

E Series Servo Drive

Multi-Motion Function User Manual

www.hiwinmikro.tw MD32UE01-2312_V1.2

Revision History

The version of the manual is also indicated on the bottom of the front cover.

MD32UE01-2312_V1.2



 Release	Date

Release Date	Version	Applicable Product	Revision Contents
Dec. 01 st , 2023	1.2	E1 series servo drive	 Update chapter 1 Environment configuration. Update section 7.1 Release note for multi-
			motion function.
			1. Update chapter 1 Environment configuration.
			2. Update chapter 2 Preparation .
			3. Update section 3.6 Instructions for customized
Aug 1/th 2023	11	E1 series servo drive	motion.
Aug. 14 , 2023	1.1	E2 series servo drive	4. Update section 3.8 Advanced setting.
			5. Update chapter 6 Related warning and alarm.
			6. Update section 7.1 Release note for multi-
			motion function.
Apr 25th 2022	1.0	E1 series servo drive	First adition
Apr. 25", 2025	1.0	E2 series servo drive	

Related Documents

Through related documents, users can quickly understand the positioning of this manual and the correlation between manuals and products. Go to HIWIN MIKROSYSTEM's official website \rightarrow Download \rightarrow Manual Overview for details (<u>https://www.hiwinmikro.tw/Downloads/ManualOverview_EN.htm</u>).

Preface

Multi-motion applications, such as food filling and food sorting, can be achieved by multi-motion function. With a few input signals, multi-motion movement can be completed. Thunder's "Multi-motion setting" window allows users to set basic parameters, such as motion number, input pin and type to complete the motion script and then check its correctness via simulation window. By doing so, the ideal of rapidly importing multi-motion applications can be achieved.

😏 Multi-motion setting							- 0	×
2 🖻 🗄	4 0 4		Ø				k << >>	<u>></u>
Motion#\$	Type of motion		Position (deg)	Velocity (deg/s)	Direction		Number of station	
Motion#1	Absolute move	▼	360	3,600	Shortest path	▼		Ī
Motion#2	Absolute move	▼	360	3,600	Positive	▼		Ĩ
Motion#3	Absolute move	▼	90	3,600	Negative	▼		Ĩ.
Motion#4	Relative move	▼	90	3,600	Positive	▼		Ī
Motion#5	Relative move	▼	90	3,600	Negative	▼		
Motion#6	JOG	▼		3,600	Positive	▼		Ī
Motion#7	JOG	▼		3,600	Negative	▼		
Motion#8	Homing Operation	▼				▼		Ī
Motion#9	Indexing movement-1	▼		3,600	Positive	▼	6	
Motion#10	Indexing movement-1	▼		3,600	Negative	▼	6	
Motion#11	Indexing movement-2	▼		3,600	Positive	▼	6	
Motion#12	Indexing movement-2	▼		3,600	Negative	▼	6	
Motion#13	Software enable	▼				▼		Ī
Motion#14	Software disable	▼			-	▼		
Motion#15	Clear error	▼			-	▼		
Motion#16	Zero Point Position Offset	▼				▼		

Table of Contents

1.	Enviro	nment configuration	1-1
2.	Prepar	ration	
3.	Setting	g procedure	
	3.1	Add motion	
	3.2	Set motion	
	3.3	Type of motion	
	3.4	Activate multi-motion function	
	3.5	Disable multi-motion function	3-11
	3.6	Instructions for customized motion	
	3.7	Application setting: infinite rotation function	
	3.8	Advanced setting	
4.	Save/L	_oad multi-motion parameters file	
	4.1	Read multi-motion parameters from servo drive	
	4.2	Save/Load multi-motion parameters file (*.mtk)	
5.	Test ru	ın	
	5.1	Test run for multi-motion	
	5.2	Monitor load position	
6.	Relate	d warning and alarm	6-1
7.	Appen	dix	
	7.1	Release note for multi-motion function	
	7.2	Old version's related warning	

(This page is intentionally left blank.)

1. Environment configuration

1.	Environment configuration	1-1	1
----	---------------------------	-----	---

MD32UE01-2312

Environment configuration

When using multi-motion function, it is recommended to use standard servo drive (model: $ED_{\Box}S-V_{\Box}$) and Thunder version 1.9.20.0 or above. For E1 series servo drive (model: $ED1S-V_{\Box}$), use firmware version 2.8.18; for E2 series servo drive (model: $ED2S-V_{\Box}$), use firmware version 3.9.20. Applicable motor types and descriptions are shown in the following table. Refer to section 7.1 for the release note.

Motor Type	Description
Direct drive motor (DM)	Applicable to direct drive
Torque motor (TM)	Applicable to direct drive
Linear motor (LM)	Applicable to direct drive
AC corrections (AC)	Applicable to the reducer
AC Servo motor (AC)	with reduction ratio of 1:5000 or below

2. Preparation

2.	Preparation	2-1
2.	Preparation	2

MD32UE01-2312

Preparation

- When multi-motion function is used, PDL can only support 1 task. Before using multi-motion function, ensure PDL does not exceed 1 task. Refer to section 9.5 PDL in "E Series Servo Drive Thunder Software Operation Manual" for details.
- The usage of encoder will affect the behavior of multi-motion function. Before using multi-motion function, set
 Pt002. DXDD according to the encoder type (multi-turn, single-turn absolute or increment). Refer to section
 6.12.3 Parameter settings for encoder in "E1 Series Servo Drive User Manual" and section 6.12.3
 Parameter settings for encoder in "E2 Series Servo Drive User Manual" for details.

Before using multi-motion function, follow the steps below to complete preparation.

Step 1: Select internal position mode as control mode

Multi-motion function is only applicable to internal position mode. Therefore, set control mode as $Pt000.\square\Box A\Box$.

Step 2: Set "Electronic gear ratio setting" window

Refer to section 4.3.6.3 **Electronic gear ratio setting** in "E Series Servo Drive Thunder Software Operation Manual". Go to "Electronic gear ratio setting" window in Thunder's Configuration Wizard to complete the setting, as Figure 2.1 shows.

🕗 Electronic gear ratio setting				-		×
Mechanical structure :	Ball screw	,				
	∏ Elec. gear	ratio —				
++						
<u></u>	Pt20E	- = -	65,536			
	Pt210		15,625			
Resolution : 8,388,608 counts/re	ev.					
Feed constant						
Feed constant =	20	mm	n/rev			
Reduction ratio						
When the motor rotates for m	revolutions, t	he load s	haft rotates for	n revolut	ions.	
Deduction ratio	1	n				
	1	m				
Control unit						
Control unit is the minimum u	nit that the lo	ad moves	for one pulse.			
Control unit = 0.01	um		Modify			
					Apply	

Figure 2.1 "Electronic gear ratio setting" window

MD32UE01-2312

Preparation

E Series Servo Drive Multi-Motion Function User Manual



- (1) When rotary motor is used, if mechanical structure is not selected or is selected as **Other**, it will be viewed as a rotary mechanism with reduction ratio of 1:1.
- (2) When dual-loop structure is used, mechanical structure cannot be changed.

Step 3: Disable the function of input pins

Refer to section 4.5 **I/O configuration** in "E Series Servo Drive Thunder Software Operation Manual". Go to "I/O configuration" window and set all the input pins for multi-motion function as **Not configure**, as Figure 2.2 shows.

Motion number	Number of input pins to be set
1	2
2~3	3
4 ~ 7	4
8 ~ 15	5
16 ~ 31	6
32 ~ 63	7
64 ~ 127	8
128 ~ 255	9

Table 2.1 Number of input pins corresponding to motion number



Figure 2.2 "I/O configuration" window

MD32UE01-2312

Preparation

E Series Servo Drive Multi-Motion Function User Manual



- (1) Save an input pin for S-ON or configure a "Software enable" motion (refer to section 3.3).
- (2) Do not set P-OT and N-OT as **Not configure** when using overtravel function.

3. Setting procedure

3.	Setting p	rocedure	3-1
	3.1	Add motion	3-3
	3.2	Set motion	3-5
	3.3	Type of motion	3-7
	3.4	Activate multi-motion function	3-9
	3.5	Disable multi-motion function	3-11
	3.6	Instructions for customized motion	3-12
	3.7	Application setting: infinite rotation function	3-15
	3.8	Advanced setting	3-16

MD32UE01-2312

Setting procedure

After completing preparation, click "Open multi-motion setting" icon 🚨 in Thunder's toolbar.



Figure 3.1 Open "Multi-motion setting" window



If users have already set electronic gear ratio based on the previous chapter, refer to section 10.2 **Display unit switching** in "E Series Servo Drive Thunder Software Operation Manual" to convert display unit to load side's unit for follow-up setting.

The steps to set multi-motion parameters and activate multi-motion function are given as follows.

Step 1: Add motion, refer to section 3.1.

Step 2: Set motion, refer to section 3.2.

Step 3: Activate multi-motion function, refer to section 3.4.

3.1 Add motion

1. Click "New or Modify" icon 🖸 to open "Set motion number and specify input signal" window. After users key in "Motion number", the signal configuration corresponding to each motion will be automatically generated.

