpu e logic. When STOP input e logic. When STOP input e logic. When STOP input	ignal is signal sen. W se filte t signa t signal t signal t signa Rang Facto	s ON, is OF /hen I r) I is O I is O I is O I is O ge: 0 ory se	, DO F, D b[12] bN, S DFF, S N, ST FF, S ~ +2 etting	G nea OG no ==1, S TART STAR OP ir STOP ,147,4 ;: 200	ng-ed ar poin ear point acce acce acce acce acce acce acce acc	Ige is nt sigr oint si eleratio ut. but. t. 647 un unit*1	trigge nal is gnal i on line it*1 (1	given is give e is cl	hoser	n. PPS	) *2		ipt 1st a	
12 13 14 15	10 10 10 10 10 10 10 10 10 10	/hen b[11] /hen b[12] /hen b[13] /hen b[13] /hen b[14] /hen b[14] /hen b[15] /hen b[15]	=0: p  =1: r ]=0: 1 ]=0: 1 ]=0: p ]=1: 1 ]=1: 1	Positive negative trapezo 4ms; w positive negative negative negative R/W R/W	e logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for no e logic. When START inpu e logic When START inpu e logic. When STOP input e logic. When STOP input	ignal is signal sen. W se filte t signa t signal t signal Rang Facto Rang Facto	s ON, is OF /hen I /hen I / is O I is O I is O I is O ge: 0 pry se ge: 0 pry se	, DO( F, D( b[12] N, S DFF, S DFF, S ~ +2. etting ~ +2.	G nea OG ni =1, S TART STAR OP ir STOP ,147,4 ;: 200 ,147,4 ;: 0 ur	ng-ed ar poir ear poir acce acce acce acce acce acce acce acc	dge is nt sigr oint si eleratio it. but. t. 547 un unit*1 547 un	trigge nal is gnal i on line it*1 (1 it*1 (0	given is give e is cl 10 ~ 2 0 ~ 20	200K P	n. PPS	) *2 pulse	trans	sfer val	ue) *:
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12 13 14 15 #7 #9 #11	#10	/hen b[11] /hen b[12] /hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[15] /hen b[15] H'4196 H'4198	=0: p  =1: r  =0: 1  =0: 1  =0: p  =1: r  =0: p  =1: r  =0: p  =1: r	Positive negative trapezo 4ms; w positive negative negative negative R/W R/W	e logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for no e logic. When START inpu e logic. When START inpu e logic. When STOP input e logic. When STOP input e logic. When STOP input glogic. When STOP input blogic. When STOP input glogic. When STOP input e logic. When STOP input glogic. When STOP input glogic. When STOP input second	ignal is signal sen. W se filte t signa t signal t signal t signa Rang Facto Rang Facto Rang Facto Rang	s ON, is OF /hen I r). I is O I is O I is O I is O Ge: 0 Ge: 0 Ge: 0 Ge: 0 Ge: 0	, DO0 F, D0 b[12] NN, S DFF, S DFF, S ~ +2 etting ~ +2 etting ~ +2 ~ +2	G nez OG n =1, S TART STAR OP ir STOP ,147, ; 200 ,147, ; 0 ur ,147, ; 5,00 ,147,	ng-ed ar poin ear poin car point car	dge is           nt sigr           nt sigr           oint si           eleration           it.           unit*1           i47 un	trigge nal is gnal i on lind it*1 (1 it*1 (1	ered. ( given is give e is cl 10 ~ 2 0 ~ 20 10 ~ 2	200K 200K 200K	n. PPS PPS p	) *2 pulse	trans	sfer val	ue) *
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12 13 14 15 #7 #9 #11 #13 #15	in           W           W           W           W           W           W           W           W           W           W           W           W           W           W           W           W           W           #10           #112           #114           #116           #117           #118           #           b[v]           b[v]           #19	/hen b[11] /hen b[11] /hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[14] /hen b[15] /hen b[15] /hen b[15] /hen b[15] /hen b[15] /hen b[14] /hen b[14]	=0: f =1: r =1: r =0: 1 =0: 1 =0: 1 =1: 1 =0: 1 =1: 1 =0: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Arrowski and a straight of the second straigh	logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for no logic. When START inpu e logic When START inpu e logic. When STOP input e logic. When STOP input e logic. When STOP input glogic. When STOP input maximum speed V <sub>max</sub> Bias speed V <sub>bias</sub> JOG speed V <sub>JOG</sub> Zero return speed V <sub>RT</sub> Zero return speed V <sub>RT</sub> Zero return mode N The number of PG0 in zero return mode P Zero return mode P Zero return mode P Zero return mode P dedetecting is on in zero Zero point setting (HP)	ignal is isignal isignal isignal isignal isignal is sen. Wisse filteta tsignas isignal at signa isignal at signal at signa isignal at signa isignal at signa isignal at signa isignal at signa at a si	s ON, is OF (hen I is O I is O is ON I is O I is O ory se ge: 0 org se	, DO0 F, D0 b[12] NN, S DFF, S FF, S	G nee OG ne  =1, S TART STAR OP ir STOP 147,4 :: 200 ,147,4 :: 5,00 (147,4 :: 5,00 (147,4) :: 5,00 :: 5,00 (147,4) :: 5,00 (147,4) :: 5	ng-ed ar point ear point ar po	dge is           nt sigr           oint si           eleration           it.           it. <td>trigge nal is gnal is gnal i it*1 (1 it*1 (1 it*1 (1 it*1 (1 it*1 (1 it*1 (1 ct DC -edge facto</td> <td>e is cl 10 ~ 2 10 ~ 2 10 ~ 2 10 ~ 2 10 ~ 2 10 ~ 2 0 ~ 20 10 ~ 2 0 ~ 20 10 ~ 2 10 ~</td> <td>200K 200K 200K 200K 200K 200K 200K</td> <td>n. PPS pPS pPS PPS PPS PPS PPS PPS PPS PPS</td> <td>) *2 pulse puls puls in ze</td> <td>e trans e trans e trans e trans e trans</td> <td>sfer val</td> <td>ue) *: alue) balue) balue) ode</td>	trigge nal is gnal is gnal i it*1 (1 it*1 (1 it*1 (1 it*1 (1 it*1 (1 it*1 (1 ct DC -edge facto	e is cl 10 ~ 2 10 ~ 2 10 ~ 2 10 ~ 2 10 ~ 2 10 ~ 2 0 ~ 20 10 ~ 2 0 ~ 20 10 ~ 2 10 ~	200K 200K 200K 200K 200K 200K 200K	n. PPS pPS pPS PPS PPS PPS PPS PPS PPS PPS	) *2 pulse puls puls in ze	e trans e trans e trans e trans e trans	sfer val	ue) *: alue) balue) balue) ode
12 13 14 15 #7 #9 #11 #13 #15	in           W	/hen b[11] /hen b[11] /hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[14] /hen b[15] /hen b[15] /hen b[15] /hen b[15] /hen b[14] /hen b[14]	=0: f =1: r =0: f =0: f =0: f =0: f =0: f =1: r 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Arrowski and a straight of the second straigh	logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for no logic. When START inpu e logic When START inpu e logic. When STOP input e logic. When STOP input e logic. When STOP input glogic. When STOP input Maximum speed V <sub>max</sub> Bias speed V <sub>bias</sub> JOG speed V <sub>JOG</sub> Zero return speed V <sub>RT</sub> Zero return speed V <sub>RT</sub> Zero return mode N The number of PG0 in zero return mode P Zero return mode P	ignal is ignal ssen. W se filte t signa signal Rang Factt Rang Fa	s ON, is oFF (hen I I r). I is O I is O I is O I is O Pry see ge: 0 - pry see ge: - 3 - pry see ge: - 3 - pry see ge: - 3 - pry see ge: - 1 - ge: - - - - - - - - - - - - - - - - - - -	-2,12	G nee OG n(1)  =1, S TART STAR OP ir STOP  147,4 ; 200  147,4 ; 200  147,4 ; 500  147,4 ; 500  147,4 ; 500  147,4 ; 500  147,4 ; 500  147,4 ; 0 P ir n mod	ng-ed ar point s acces i nput. T input. T input. 483,6 000 un 483,6 000 un 483,6 000 un PLS LS LS LS LS le, b1 999 t 767 n 767 n 767 n 767 n	Ige is           atge is           nt sigr           oint si           ieleration           it.           ut.           u	trigge nal is gnal i on lind it*1 (1 it*1 (1 it*1 (1 it*1 (1 it*1 (1 it*1 (1 ct DC ct DC	e is cl is given is give e is cl 10 ~ 2 0 ~ 20 10 ~ 2 10 ~ 2 10 ~ 2 10 ~ 2 0 ~ 20 10 ~ 2 0 ~ 20 10 ~ 2 0 ~ 20 10 ~ 2 10 ~ 2 1	200K P 200K P 200K 200K 200K 200K 200K 200K 200K 200K	n. PPSS PPSS PPSS PPSS PPSS PPSS PPSS PP	) *2 pulse puls in ze	trans e tran e t	sfer val nsfer va nsfer va turn mo eturn mo	ue) *: alue) alue) alue) ode
12 13 14 15 #7 #11 #13 #15 bit # 0 1 #20	in           W           W           W           W           W           W           W           W           W           W           W           W           W           #6           #8           #10           #12           #14           #16           #17           #18           #           b[[           #19           #21           #22	/hen b[11] /hen b[11] /hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[14] /hen b[15] /hen b[15] /hen b[15] /hen b[15] /hen b[15] /hen b[14] /hen b[14]	=0: f =1: r =1: r =0: 1 =0: 1 =0: 1 =0: 1 =1: 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Arrowski and a straight of the	logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for no logic. When START inpu e logic When START inpu e logic. When STOP input e logic. When STOP input e logic. When STOP input glogic. When STOP in	ignal is isignal seen. W se filte t signaar t	s ON, is OF //hen I I is O I I I is O I I is O I I I is O I I I is O I	, DOO F, DO b[12] b[12] N, S DFF, S - +2 etting - +2 - +2 etting - +2 etting - +2 etting - +2 etting - +2 etting - +2 etting - +2 etting 2 - 2 - 2 - 2 - 2 - 2 - 2 -	G nee OG n (1)  =1, S TART TART STAR OP ir STOP (147,4; 200 (147,4; 50,00) (147,4; 50,00) (147,4; 5	ng-ed ar point § acces [input] (T input] (T in	tige is           int sigr           oint si           oleration           ideration           ider	trigge nal is gnal i gnal i it*1 (1 it*1 (1)))))))))))))))))))))))))))))))))))	red. ( given is give e is cl e is cl 10 ~ 2 0 ~ 20 10 ~ 2 10 ~ 2 10 ~ 2 10 ~ 2 10 ~ 2 0 ~ 20 10 ~ 2 10 ~ 20	200K 200K 200K 200K 200K 200K 200K 200K	n. PPS p PPS p PPS P PPS P PPS of the test of tes	) *2 pulse puls puls in ze f in z	trans e tran e t	sfer val nsfer va nsfer va turn mo eturn mo	ue) *: alue) alue) alue) ode