Notion Type of motion Peston (chí uni) Velocity (sm) Direction Number of station tonumber nel sport/grad spat	Image: Second sector S			Multi-motion sett	ting							-	
Mation Type of motion Peaking (chr) Velocity (pm) Direction Number of station commerce and specifying tignt	Maximis Type of mation Position (ctrl unit) Valocity (rpm) Direction Number of station tonumber of specifying stigal	Motories Type of motion Position (cit1 unit) Velocity (pm) Direction Number of station ion out-to and sets/ ipod sguid	Notion F Type of motion Position (ctl unit) Velocity (pm) Decision Number of station an under and quotify (puis typic) Signil & Si		P			$\overline{\mathbf{S}}$					
Motion Lype of motion Pestion (ctr unit) Vencchy (rpm) Direction Number of station toon number and specify right Speal	Kotoonis type of molecin Persion (ctr unit) Vencory (rpn) Direction Kumber of station ten number ad specingst speal	Kotonis (ype of mation Postion (ctr unit) Vencchy (rpm) Direction Number of station ion watter of geoly inpaction!	Motivalis Lyge of motion Pestion (cit unit) Validation Number of station another ad gath/pod synd Synd 3 Synd								<u></u>	<u> </u>	
Instrument of got plut plut plut Press got plut plut plut plut plut plut plut plu	Appl Spail		intermediate protein Person No Conjunction Signed 2 Signed 3	Motion#\$		Type of motion	Positi	on (ctrl unit)	Velocity (rp	m)	Direction	Number of	station
And Statu S	Appy Calc In 1995 Please pits 17/05/1-100 configuration" and set the input sequel as 11de configur. Sequel 3 No. No.<	Appl Specify Specify <thspecify< th=""> <thspecify< th=""> <thspec< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></thspec<></thspecify<></thspecify<>											
Note 1 (1925) Please gr to Took* >>0 configuration* and set the input signal as "the configuration" Signal 3	Note Signal & Signal & <th< td=""><td>Ber O (*23) Please go to Tode* 700 configuration* and set the input signal as 740 configuration* Signal 3 Signal 4 Signal 4</td></th<> <td>Art O Order OpenLos SignL3 SignL3</td> <td>tion number and specify</td> <td>y input signal</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>- 0</td>	Ber O (*23) Please go to Tode* 700 configuration* and set the input signal as 740 configuration* Signal 3 Signal 4	Art O Order OpenLos SignL3	tion number and specify	y input signal								- 0
Control Symul 3 Symul 7 Symul 5 Symul 4 Symul 3 Symul 7 Symul 7 <t< td=""><td>Art Signal, 1 Signal, 2 Signal, 3 Signal, 3 Signal, 3 Signal, 3 Signal, 1 Signal, 1 Signal, 3 Sign</td><td>Art Sprul,8 Sprul,7 Sprul,8 Sprul,4 Sprul,3 Sprul,1 Sp</td><td>Art Synul 3 Synul 7 Synul 5 Synul 4 Synul 3 Synul 2 Synul 1 Synul 9 N.A. N</td><td>mber : 0 (1~255)</td><td></td><td></td><td>F</td><td>Please go to "Tools"-</td><td>>"I/O configuration" a</td><td>nd set the input signa</td><td>al as "Not configure"</td><td></td><td></td></t<>	Art Signal, 1 Signal, 2 Signal, 3 Signal, 3 Signal, 3 Signal, 3 Signal, 1 Signal, 1 Signal, 3 Sign	Art Sprul,8 Sprul,7 Sprul,8 Sprul,4 Sprul,3 Sprul,1 Sp	Art Synul 3 Synul 7 Synul 5 Synul 4 Synul 3 Synul 2 Synul 1 Synul 9 N.A. N	mber : 0 (1~255)			F	Please go to "Tools"-	>"I/O configuration" a	nd set the input signa	al as "Not configure"		
NA NA<	N.A. N.A. <th< td=""><td>N.L N.L N.L<td>Kit Kit Kit</td></td></th<> <td>_Act</td> <td>Signal_8</td> <td>Signal_7</td> <td>Signal_6</td> <td>Signal_5</td> <td>Signal_4</td> <td>Signal_3</td> <td>Signal_2</td> <td>Signal_1</td> <td>Signal_0</td>	N.L N.L <td>Kit Kit Kit</td>	Kit	_Act	Signal_8	Signal_7	Signal_6	Signal_5	Signal_4	Signal_3	Signal_2	Signal_1	Signal_0
Apply Case I tion number and getS/ input agail -	Apply Cased tot non-served (sept spat) Place go to Tools ">10 configuration" and set the spat as "1 act contage." Signed /2 Signed /2 <td>Apply Cascil 50 mmber sof yeight yeight Persog to Tooty'-'1'O configuration'' and software sognals a "Natic configuration"</td> <td>Apply Carcel outpute red specty input ignal Strand 7 S</td> <td></td> <td> N.A.</td> <td>▼ N.A.</td> <td>V N.A. V</td> <td>N.A. 🔽</td> <td>N.A.</td> <td>N.A.</td> <td>N.A.</td> <td>N.A.</td> <td>N.A.</td>	Apply Cascil 50 mmber sof yeight yeight Persog to Tooty'-'1'O configuration'' and software sognals a "Natic configuration"	Apply Carcel outpute red specty input ignal Strand 7 S		N.A.	▼ N.A.	V N.A. V	N.A. 🔽	N.A.	N.A.	N.A.	N.A.	N.A.
Konumber and specify input signal Signal_S	Appy Cancel bits 25 11-253 Please go to Tool*~100 collipautoria* and set thi input signal as "Nacound" 2 signal 7 Sig	Apply Cascel Simular and gently input input - V Signil 7 Signil	Apply Casce enumber and specify input signal - r 30 1-250 Pare go to Tool*>100 configuration* and set the raps signal as "lat configure" At NA NA NA NA Signal_3 Signal_4 Signal_3 Signal_4 Signal_4 Signal_4 Signal_4 Signal_4 Signal_4 Signal_6 Signal_7 Signal_6 Signal_7 Signal_6 Signal_7 Signal_6 Signal_7 Signal_										
Apply Owner! tion number and gas/y input signal	Apply Carcel for number and geofy right signal <t< td=""><td>Agely Curcle bit width 20 1250 Plass go to Tools**100 configuration* and set the input signal as "hot configure" Signal 3 Signal 4 Signal 4 Signal 4 Signal 2 Signal 9 Signal 9</td><td>Apply Carcel on number and specify input signal - br 250 1-250 Total NA NA NA Spail J S</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Agely Curcle bit width 20 1250 Plass go to Tools**100 configuration* and set the input signal as "hot configure" Signal 3 Signal 4 Signal 4 Signal 4 Signal 2 Signal 9	Apply Carcel on number and specify input signal - br 250 1-250 Total NA NA NA Spail J S										
Apply Carcel torn number and gestly ipput signal Pease go to Tools 2×10 configuration* and set the input signal as "tot configuration" Not Not Not Signal A Signal A <td>Apply Carcel ton number and specify input signal Pesses go to "Tools" >100 configuration" and set the input signal as "Not configure Signal 4 Signal 4</td> <td>Apply Carcel torsume and gatefying and</td> <td>Apply Curcel on number and spechy input signal Signal & Signal</td> <td></td>	Apply Carcel ton number and specify input signal Pesses go to "Tools" >100 configuration" and set the input signal as "Not configure Signal 4	Apply Carcel torsume and gatefying and	Apply Curcel on number and spechy input signal Signal & Signal										
Konumber of specify input signal Signal 7 <	Apply Carcel SomuL7 Signel 5 Please goto Tools*-VO configuration* and set the input langel as "Not configuration" Signel 7 Signel 7 <td>Apply Cancel tors and perfor input signal - tors 25 12-251 Signal_1 Signal_5 Signal_3 Signal_2 Signal_1 Signal_6 Signal_2 Signal_3 Signal_3 Signal_2 Signal_6 S</td> <td>Apply Carcel on variety and specify input specify 25 1°-500 Plasse go to Tools ">1°O configuration" and set the input specifie variety and set the input specifie variety</td> <td></td>	Apply Cancel tors and perfor input signal - tors 25 12-251 Signal_1 Signal_5 Signal_3 Signal_2 Signal_1 Signal_6 Signal_2 Signal_3 Signal_3 Signal_2 Signal_6 S	Apply Carcel on variety and specify input specify 25 1°-500 Plasse go to Tools ">1°O configuration" and set the input specifie variety										