12 13 14 15 #7 #9 #11 #13 #15 bit # 0 1 #20 #22 #24 #26	in       W    <	/hen b[11] /hen b[11] /hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[14] /hen b[15] /hen b[15] /hen b[15] /hen b[15] /hen b[14] /hen b[14]	=0: f = = : r = = : r = = : r = = : r = = : r = : r = : r = : r = : : = : : = : : : = : : : :	node, b ing-edg R/W R/W R/W R/W R/W R/W R/W R/W R/W R/W	logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for no logic. When START inpu e logic When START inpu e logic. When STOP input e logic. When STOP input e logic. When STOP input glogic. When STOP	ignal is isignal is isignal is isignal is isignal is sen. Wasse filteta ts ignas isignal at signa isignal at signal at signa isignal at signa isignal at signa isignal at signa isignal at signa isigna isign	s ON, is OF // hen I is O I	, DO0 b[12] b[12] vN, S 2FF, S - +2 etting - +2 e - +2 e - +2 e +2 e - +2 e +2 e +2 e	G nee OG n.  =1, S TART START START OP ir 147,4; 200 (147,4; 50,0 (147,4; 50,0 (147,4; 50,0 (147,4; 50,0 (147,4; 50,0 (147,4; 50,0 (147,4; 1,00) (147,4; 1,00) (14	ng-ed ar point s acces i acces i nput t input t input t 33,648 s factor i no i nput t 33,648 s factor i nput t 1 nput t 33,648 s factor i nput t 1 nput t 33,648 s factor i nput t 1 nput t 1 nput t 33,648 s factor i nput t 1 nput t 1 nput t 1 nput t 33,648 s factor i n nput t 1 nput	dge is           ige is           nt sigg           oint si           eleration           it.           it.           id.	trigge nal is gnal i on line it*1 (1 it*1 (1 it*1 (1 it*1 (1 it*1 (1 it*1 (1 it*1 (1 it*1 (1 ct DC ct DC ctory s facto ctory s facto ctory s facto ctory s facto ctory s facto ctory s facto	rred. ( given is give e is cl 10 ~ 2 0 ~ 20 10 ~ 2 10 ~ 2 10 ~ 2 10 ~ 2 10 ~ 2 0 10 ~ 2 10 ~ 10 ~ 10 ~ 10 ~ 10 ~ 10 ~ 10 ~ 10 ~	200K 200K 200K 200K 200K 200K 200K 200K	n. PPS pPS pPS pPS PPS PPS PPS pPS pPS provide the set of the set	) *2 puls puls puls in ze ff in z (-2,1,1) settim (10 ~	e trans e tran e	sfer val nsfer va nsfer va nsfer va turn mo eturn mo eturn mo s3,648 unit*1	ue) *: halue) halue) ode
12 13 14 15 #7 #9 #11 #13 #15 bit # 0 1 #20 #24	in         W         #10         #117         #118         #117         #118         b[[         #119         #221         #223         #225         #225	/hen b[11] /hen b[11] /hen b[12] /hen b[13] /hen b[14] /hen b[14] /hen b[14] /hen b[15] /hen b[15] /hen b[15] /hen b[15] /hen b[15] /hen b[14] /hen b[14]	=0: f = = : r = = : r = = : r = = : r = = : r = : r = : r = : r = : : = : : = : : : = : : : :	Arrow and a second seco	logic. When DOG input s e logic. When DOG input id acceleration line is cho hen b[13]=1: 12ms(for no logic. When START inpu e logic When START inpu e logic. When STOP input e logic. When STOP input e logic. When STOP input glogic. When STOP in	ignal isignal ssen. W se filte t signa signal Ranç Factu Ranç Fac	s ON, is OFF (hen I I r). I is O I is O I is O I is O Pry see ge: 0 - pry see ge: 1 - ge: 1 -	, DOO F, DO b[12] N, S FF, S FF, S - +22 etting - +22 etting 2,76 2,14 483,6 -2,14 483,6 -2,14	G nee OG n (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	ng-ed ar point à accea i nput. i nput. trinput. 483,66 000 uni 483,6 000 uni 483,6 000 uni 483,6 000 uni PLS LS 22,767 LS He, b1 999 u 767 n 767 n 760	Ige is           ant sigg           nnt sig           ieleration           it.           it.<	trigge nal is gnal i on line it*1 (1 it*1 (1)))))))))))))))))))))))))))))))))))	rred. ( given s given e is clu is give e is clu in ~ 2 0 ~ 20 10 ~ 2 0 ~ 20 10 ~ 2 10 ~ 10 ~ 10 ~ 10 ~ 10 ~ 10 ~ 10 ~ 10 ~	200K P 200K P 200K 200K 200K 200K 200K 200K 200K 200K	n. PPS PPS PPS PPS PPS PPS PPS PPS PPS PPS	) *2 puls puls puls in ze ff in z iit*1 (-2,1,1 settin (10 ~	trans e tran e t	sfer val nsfer va nsfer va nsfer va unitsfer va unitsf	ue) *: alue) alue) alue) ode