Apply Cancel tion number and qeedly input signal Signal_2 Signal_3 Signal_2 Signal_4 Signal_4 Signal_4 Signal_4 Signal_4 Signal_4 Signal_6 NA. NA. <t< td=""><td>Kincent Ori Ori Ori Ori Signal 2 Signal 2 Signal 3 Signal 4 Signal 3 Signal 4 Signal 3 Signal 3 Signal 4 Signal 3 Signal 3 Signal 4 Signal 3 Signal 4 Signal 3 Signal 4 Signal 3 Signal 3 Signal 4 Signal 3 Signal 3</td><td>Apply Carcel isonuries rel good joint light Passe go to Tode">10 configuration" and set the implicipal as "location from the implicipat as "location from the implicipat as</td><td>Apply Carcel on number and specify input speal </td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Kincent Ori Ori Ori Ori Signal 2 Signal 2 Signal 3 Signal 4 Signal 3 Signal 4 Signal 3 Signal 3 Signal 4 Signal 3 Signal 3 Signal 4 Signal 3 Signal 4 Signal 3 Signal 4 Signal 3 Signal 3 Signal 4 Signal 3	Apply Carcel isonuries rel good joint light Passe go to Tode">10 configuration" and set the implicipal as "location from the implicipat as "location from the implicipat as	Apply Carcel on number and specify input speal										
Apply Cancel store-set-set-yearly input ignal Place go to "Tool" >TO configuration" and set the input signal as "Too configuration" Signal_1 Signal_2 Signal_3 Signal_3 Signal_3 Signal_3 Signal_3 Signal_3 Signal_3 Signal_4 Signal_4 Signal_3 Signal_5 Signal_4 Signal_5 Signal_5 Signal_5 Signal_6 Signal_6 Signal_6 Signal_6 Signal_7 Signal_6 Signal_7 Signal_6 Signal_7 Signal_6 Signal_7 Signal_7 Signal_7 Signal_7 Signal_6 Signal_7	Apply Cancel tion number and specily input signal Person points' > 1/0 Configuration' and set the input signal as "bio configuration" and set the input sinput signal as "bio configuration" and set the input	Sprail Signal Signal<	Apply Cancel on worker and specify input light Passa go to Tools*0*U configuration* and st bingt as Tol configure Signal_7 Signal_6 Signal_6 Signal_7 Si										
Apply Cancel tion number and specify input signal - </td <td>Kino number and specify input tignal Apply Cancel more 205 1-255 Please go to "Tools">"D'O configuration" and set the input signal as "Nat. Configuration" NA. NA. NA. Signal J. Signal J.</td> <td>Apply Cancel bin number and specify input tignal Signal_1 Signal_2 Signal</td> <td>Apply Cancel on number and specify input signal - ber 25 (1-25) V V NA NA Na NA</td> <td></td>	Kino number and specify input tignal Apply Cancel more 205 1-255 Please go to "Tools">"D'O configuration" and set the input signal as "Nat. Configuration" NA. NA. NA. Signal J.	Apply Cancel bin number and specify input tignal Signal_1 Signal_2 Signal	Apply Cancel on number and specify input signal - ber 25 (1-25) V V NA NA										
Apply Cancel Material Specify input signal Cancel Total "O" OT OT O" "O" OT	Apply Cancel there are specify input signal NA V NA V Specify	Apply Cancel ion number and specify input signal - ber 25 11-25) Place goto Tools'->100 configuration' and set the input signal at Net configuration' NA NA Signal 3 Signal 4 Signal 4 Signal 3 Signal 4 Signal 4 Signal 4 Signal 4 Signal 5 Signal 5 Signal 6 Signal 6 Signal 7 Signal 6 Signal 7 Si	Apply Cancel on number and specify input speal Please go to "Tools">"U"O configuration" and set the input speal as "Net configuration" br 20 1=250 Please go to "Tools">"U"O configuration" and set the input speal as "Net configuration" Add NA. NA										
Apply Cancel ton number and peeply input synal -	Kine mumber and specify input signal Signal S	Apply Cancel bio number and specify input signal - ber 25 Personal Signal_2 National Nat National	Apply Cancel on number and specify input signal - ber 25 (1-25) Signal 3 Signal 4 NA										
Apply Cascel sion number and specty input signal - <td>Signal J Signal J</td> <td>Apply Cancel Ion number and specify input signal Passes pto "Foods">"Foods Signal 2 <</td> <td>Apply Cancel on varies and specify input signal Please go to "Tools">"UO configuration" and set the input signal as "Tot configure" br 25 1=25) Please go to "Tools">"UO configuration" and set the input signal as "Tot configure" Add NA. NA.</td> <td></td>	Signal J	Apply Cancel Ion number and specify input signal Passes pto "Foods">"Foods Signal 2 <	Apply Cancel on varies and specify input signal Please go to "Tools">"UO configuration" and set the input signal as "Tot configure" br 25 1=25) Please go to "Tools">"UO configuration" and set the input signal as "Tot configure" Add NA.										
Modeline Orifice Signal & Signal 7 <	Apply Cancel tion number and specify input signal Plane go to "Cod">"UO configuration" and set the input signal as "Not configuration" Infer 255 Plane go to "Cod">"UO configuration" and set the input signal as "Not configuration" Infer Signal 5 Signal 5 Signal 4 Signal 7 Signal 0 NA	Apply Cancel ion number and specify input signal	Apply Case on number and specify input signal <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>										
Material Ori Or	Molecond Orif	Apply Cancel ion number and specify input signal - ster 253 1-255 Vertex Signal_3 Signal_7 Signal_6 Signal_4 Signal_3 Signal_3 Signal_4 Signal_6 Signal_6 Signal_6 Signal_6 Signal_6 Signal_6 Signal_7 Signal_7 Signal_7 Signal_6 Signal_4 NA.	Apply Cancel on number and specify input signal - br: 25 (1-25) Visional 3 Signal 5 Signal 3 Signal 5 Signal 4 NA. NA. NA. NA. NA. NA. NA. Naccord Off Off Off Naccord Off Off Off Off Off Naccord Off Naccord Off Naccord Off Off Off Naccord Off Off Off Off Off Off Off Off Off Off Off Off Off										
Molecient Ori Signal & Signal & <th< td=""><td>Apply Cancel tion number and specify input signal - tion number and specify input signal Signal 1 Signal 3 Signal 4 Signal 4 Signal 5 Signal 5 Signal 4 Ndcord1 Orl Orl Orl Mdcord1 Orl Orl Orl</td><td>Apply Cancel bio ZS (-25) Please go to Tools >VO configuration' and set the input signal as "Not configure" Signal_3 Signal_3 Signal_4 Signal_6 Signal_5 Signal_3 Signal_2 Signal_0 Act NA NA NA NA NA NA NA Signal_7 Signal_6 Signal_7 Signal_7 Signal_7 Signal_8 Signal_9 Si</td><td>Apply Cascel on number and specify input signal - ber 25 (1-55) Place go to "Toos">"To configuration" and set the input signal as "Net configuration" Add N.A. N.A.<td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td></th<>	Apply Cancel tion number and specify input signal - tion number and specify input signal Signal 1 Signal 3 Signal 4 Signal 4 Signal 5 Signal 5 Signal 4 Ndcord1 Orl Orl Orl Mdcord1 Orl Orl Orl	Apply Cancel bio ZS (-25) Please go to Tools >VO configuration' and set the input signal as "Not configure" Signal_3 Signal_3 Signal_4 Signal_6 Signal_5 Signal_3 Signal_2 Signal_0 Act NA NA NA NA NA NA NA Signal_7 Signal_6 Signal_7 Signal_7 Signal_7 Signal_8 Signal_9 Si	Apply Cascel on number and specify input signal - ber 25 (1-55) Place go to "Toos">"To configuration" and set the input signal as "Net configuration" Add N.A. N.A. <td></td>										
Apply Cancel Ident 25 1-25) Please go to Tools">"UO configuration" and set the input signal as "Not configure" Material Signal 3 Signal 4 Signal 2 Signal 1 Signal 3 Signal 3 Signal 3 Signal 3 Signal 3 Signal 0 Material Ori Ori Ori Ori Ori Ori Ori Signal 3 Signal 4 Signal 3 Signal 3 Signal 0 No. <	Apply Cancel ticn number and specify input signal - 255 Please go to "Tool">"UO configuration" and set the input signal as "Net configure" Material NA NA <td< th=""><th>Apply Cancel ion number and specify input signal Presse go to "Tools">'''O configuration" and set the input signal as "Nect configuration" tet: 23 (1-25) Signal 3 Signal 4 Signal 3 Signal 3 Signal 4 Signal 4 Signal 5 Signal 4 Signal 4 Signal 5 Signal 5 Signal 4 Signal 5 Signal 5 Signal 4 N.A. N.A.</th><th>Apply Cancel on number and specify input signal Place go to "Tools">"UO configuration" and set the input signal as "Neuromytant" 25 1-255 Place go to "Tools">"UO configuration" and set the input signal as "Neuromytant" Signal_1 Signal_2 Signal_2</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>	Apply Cancel ion number and specify input signal Presse go to "Tools">'''O configuration" and set the input signal as "Nect configuration" tet: 23 (1-25) Signal 3 Signal 4 Signal 3 Signal 3 Signal 4 Signal 4 Signal 5 Signal 4 Signal 4 Signal 5 Signal 5 Signal 4 Signal 5 Signal 5 Signal 4 N.A.	Apply Cancel on number and specify input signal Place go to "Tools">"UO configuration" and set the input signal as "Neuromytant" 25 1-255 Place go to "Tools">"UO configuration" and set the input signal as "Neuromytant" Signal_1 Signal_2										
Apply Cancel ticon number and specify input signal	Model Signal /s Si	Apply Cancel ion number and specify input signal - ber: 25 (1-25) Signal_3 Signal_6 Signal_6 Signal_6 Signal_7 Signal_6	Apply Cascel on number and specify input signal <										
Matcard Off	Apply Cancel ton number and specify input signal Please go to Tools*>'VO configuration* and set the input signal as "Not configure" there 25 (1-255) Please go to Tools*>'VO configuration* and set the input signal as "Not configure" tAct N.A. N.A. N.A. N.A. Signal_5 Signal_4 Signal_3 Signal_1 Signal_0 Mations	Apply Cancel ion number and specify input signal - tetre 255 (1-25) National Signal / Signal	on number and specify injust signal set of the signal as "Not configuration" and set the injust signal as "Not configuration" and set t										
Apply Cancel tion number and specify input signal Please go to "Tools">"UO configuration" and set the input signal as "Not configure" there 25 (1-25) Please go to "Tools">"UO configuration" and set the input signal as "Not configure" tAct N.A. N.A. <td>tion number and specify input signal term of the specify input sig</td> <td>Apply Cancel ion number and specify input signal Person go to "Tool" >"NO configuration" and set the input signal as "Not configure" Signal_3 Signal_4 Signal_3 Signal_4 Signal_3 Signal_4 Signal_4 Signal_4 Signal_6 Signal_6</td> <td>Apply Case on number and specify input signal F 25 (1-25) F F F Signal 7 Signal 6 Signal 6 Signal 7 Signal 9 S</td> <td></td>	tion number and specify input signal term of the specify input sig	Apply Cancel ion number and specify input signal Person go to "Tool" >"NO configuration" and set the input signal as "Not configure" Signal_3 Signal_4 Signal_3 Signal_4 Signal_3 Signal_4 Signal_4 Signal_4 Signal_6	Apply Case on number and specify input signal F 25 (1-25) F F F Signal 7 Signal 6 Signal 6 Signal 7 Signal 9 S										
Apply Cancel on number and specify input signal Please go to Tools ">100 configuration" and set the input signal as "Not configure" - C ber 255 1255 Please go to Tools ">100 configuration" and set the input signal as "Not configure" - C Act N.A.	Apply Cancel ber 255 (1-255) Please go to Tools*>*0/0 configuration* and set the input signal as "Not configure" Signal 3	Apply Cancel on number and specify input signal Please go to "Tool">"UO configuration" and set the input signal as "Net configuration" or X3 Signal 7 Signal 6 Signal 5 Signal 3 Signal 7 Signal 0 Signal 0 Signal 1 Signal 0	Apply Cancel on number and specify input synal - Per 25 (1-25) NA NA NA NA NA NA Signal J										
Apply Cancel on number and specify input signal - <td>Apply Cancel on number and specify input signal <</td> <td>Apply Cancel consumer and specify input signal consup signal consup sinput signal c</td> <td>Appy Cancel on number and specify input signal - ber: 25 1-55 Descention Signal S Signal S</td> <td></td>	Apply Cancel on number and specify input signal <	Apply Cancel consumer and specify input signal consup signal consup sinput signal c	Appy Cancel on number and specify input signal - ber: 25 1-55 Descention Signal S										
Appy Cancel on number and specify input signal -	Apply Cancel an number and specify input signal Signal_6 Signal_	Apply Cancel an number and specify input signal Peace go to Tools*>TVO configuration* and set the input signal as "Not configure" Act N.A.	App/ App/ Carcel on number and speciy input signal										
Apply Cancel con number and specify input signal - <td>Apply Cancel on number and specify input signal Signal 5 Signal 6 Signal 6 Signal 6 Signal 6 Signal 7 Signal 6 Signal 6 Signal 6 Signal 7 Signal 7 Signal 7 Signal 6 Signal 6 Signal 6 Signal 7 Sig</td> <td>Apply Cancel on number and specify input signal Please go to "Tools">"VO configuration" and set the input signal as "Not configuration" br 25 [1-25] Please go to "Tools">"VO configuration" and set the input signal as "Not configuration" Act N.A. N.A.</td> <td>Apply Cancel on number and specify input signal Signal 6 Signal 6 Signal 7 Signal 6 Signal 7 Signal 7</td> <td></td>	Apply Cancel on number and specify input signal Signal 5 Signal 6 Signal 6 Signal 6 Signal 6 Signal 7 Signal 6 Signal 6 Signal 6 Signal 7 Signal 7 Signal 7 Signal 6 Signal 6 Signal 6 Signal 7 Sig	Apply Cancel on number and specify input signal Please go to "Tools">"VO configuration" and set the input signal as "Not configuration" br 25 [1-25] Please go to "Tools">"VO configuration" and set the input signal as "Not configuration" Act N.A.	Apply Cancel on number and specify input signal Signal 6 Signal 6 Signal 7 Signal 6 Signal 7										
Apply Cancel on number and specify input signal - <td>Apply Cancel on number and specify input signal - Der 25 1-255) Fease to to Tools*>"VO configuration" and set the input signal as "Not configure" Act NA. NA.<td>Apply Cancel consumer and specify input signal consup signal consup sinput signal c</td><td>Apply Cancel on number and specify input signal - ber: 25 (-25) 25 (-25) Please gots "Tool">"O'O configuration" and set the input signal as "Not configure" And N.A. N.A.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td>	Apply Cancel on number and specify input signal - Der 25 1-255) Fease to to Tools*>"VO configuration" and set the input signal as "Not configure" Act NA. NA. <td>Apply Cancel consumer and specify input signal consup signal consup sinput signal c</td> <td>Apply Cancel on number and specify input signal - ber: 25 (-25) 25 (-25) Please gots "Tool">"O'O configuration" and set the input signal as "Not configure" And N.A. N.A.</td> <td></td>	Apply Cancel consumer and specify input signal consup signal consup sinput signal c	Apply Cancel on number and specify input signal - ber: 25 (-25) 25 (-25) Please gots "Tool">"O'O configuration" and set the input signal as "Not configure" And N.A.										
Apply Cancel on number and specify input signal - <td>Apply Cancel on number and specify input signal </td> <td>Apply Cancel on number and specify input signal - Per 25 1-255) Please go to Tools">"VO configuration" and set the input signal as "Not configure" Att N.A. N.A.</td> <td>Apply Cancel on number and specify input signal - 255 12:55 Mational NA <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<></td>	Apply Cancel on number and specify input signal	Apply Cancel on number and specify input signal - Per 25 1-255) Please go to Tools">"VO configuration" and set the input signal as "Not configure" Att N.A.	Apply Cancel on number and specify input signal - 255 12:55 Mational NA NA <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>										
Apply Cancel an number and specify input signal - <th>Apply Cancel on number and specify input signal </th> <th>Apply Cancel an number and specify input signal ref 255 Please go to Tools"->"UO configuration" and set the input signal as "Not configure" kt NA. NA. NA. Signal_5 Signal_6 Signal_4 Signal_7 Signal_0 Motional NA. NA.</th> <th>Apply Cancel on number and specify input signal - err 255 1-255) Please go to 'Tools''>'UO configuration' and set the input signal as 'Not configure' Signal 4 Signal 4<</th> <th></th>	Apply Cancel on number and specify input signal	Apply Cancel an number and specify input signal ref 255 Please go to Tools"->"UO configuration" and set the input signal as "Not configure" kt NA. NA. NA. Signal_5 Signal_6 Signal_4 Signal_7 Signal_0 Motional NA.	Apply Cancel on number and specify input signal - err 255 1-255) Please go to 'Tools''>'UO configuration' and set the input signal as 'Not configure' Signal 4 Signal 4<										