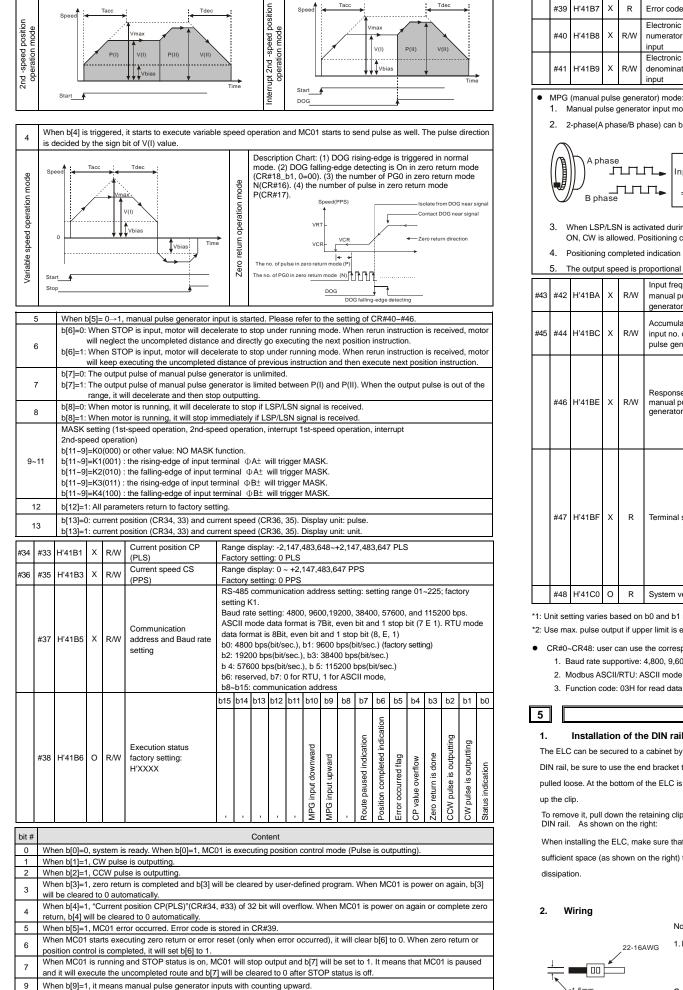
					b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
#31	H'41AF	x	R/W	Running instruction factory setting: H'0000			CLR output (On/Off)	CLR signal output mode	-	Current position = 0	-	Software START	ABS/REL Coordinate	Zero return start	-90G-	10G+	CCW pulse STOP	CW pulse STOP	Software STOP	Error reset