Apply Cancel on number and specify input signal - <th>Apply Cancel on number and specify input signal </th> <th>Apply Cancel converber and specify input signal Signal 3 Signal 3 Signal 4 Signal 3 Signal 5 Signal 4 Signal 3 Signal 1 Signal 6 Signal 6 Signal 7 Signal 6 Signal 7 Signal 6 Signal 3 Signal 7 Signal 6 Signal 7 Signal 7 Signal 6 Signal 7 Signal</th> <th>Apply Cancel on number and specifyingut signal Page op 10 Configuration¹ and set the ingut signal as Not configure - or 25 (1-25) Page op 10 Configuration¹ and set the ingut signal as Not configure N.A. N.A.<!--</th--><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th>	Apply Cancel on number and specify input signal	Apply Cancel converber and specify input signal Signal 3 Signal 3 Signal 4 Signal 3 Signal 5 Signal 4 Signal 3 Signal 1 Signal 6 Signal 6 Signal 7 Signal 6 Signal 7 Signal 6 Signal 3 Signal 7 Signal 6 Signal 7 Signal 7 Signal 6 Signal 7 Signal	Apply Cancel on number and specifyingut signal Page op 10 Configuration ¹ and set the ingut signal as Not configure - or 25 (1-25) Page op 10 Configuration ¹ and set the ingut signal as Not configure N.A. N.A. </th <th></th>										
Apply Cancel ion number and specify input signal - <th>Apply Cancel ion number and specify input signal - her: 255 Flease go to Tools">TO configuration" and set the input signal as "Not configure" her: 255 Flease go to Tools">TO configuration" and set the input signal as "Not configure" Act N.A. N.A.<</th> <th>Apply Cancel ion number and specify input signal - ter: 25: (1-25) Desce go to Tools*>"O configuration" and set the input signal as "Net onsignet" Att N.A. N.A.</th> <th>Appy Canel on number and specify input signal To 25 To 25 To 26 To 25 To 26 To 26 To 27 To</th> <th></th>	Apply Cancel ion number and specify input signal - her: 255 Flease go to Tools">TO configuration" and set the input signal as "Not configure" her: 255 Flease go to Tools">TO configuration" and set the input signal as "Not configure" Act N.A. N.A.<	Apply Cancel ion number and specify input signal - ter: 25: (1-25) Desce go to Tools*>"O configuration" and set the input signal as "Net onsignet" Att N.A.	Appy Canel on number and specify input signal To 25 To 25 To 26 To 25 To 26 To 26 To 27 To										
Apply Cancel ion number and specify input signal	Apply Cancel ion number and specify input signal - 255 Please go to "Tools">'UO configuration" and set the input signal as "Not configure" Act NA NA </th <th>Appy Cancel ion number and specify input signal - Act Signal_6 Signal_8 Signal_6 Signal_8 Signal_6 Signal_8 Signal_6 Signal_7 Signal_6 Signal_7 Signal_6 Signal_8 Signal_6 Signal_6 Signal_4 NA NA NA<th>Apply Cancel consumer and specify input signal consumer and specify input signal</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th>	Appy Cancel ion number and specify input signal - Act Signal_6 Signal_8 Signal_6 Signal_8 Signal_6 Signal_8 Signal_6 Signal_7 Signal_6 Signal_7 Signal_6 Signal_8 Signal_6 Signal_6 Signal_4 NA NA NA <th>Apply Cancel consumer and specify input signal consumer and specify input signal</th> <th></th>	Apply Cancel consumer and specify input signal										
Appy Cancel tion number and specify input signal - <th>Apply Cancel tion number and specify input signal -<!--</th--><th>Apply Cancel ion number and specify input signal - ber: 25 (r-255) Feases go to Tools'->'UO configurator' and set the input signal as "Not configure" Act N.A. N.A.<th>Apply Cancel on number and specify input signal </th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th></th>	Apply Cancel tion number and specify input signal - </th <th>Apply Cancel ion number and specify input signal - ber: 25 (r-255) Feases go to Tools'->'UO configurator' and set the input signal as "Not configure" Act N.A. N.A.<th>Apply Cancel on number and specify input signal </th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th>	Apply Cancel ion number and specify input signal - ber: 25 (r-255) Feases go to Tools'->'UO configurator' and set the input signal as "Not configure" Act N.A. N.A. <th>Apply Cancel on number and specify input signal </th> <th></th>	Apply Cancel on number and specify input signal										
tion number and specify input signal	Microsoft input signal	ion number and specify input spral her: 255 (1-25) The spral 3 Signal 4 Signal 3 Signal 4 Signal 5 Signal 6 Signal 5 Signal 6 Signal 5 Signal 6 Signal 7 Signal 6 Signal 7	anumber and specify input signal 25 (1-25) Pase go to Tous'>TO configuration' and set the input signal as "Signal_1.3" Signal_3.3" Signal_4.3" Signal_4.3" Signal_4.3" Signal_4.3" Signal_4.3" Signal_4.4" NA.4 NA NA<4 NA NA NA NA<4 NA NA<4										
Minimume and specify input signal Signal 7 Signal 6 Signal 5 Signal 3 Signal 3 Signal 1 Signal 0 Signal 0 Signal 0 Signal 1 Signal 0 Signal 0 Signal 1 Signal 0 Signal 0 Signal 1 Signal 0	MotomPart specify input signal Signal_3 Signal_1 Signal_6 Signal_7 Signal_6 Signal_7 Signal_6 Signal_7 Signal_6 Signal_7 Signal_6 Signal_6 Signal_6 Signal_6 Signal_6 Signal_7 Signal_7 <th< th=""><th>International spectry input spect Signal of Si</th><th>Another all spectra processing Processing Processing Spectra processing Spectraproc</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>Apply</th><th>Cancel</th></th<>	International spectry input spect Signal of Si	Another all spectra processing Processing Processing Spectra processing Spectraproc									Apply	Cancel
Motional specify inputsional Control Co	tion number used specify input signal specify input specifies input specify input specific input specify input specific input specific input specific input	Instrumenta and specify input specify Para to Specify Configuration and set to input specify and set to in									[Apply	Cancel
definition of the line of the l	Meteoretand specify input signal Signal_7 Signal_6 Signal_7 Signal_7 Signal_7 Signal_6 Signal_7 Signal_7 Signal_7 Signal_6 Signal_6 Signal_6 Signal_6 Signal_6 Signal_6 Signal_6 Signal_6 Signal_6 Signal_7 <	Appendix and specify input signal and and appendix and specify input signal and appendix appendix and appendix and appendix and appendix and appendi	on number and specify input signal of the								Ţ	Apply	Cancel
Index Signal_8 Signal_7 Signal_6 Signal_6 Signal_5 Signal_3 Signal_2 Signal_1 Signal_0 NA	Internet 255 1-255 Flesse go to "Tools"> "UO configuration" and set the input signal as "Not configure" Internet Signal_8 Signal_7 Signal_6 Signal_6 Signal_4 Signal_3 Signal_9 Signal_0 Metconf1 Off Off <td< th=""><th>Act Signal 8 Signal 7 Signal 6 Signal 6 Signal 4 Signal 3 Signal 2 Signal 0 NA. NA.</th><th>255 (1-25) Please go to "Tools">"ViD configuration" and set the input signal as "Not configuration" Act Signal 8 Signal 7 Signal 6 Signal 6 Signal 4 Signal 3 Signal 3 Signal 4 NA NA</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>]</th><th>Apply</th><th>Cancel</th></td<>	Act Signal 8 Signal 7 Signal 6 Signal 6 Signal 4 Signal 3 Signal 2 Signal 0 NA.	255 (1-25) Please go to "Tools">"ViD configuration" and set the input signal as "Not configuration" Act Signal 8 Signal 7 Signal 6 Signal 6 Signal 4 Signal 3 Signal 3 Signal 4 NA]	Apply	Cancel
Motion 25 (1-25) Signal_8 Signal_6 Signal_6 Signal_6 Signal_6 Signal_6 Signal_6 Signal_7 Signal_6 Signal_6 Signal_7 Signa	Metr. 25 (1-25) Signal_8 Signal_7 Signal_6 Signal_6 Signal_6 Signal_6 Signal_6 Signal_6 Signal_6 Signal_7 Signal_6 Signal_7 Signal_6 Signal_7 Signal_6 Signal_7 Signal_6 Signal_6 Signal_7 Signal_6 Signal_7 Signal_6 Signal_7 Signal_6 Signal_7 Signal	Motion#1 Off Of	Modion#1 Off Of	tion number and specifi	vinut signal				-		[Apply	Cancel
Mathematical Action Signal B Signal T Signal C Signal C </th <th>Kat Signal 8 Signal 7 Signal 9 Signal 9</th> <th>Act Signal_8 Signal_7 Signal_5 Signal_6 Signal_3 Signal_7 Signal_0 NA. NA.</th> <th>Act Signal 6 Signal 7 Signal 6 Signal 6 Signal 4 Signal 2 Signal 2 Signal 0 MA NA NA</th> <th>tion number and specify</th> <th>y input signal</th> <th></th> <th></th> <th></th> <th>-</th> <th></th> <th>Ţ</th> <th>Apply</th> <th>Cancel</th>	Kat Signal 8 Signal 7 Signal 9	Act Signal_8 Signal_7 Signal_5 Signal_6 Signal_3 Signal_7 Signal_0 NA.	Act Signal 6 Signal 7 Signal 6 Signal 6 Signal 4 Signal 2 Signal 2 Signal 0 MA NA	tion number and specify	y input signal				-		Ţ	Apply	Cancel
NA. NA. <th>Metion#1 Off O</th> <th>NA. NA. NA.<th>NA. NA. NA.<th>tion number and specify mber : 255 (1-255)</th><th>ý input signal</th><th></th><th></th><th>Please go to "Tools".</th><th>>™O configuration" a</th><th>nd set the input sign.</th><th>al as "Not configure"</th><th>Apply</th><th>Cancel</th></th></th>	Metion#1 Off O	NA. NA. <th>NA. NA. NA.<th>tion number and specify mber : 255 (1-255)</th><th>ý input signal</th><th></th><th></th><th>Please go to "Tools".</th><th>>™O configuration" a</th><th>nd set the input sign.</th><th>al as "Not configure"</th><th>Apply</th><th>Cancel</th></th>	NA. NA. <th>tion number and specify mber : 255 (1-255)</th> <th>ý input signal</th> <th></th> <th></th> <th>Please go to "Tools".</th> <th>>™O configuration" a</th> <th>nd set the input sign.</th> <th>al as "Not configure"</th> <th>Apply</th> <th>Cancel</th>	tion number and specify mber : 255 (1-255)	ý input signal			Please go to "Tools".	>™O configuration" a	nd set the input sign.	al as "Not configure"	Apply	Cancel
Motion#1 Off Of	Motion#1 Off Of	Motion#1 Off Of	Motion#1 Off Of	tion number and specify mber: 255 (1-255) I_Act	y input signal	Signal_7	Signal_6	Please go to 'Tools''. Signal_5	>"VO configuration" a Signal_4	nd set the input sign Signal_3	al as "Not configure" Signal_2	Apply Signal_1	Cancel – C
Motion#1 Off Of	Metion#1 Off Of	Motion#1 Off Of	Mation#1 Off Of	tion number and specify mber: 255 (1-255)	y input signal	Signal_7	Signal_6	Please go to 'Tools''. Signal_5 N.A.	>"VO configuration" a Signal_4 N.A.	nd set the input sign Signal_3 N.A.	al as "Not configure" Signal_2 N.A.	Apply Signal_1 N.A.	Cancel — C Signal_0 N.A.
Meionet2 Ori Or	Notion#2 Off Of	Meticant? Off O	Metion#2 Off Of	tion number and specify mber 255 (1-255) II Act	y input signal Signal_8 N.A.	Signal_7	Signal_6 ▼ N.A. ▼	Please go to 'Tools''- Signal_5 N.A.	>"I/O configuration" a Signal_4 N.A.	nd set the input sign Signal_3 N.A.	al as "Not configure" Signal_2 N.A.	Apply Signal_1 N.A.	Cancel — E Signal_0 N.A.
Motion/3 Orf Or	Melcont3 Off Of	Molocity Off Of	Medicine#3 Off	tion number and specify mber : 255 (1-256) ILACT Motion#1	y input signal Signal_8 N.A.	Signal_7 NA Off	Signal_6 V N.A. V Off	Please go to 'Tools'' Signal_5 N.A.	>"VO configuration" a Signal_4 N.A.	nd set the input sign Signal_3 N.A.	al as "Not configure" Signal_2 N.A.	Apply Signal_1 N.A.	Cancel — C Signal_0 N.A. On
Mitime# Off	Motion#4 Off Of	Metcanifi Off O	Mation Off Off<	tion number and specify mber : 255 (1-255) II Act Motioner Motioner	y input signal	Signal_7 N.A. Off	Signal_6 V N.A. V Off	Please go to "Tools". Signal_5 N.A. V Off	>"I/O configuration" a Signal_4 N.A. Off Off	nd set the input sign. Signal_3 N.A.	al as "Not configure" Signal_2 N.A. Off Off	Apply Signal_1 N.A. Off On	Cancel — C Signal_0 N.A. On Off
Motion-PA Ulti	Motion#4 Off Of	Motocity Off On	Moden#4 Off	tion number and specify mber : 255 (1-255) ILACT Motionet2 Motionet2	y input signal Signal_8 N.A.	Signal_7 N.A. Off Off Off	Signal_6 ▼ N.A. ▼ Of Of	Please go to Tools"- Signal_5 N.A. Off Off	>"UO configuration" a Signal_4 N.A. Off Off	nd set the input sign. Signal_3 N.A.	al as "Not configure" Signal_2 N.A.	Apply Signal_1 N.A. Off On	Cancel — E Signal_0 N.A. On Off On
Motion#5 Off Of	Motion#5 Off Of	Metice#5 Off Of	Metion#5 Off Of	tion number and specify mber : 255 (1-256) il Act Motion#2 Motion#2	y input signal	Signal 7 N.A. Off Off	Signal_6 V N.A. V Of Of Of Of	Please go to "Tools"- Signal_5 N.A. Off Off	>"VO configuration" a Signal_4 N.A. Off Off Off	nd set the input sign. Signal_3 N.A. Off Off Off	al as "Not configure" Signal_2 N.A. Off Off	Apply Signal_1 N.A. ▼ Of On	Cancel Signal_0 N.A. On Off On
Mocone® Orf	Mecone® Off	Monomia Off	Menomini Off Of	tion number and specify mber : 255 (1-255) il.Act Motionet Motionet Motionet	y input signal Signal_8 N.A.	Signal_7 N.A. Off Off Off	Signal_6 N.A. Off Off Off Off	Please go to Tools"- Signal_5 N.A. V Off Off Off	>"UO configuration" a Signal_4 N.A. Off Off Off Off	nd set the input sign. Signal_3 N.A. Off Off Off Off	al as "Not configure" Signal_2 NA. Off Off Off On	Apply Signal_1 N.A. Off On Off	Cancel Signal_0 N.A. On Of On
Internet Dif Dif <thdif< th=""> Dif <thdif< th=""> <thdif< <="" td=""><td>Motion#7 Off Of</td><td>Motion#7 Off Of</td><td>Monomit Off Off</td><td>tion number and specify mber : 255 (1-255) II Act Motion#3 Motion#4 Motion#3</td><td>y input signal</td><td>Signal 7 N.A. Off Off Off Off</td><td>Signal 6 ▼ N.A. ▼ Off Off Off Off</td><td>Please go to "Tools"- Signal_5 N.A. Off Off Off Off</td><td>STUC configuration" a Signal_4 N.A. Off Off Off Off Off</td><td>nd set the input sign: Signal_3 NA. Off Off Off Off Off</td><td>al as "Not configure" Signal_2 N.A. Off Off Of On On</td><td>Apply Signal_1 N.A. ▼ Off On On Off</td><td>Cancel Signal_0 N.A. On Off On Off</td></thdif<></thdif<></thdif<>	Motion#7 Off Of	Motion#7 Off Of	Monomit Off	tion number and specify mber : 255 (1-255) II Act Motion#3 Motion#4 Motion#3	y input signal	Signal 7 N.A. Off Off Off Off	Signal 6 ▼ N.A. ▼ Off Off Off Off	Please go to "Tools"- Signal_5 N.A. Off Off Off Off	STUC configuration" a Signal_4 N.A. Off Off Off Off Off	nd set the input sign: Signal_3 NA. Off Off Off Off Off	al as "Not configure" Signal_2 N.A. Off Off Of On On	Apply Signal_1 N.A. ▼ Off On On Off	Cancel Signal_0 N.A. On Off On Off
Michael Off	Motorit# Off Of	Motocriff Off O	Modion#7 Off Of	tion number and specify mber: 255 (1-255) I Act Motion42 Motion42 Motion45 Motion45	y input signal	Signal_7 N.A. Off Off Off Off Off	Signal_6 ▼ N.A. Off Off Off Off Off Off Off	Please go to 'Tools''- Signal_5 N.A. Off Off Off Off Off Off	>"UO configuration" a Signal_4 N.A. ▼ Off Off Off Off Off Off	Ind set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal 2 N.A. Off Off Off Off On On	Apply Signal_1 N.A. Off On Off Off	Cancel Signal_0 N.A. On Of On Off Off
Metion#3 Off Of	Motion#3 Off Of	Moloce#9 Off Of	Molocitifi Off	tion number and specify mber 255 (1-255) (LACT Motion#3 Motion#3 Motion#3 Motion#3	y input signal Signal 8 N.A.	Signal_7 NA. Off Off Off Off Off Off Off	Signal_6 N.A. Off	Please go to "Tools". Signal_5 N.A. Off Off Off Off Off	STO configuration" a Signal 4 N.A. Off Off Off Off Off Off	nd set the input sign: Signal_3 NA. Off Off Off Off Off Off Off	al as "Not configure" Signal_2 N.A. Off Off Off On On On On	Apply Signal_1 N.A. Off On Off Off Off	Cancel Signal_0 N.A. On Off On Off On