bit #								Content										Ac	tion
0	W	nen b[0]=	1, Er	ror res	et. Error indicator is	off ar	nd FL	AG in CR	(CR#	38.b[5]) is	cleare	ed to	0.					0	→1
1					the same function d or when b[1]=0→						stop.	Whe	n ext	ernal	signa	I that		0	→1
2	W	nen b[2]=	:1, C\	N runn	ing is forbidden. If C	CW ru	nning	instructio	n is gi	ven, error	will co	ome u	ıp.						1
3	W	nen b[3]=	1, C	CW run	ning is forbidden. If	CCW	runn	ing instru	tion i	s given, eri	ror wi	ll com	ne up						1
4	W	nen b[4]=	: 0→ <sup>·</sup>	1, CW p	oulse is generated i	n JOG	i+ mo	de.										0-	→1
5	W	nen b[5]=	: 0→ <sup>·</sup>	1, CCW	/ pulse is generated	l in JC	G-m	ode.										0-	→1
6	fou Po Po Po DC	ur situation sition (1) DG=Off. sition (2) sition (3) DG=Off a	in as : Sta : Sta : Sta nd L	follows rt positi rt positi rt positi SN (hai	return is performed. :: on (as the right pict on (as the right pict on (as the right pict on (as the right pict dware limit switch) on (as the left pictu	ure be ure be ure be signal	elow [ elow [ elow [ =Off.	1] ) is at th 2] ) is at th 3] ) is at th	ne righ ne righ ne left	nt of zero p nt of zero p of zero po	oint a oint, int an	ind D DOG: d DC	OG(r =On. )G(ne	iear p ar po	oint s	signal gnal),	),		→1
JOG operation mode	JC		/	Vm	Vjog Vbias		Time	Zero return operation route		[4]	• \	[3] z	ero poi	nt [2]	$\overline{\}$	•	[1]	LSP	
bit #	ŧ						Сс	ontent										Action	I
7					olute position. Whe				e posi	tion.								0/1	
8 10					running by the work ent position (CP) is													0→1 0→1	
10	-		-		itputs 130ms to Ser				s con	noleted It i	s the	clear	siana	al for	servo			0-71	
12		ternal err	-										3					0/1	
	-	-	-		common output po					s controlled	l by b	[13].						- / -	
13	VV	nen b[13	]=0,	CLR OL	tput is Off. When b					1								0/1	
						b15	b14	b13	b12	b11~b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
								Current position: CR34, 33; current speed: CR36, 35; display unit: 0 → pulse, 1 → unit	setting			Manual pulse generator range limitation		Manual pulse generator input operation	Variable speed operation mode start	nterrupt 2nd-speed position mode start	2nd-speed position mode start	nterrupt 1st-speed position mode start	st-speed position mode start