Matchine® Orif	Medicant® Off O	Motion#9 Off Of	Motion#9 Off Of	tion number and specify mber: 255 (1-255) I Act Motion#5 Motion#5 Motion#6 Motion#6	y input signal	Signal_7 N.A. Off Off Off Off Off Off Off Off Off O	Signal_6 N.A. Off	Please go to 'Toolo'' Signal_6 NA. Off Off Off Off Off Off Off	>*1/0 configuration* a Signal_4 N.A. Off Off Off Off Off Off Off	Ind set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal 2 N.A. Off Off Off On On On On On	Apply Signal_1 N.A. Off On Off Off Off Off On On	Cancel Signal_0 N.A. Of Of Of Of Of Of Of Of Of Of Of Of Of
Matchenet Orfi	Montanti 1 Off	Meeting#10 Off	Maccast Ori	tion number and specify mber: 255 (1-255) (LACT Motion#3 Motion#3 Motion#6 Motion#6 Motion#6 Motion#6	y input signal	Signal_7 N.A. Off Off Off Off Off Off Off Off	Signal_6 N.A. Off	Please go to "Tools"- Signal_5 N.A. Off Off Off Off Off Off Off Off Off	>TVO configuration" a Signal_4 NA. Off Off Off Off Off Off Off Off Off Of	nd set the input sign Signal_3 NA. Off Off Off Off Off Off Off Off Off Of	al as "Not configure" Signal_2 N.A. Off Off Off On On On On On On	Apply Signal_1 N.A. Off On Off Off On Off On Off On Off	Cancel Cancel Signal_0 N.A. On Off On Off On Off Of
Motione10 Off O	Moton#10 Off Of	Motion#19 Off On Off On Off On	Madion#10 Off O	tion number and specify mber: 255 (1-255) I Act Motionef Motionef Motionef Motionef	y input signal	Signal_7 N.A. Off Off Off Off Off Off Off Off Off	Signal_6 N.A. Off	Please go to 'Toolo''' Signal_6 NA. Off Off Off Off Off Off Off Off Off	>1/0 configuration" a Signal_4 N.A. Off Off Off Off Off Off Off Off Off Of	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal_2 N.A. Off Off Off On On On On On On Off Off	Apply Signal_1 N.A. Off On On Off Off On On Off Off	Cancel Signal_0 N.A. On Of
Melone#1 Off Off Off Off Off Off Off Off Off On On On On On On On On Onf	Notion#11 Off O	Meticarit1 Off	Metion#11 Off Off Off Off Off Off Off On Off On Metion#12 Off Off <td< td=""><td>tion number and specify mber: 255 (1-255) ILACT Motion#3 Motion#3 Motion#5 Motion#5 Motion#5 Motion#5 Motion#5 Motion#5</td><td>y input signal</td><td>Signal_7 N.A. Off Off Off Off Off Off Off Off Off Of</td><td>Signal 6 NA. V Off Off Off Off</td><td>Please go to "Tools". Signal_5 N.A. Off Off Off Off Off Off Off Off Off Of</td><td>S-TVO configuration" a Signal_4 N.A. 0 0 0 1 0 1 0 1 0 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1</td><td>nd set the input sign Signal_3 NA. Off Off Off Off Off Off Off Off Off Of</td><td>al as "Not configure" Signal_2 N.A. Off Off Off On On On On On Off Off Off</td><td>Apply Signal_1 N.A. Off On Off Off Off Off Off Off</td><td>Cancel Signal_0 N.A. On Off On Off On Off Of Of</td></td<>	tion number and specify mber: 255 (1-255) ILACT Motion#3 Motion#3 Motion#5 Motion#5 Motion#5 Motion#5 Motion#5 Motion#5	y input signal	Signal_7 N.A. Off Off Off Off Off Off Off Off Off Of	Signal 6 NA. V Off Off	Please go to "Tools". Signal_5 N.A. Off Off Off Off Off Off Off Off Off Of	S-TVO configuration" a Signal_4 N.A. 0 0 0 1 0 1 0 1 0 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1	nd set the input sign Signal_3 NA. Off Off Off Off Off Off Off Off Off Of	al as "Not configure" Signal_2 N.A. Off Off Off On On On On On Off Off Off	Apply Signal_1 N.A. Off On Off Off Off Off Off Off	Cancel Signal_0 N.A. On Off On Off On Off Of
Motione®12 Orf	Metcon#12 Off O	Motion#12 Off O	Motion#12 Off O	tion number and specify mber : 255 (1-255) I Act Motionef Motionef Motionef Motionef Motionef Motionef Motionef	y input signal Signal B N.A.	Signal_7 N.A. Off	Signal_6 NA. Off	Please go to "Toolo". Signal_6 N.A. Off Off Off Off Off Off Off Of	>*1/O configuration* a Signal_4 N.A. ▼ Off Off Off Off Off Off Off Off Off Of	Ind set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal_2 N.A. If Off Off Off On On On On On On Off Off	Apply Signal_1 N.A. ▼ Off On On Off On On Off On Off On	Cancel Signal_0 N.A. On Off Off Off Off Off Off Off Off Off
Motion#13 Off O	Modent/1 Off Of	Model of a content content of a content of a content of a content of a co	Model #13 Off O	tion number and specify mber: 255 (1-255) ILACT Motion#3 Motion#3 Motion#6 Motion#6 Motion#6 Motion#6 Motion#6 Motion#6 Motion#6 Motion#6	y input signal Signal 8 N.A. 1 2 3 3 4 0 0 1 0 0	Signal_7 N.A. Off Off Off Off Off Off Off Of	Signal_6 NA_6 Off	Please go to 'Tools'- Signal_5 N.A. Off Off Off Off Off Off Off Off Off Of	>TVO configuration" a Signal_4 N.A. Off Off Off Off Off Off Off Off Off Of	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal_2 N.A. Off Off Off On On On Off Off Off Off Of	Apply Signal_1 N.A. Off On On Off Off Off Off Off Off Off	Cancel Signal_0 N.A. On Off Off
Motion#13 Off Off Off Off Off Off On Off On Motion#14 Off Off Off Off Off On Off Off Off Off Off On Off Off Off Off Off On Off Of	Motion#13 Off O	Meticin#13 Off	Motion#13 Off O	tion number and specify mber : 255 (1-255) Motionef Motionef Motionef Motionef Motionef Motionef	y input signal	Signal_7 NA. Off	Signal_6 ▼ N.A. Off	Please go to "Toolo". Signal_6 N.A. Off Off Off Off Off Off Off Of	>*UO configuration* a Signal_4 N.A. ▼ Off Off Off Off Off Off Off Off Off Of	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal_2 N.A. I Off Off Off On On On On On On Off Off O	Apply Signal_1 N.A. ▼ Off On Off Off Off Off Off Off Off Off	Cancel Signal_0 N.A. On Of
Motorer14 Off O	Motion#14 Off O	Motion#14 Off O	Melone#4 Off Of	tion number and specify mber 255 (1-255) (Act Motion#1 Motion#5 Motion#6 Motion#6 Motion#6 Motion#6 Motion#6 Motion#6 Motion#1 Motion#1 Motion#1 Motion#1	y input signal NA. NA.	Signal_7 NA. Off Off Off Off Off Off Off Of	Signal_6 NA. Off	Please go to 'Tools'- Signal_5 N.A. Off Off Off Off Off Off Off Off Off Of	>TVO configuration" a Signal_4 N.A. Off Off Off Off Off Off Off Off Off Of	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal_2 N.A. Off Off Off Off On On On Off Off Off Of	Apply Signal_1 N.A. Off On Off Off Off Off Off Off Off Off	Cancel Signal_0 N.A. On Off Off
Motioner15 Off	Motion#15 Off O	Motion#15 Off O	Mation#15 Off Off Off Off Off Off Off Off Off On	tion number and specify mber : 255 (1-255) Motionef Motionef Motionef Motionef Motionef Motionef Motionef Motionef Motionef Motionef	y input signal Signal B N.A.	Signal_7 NA. Off	Signal_6 NA. ▼ Off	Please go to "Tools"- Signal_5 N.A. Off Off Off Off Off Off Off Of	>*1/O configuration* a Signal_4 N.A. ▼ Off Off Off Off Off Off Off Of	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal 2 N.A. I Off Off Off On On On Off Off Off Off Of	Apply Signal_1 N.A. ▼ Off On Off Off Off Off Off Off Off Off	Cancel Signal_0 N.A. On On Off On Off On Off On Off Of
Motion#16 Off O	Modent 0 Off Of	Model of the off	Motion 16 Off O	tion number and specify mber: 255 (1-255) (LACT Motion#1 Motion#3 Motion#6 Motion#6 Motion#9 Motion#9 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1	y input signal Signal_8 N.A. 1 2 3 4 4	Signsl_7 NA Off Off Off Off Off Off Off Of	Signal_5 NA. Off	Please go to 'Tools'- Signal_5 N.A. Off Off Off Off Off Off Off Of	>TVO configuration" a Signal_4 N.A. Signal_6 Off Off Off Off Off Off Off Off Off Of	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal_2 N.A. Off Off Off Off On Off Off Off Off Off	Apply Signal_1 N.A. Gif On On Off Off Off Off Off Off Off Off	Cancel Cancel Signal_0 N.A. On Of
Motione16 Off O	Motion#16 Off O	Motion#16 Off O	Motion#16 Off O	tion number and specify mber : 255 (1-255) Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff	y input signal Signal_8 N.A.	Signal_7 NA. Off	Signal 6 NA. Off	Please go to "Toolo". Signal 5 N.A. Off Off Off Off Off Off Off Of	>1/O configuration" a Signal 4 N.A. Off Off Off Off Off Off Off Off Off Of	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal 2 N.A. Off Off Off Off On On Off Off Off Off O	Apply Signal_1 N.A. ▼ Off On Off Off Off Off Off Off Off Off	Cancel Signal_0 N.A. On On Of