10

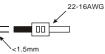
When b[10]=1, it means manual pulse generator inputs with counting downward.



DIN rail. As shown on the right When installing the ELC, make sure that it is installed in an enclosure with

dissipation

### 2. Wiring



# IL05003023E.pdf

Error code	Please refer to "Error Code & Troubleshooting" for detail. Factory setting: H'0000
Electronic gearing numerator of MPG input	Please refer to the following explanation Factory setting: H'1
Electronic gearing denominator of MPG input	Please refer to the following explanation Factory setting: H'1

R/W mar

R/W

R

Х

R/W

R/W

ľ41B7

H'41B9

B phase

1. Manual pulse generator input mode is ON when b5 of CR#32 is set to 1.

2. 2-phase(A phase/B phase) can be input from the manual pulse generator to  $\Phi A$  and  $\Phi B$ . FP/RP I/O pulse is as follows:



3. When LSP/LSN is activated during running, output will stop immediately. When LSP is ON, CCW is allowed. When LSN is ON, CW is allowed. Positioning completed flag should be ON in this mode.

4. Positioning completed indication (CR#38, b6=Off). When positioning control is completed, CR#38\_b6 will be ON.

The output speed is proportional to pulse frequency of manual pulse generator and the electronic gearing (CR#40, CR#41).

Input frequency of manual pulse generator	ual pulse Factory setting: 0									
Accumulated pulse input no. of manual pulse generator	the CC to do w	The count value of CW manual pulse input is " +" symbol, on the contrary, the CCW manual pulse input is "-"symbol. And the count value is nothing to do with the ratio setting of manual electronic gearing (CR#40, #41). Factory setting: 0.								
	Value	Response speed	When response speed setting is faster, the							
	≧5	4ms (factory setting)	instructions of pulse output and manual pulse generator input will be more							
Response speed of manual pulse	4	32ms	synchronous. When response speed							
generator	3	108ms	setting is slower, the instruction of pulse							
	2	256ms	output is slower than the instruction of manual pulse generator input. Factory							
	1or 0	500ms	setting: 5							
	bit #	Status	Description							
	b0	START input	When START input is On, b0 is On.							
	b1	STOP input	When STOP input is On, b1is On.							
	b2	DOG input	When DOG input is On, b2 is On.							
Terminal status	b3	PG0 input	When PG0 input is On, b3 is On.							
	b4	LSP input	When LSP input is On, b4is On.							
	b5	LSN input	When LSN input is On, b5 is On.							
	b6	A phase input	When A phase input is On, b6 is On.							
	b7	B phase input	When B phase input is On, b7 is On.							
	b8	CLR output	When CLR output is On, b8 is On.							
System version	System version is in hexadecimal. e.g. software V1.00 is for H'0100.									

\*1: Unit setting varies based on b0 and b1 setting of CR#5.

\*2: Use max. pulse output if upper limit is exceeded. Use min. pulse output if lower limit is exceeded

• CR#0~CR48: user can use the corresponding addresses H4190~41C0 to read/write data via RS-485 communication.

1. Baud rate supportive: 4,800, 9,600, 38,400, 57,600, and 115,200 bps.

2. Modbus ASCII/RTU: ASCII mode is 7Bit, even bit and 1 stop bit (7,E,1). RTU mode is 8Bit, even bit and 1 stop bit (8, E, 1). 3. Function code: 03H for read data from CR; 06H for write one WORD in CR; 10H for write many WORDs in CR.

## **INSTALLATION & WIRING**

### Installation of the DIN rail

The ELC can be secured to a cabinet by using the DIN rail that is 35mm high with a depth of 7.5mm. When mounting the ELC on the DIN rail, be sure to use the end bracket to stop any side-to-side motion of the ELC, thus to reduce the chance of the wires being pulled loose. At the bottom of the ELC is a small retaining clip. To secure the ELC to the DIN rail, place it onto the rail and gently push

To remove it, pull down the retaining clip and gently pull the ELC away from the

sufficient space (as shown on the right) to its surroundings so as to allow heat





Notes:

- 1. Please use 22-16AWG (1.5mm) wiring (either single or multiple core) for I/O wiring terminals. The specification for the terminals is as shown on the left. ELC terminal screws should be tightened to 1.95 kg-cm (1.7 lb-in). Use Copper Conductor Only, 60/75 °C.
- 2. I/O signal wires or power supply should not run through the same multi-wire cable or conduit.