Motion#17 Oif O	Notion#17 Off O	Motion#17 Off O	Motion#77 Off O	tion number and specify mber: 255 (1-255) (LACT Motion#1 Motion#3 Motion#4 Motion#6 Motion#9 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1	y input signal Signal_8 NA. 1 2 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Signal_7 N.A. Off Off Off Off Off Off Off Of	Signal_6 NA. Off	Please go to 'Tools'- Signal_5 N.A. Off Off Off Off Off Off Off Of	>TVO configuration" a Signal_4 N.A. Off Off Off Off Off Off Off Off Off Of	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal_2 N.A. Off Off Off Off On On Off Off Off Off O	Apply Signal_1 N.A. ▼ Off On Off Off Off Off Off Off Off Off	Cancel Cancel Signal_0 N.A. On Of
Motioner18 Off	Motion#18 Off Off Off On Off Of	Motion#18 Off Off Off On Off Of	Mation#18 Off O	tion number and specify mber : 255 (1-255) Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff	y input signal Signal_8 N.A.	Signal_7 NA. Off	Signal_6 NA. Off	Please go to "Toolo". Signal 5 N.A. Off Off Off Off Off Off Off Of	>1/O configuration® a Signal 4 N.A. Off Off Off Off Off Off Off Off Off O	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal_2 N.A. I Off Off Off Off Off Off Off Off Off Of	Apply Signal_1 N.A. ▼ Off On Off Off Off Off Off Off Off Off	Cancel Signal_0 N.A. On On Of Of Of On Of Of On Of Of On Of Of Of On Of Of Of On Of
Notion#19 Off O	Motion/19 Off O	Motion#19 Off O	Models (6) Off	tion number and specify mber: 255 (1-255) (LACT Motion#2 Motion#3 Motion#4 Motion#9 Motion#9 Motion#1	y input signal Signal_8 NA.	Signal_7 N.A. Of Of Of Of Of Of Of Of Of Of Of Of Of	Signal_6 NA. ¥ Off 0	Please go to "Tools"- Signal_5 N.A. Off Off Off Off Off Off Off Of	>"IVO configuration" a Signal_4 N.A. Off Off Off Off Off Off Off Of	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal_2 N.A. Off Off Off Off On On Off Off Off Off O	Apply Signal_1 N.A. ▼ Off On Off Off Off Off Off Off Off Off	Cancel Cancel Signal_0 N.A. On Off On Off On Off On Off On Off On Off Of
Motion#19 Off Off Off On Off On	Motion#19 Off Off Off On Off On On Motion#20 Off	Meticinitit3 Off Off Off On Off On On Meticinit23 Off	Motion#19 Off O	tion number and specify mber : 255 (1-255) Action Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff Motioneff	y input signal Signal_B N.A.	Signal 7 NA. Off	Signal_6 NA. Off Off <td>Please go to "Toolo". Signal_5 N.A. Off Off Off Off Off Off Off Of</td> <td>>1/O configuration" a Signal_4 N.A. Off Off Off Off Off Off Off Off Off O</td> <td>nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of</td> <td>al as "Not configure" Signal_2 NA. Off Off Off Off Off Off Off Off Off Of</td> <td>Apply Signal_1 N.A. ▼ Off Off Off Off Off Off Off Off Off Of</td> <td>Cancel</td>	Please go to "Toolo". Signal_5 N.A. Off Off Off Off Off Off Off Of	>1/O configuration" a Signal_4 N.A. Off Off Off Off Off Off Off Off Off O	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal_2 NA. Off Off Off Off Off Off Off Off Off Of	Apply Signal_1 N.A. ▼ Off Off Off Off Off Off Off Off Off Of	Cancel
Motion#20 Off Off Off On Off Off Off Off Off On Off Off On On Off On On Off On	Metcon#20 Off Off Off On Off On Off	Motion#20 Off Off Off On Off On Off	Motion#20 Off Off Off On Off On Off	tion number and specify mber: 255 (1-255) (LACT Motion#2 Motion#3 Motion#4 Motion#9 Motion#9 Motion#1	y input signal Signal_8 N.A. 1 2 3 4 4 5 5 7 7 7 8 8	Signal_7 N.A. Off Off Off Off Off Off Off Off Off Of	Signal_6 NA. Y Off Off	Please go to "Tools" Signal_5 N.A. Off Off Off Off Off Off Off Of	>1/O configuration" a Signal_4 N.A. Off Off Off Off Off Off Off Off Off Of	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off On On On On On On On On On On	al as "Not configure" Signal_2 N.A. Off Off Off Off On On Off Off Off Off O	Apply Signal_1 N.A. ▼ Off On On Off Off Off Off Off Off Off O	Cancel Cancel Signal_0 N.A. On Of
Motion#21 Off Off On Off On Off On	Motom#21 Off Off Off On Off On Off On	Motion#21 Off Off Off On Off On	Motion#21 Of Of Of Of On Of On Of On	tion number and specify mber: 255 (1-255) Act Motion#1 Motion#3 Motion#3 Motion#3 Motion#1	y input signal Signal_B N.A.	Signal_7 NA. Off Off <td>Signal 6 NA. Off Off <td>Please go to "Tools" Signal_5 N.A. Off Off Off Off Off Off Off Of</td><td>>1/O configuration" a Signal 4 N.A. Off Off Off Off Off Off Off Off Off O</td><td>nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of</td><td>al as "Not configure" Signal_2 N.A. Off Off Off Off Off Off Off Off Off Of</td><td>Apply Signal_1 N.A. ▼ Off On Off On Off On Off On Off On Off On Off Off</td><td>Cancel</td></td>	Signal 6 NA. Off Off <td>Please go to "Tools" Signal_5 N.A. Off Off Off Off Off Off Off Of</td> <td>>1/O configuration" a Signal 4 N.A. Off Off Off Off Off Off Off Off Off O</td> <td>nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of</td> <td>al as "Not configure" Signal_2 N.A. Off Off Off Off Off Off Off Off Off Of</td> <td>Apply Signal_1 N.A. ▼ Off On Off On Off On Off On Off On Off On Off Off</td> <td>Cancel</td>	Please go to "Tools" Signal_5 N.A. Off Off Off Off Off Off Off Of	>1/O configuration" a Signal 4 N.A. Off Off Off Off Off Off Off Off Off O	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal_2 N.A. Off Off Off Off Off Off Off Off Off Of	Apply Signal_1 N.A. ▼ Off On Off On Off On Off On Off On Off On Off Off	Cancel
				tion number and specify mber: 255 (1-255) (Act Motion#2 Motion#2 Motion#3 Motion#4 Motion#1 M	y input signal Signal_8 N.A. 1 2 3 4 4 5 5 5 5 5 7 7 8 8 7 7 8 8 7 7 8 7 8 7 8	Signal_7 N.A. Off Off Off Off Off Off Off Of	Signal_6 NA. Off	Please go to 'Tools''- Signal_5 N.A. Off Off Off Off Off Off Off Off Off Of	>*1/0 configuration" a Signal_4 N.A. Off Off Off Off Off Off Off Of	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off On On On On On On On On On On	al as "Not configure" Signal_2 N.A. Off Off Off Off Off Off Off Off Off Of	Apply Signal_1 N.A. ▼ Off On On Off Off Off Off Off Off Off O	Cancel Cancel Signal_0 N.A. On Of
			Ander	tion number and specify mber: 255 (1-255) Act Motion#1 Motion#3 Motion#3 Motion#3 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1 Motion#1	y input signal Signal 8 N.A. N.A. 1 2 3 4 4 5 5 6 6 7 7 8 9 - - - - - - - - - - - - -	Signal_7 NA. Off	Signal 6 NA. Off Off <td>Please go to "Tools" Signal_5 N.A. Off Off Off Off Off Off Off Of</td> <td>> 1/O configuration" a Signal 4 N.A.</td> <td>nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of</td> <td>al as "Not configure" Signal_2 N.A. Off Off Off Off Off Off Off Off Off Of</td> <td>Apply Signal_1 N.A. ▼ Off Off Off Off Off Off Off Off Off Of</td> <td>Cancel</td>	Please go to "Tools" Signal_5 N.A. Off Off Off Off Off Off Off Of	> 1/O configuration" a Signal 4 N.A.	nd set the input sign. Signal_3 N.A. Off Off Off Off Off Off Off Of	al as "Not configure" Signal_2 N.A. Off Off Off Off Off Off Off Off Off Of	Apply Signal_1 N.A. ▼ Off Off Off Off Off Off Off Off Off Of	Cancel

Figure 3.1.1 Set motion number

2. Set input pins of "Signal_Act" and "Signal_0~8".

MD32UE01-2312

Setting procedure

E Series Servo Drive Multi-Motion Function User Manual

Signal Act		Signal 8	Signal 7	Signal 6	Signal 5	Signal 4	Signal 3	Signal 2	Signal 1	Signal 0
N.A.		N.A. 🗸	N.A. 🔽	N.A. 🔽	N.A. 🔻	N.A. 🔻	N.A. 🗸	N.A. 🔽	N.A. 🔽	N.A.
11 (CN6-33)	Motion#1		Off	On						
12 (CN6-30) 13 (CN6-29)	Motion#2		Off	Off	Off	Off			On	Off
14 (CN6-27)	Motion#3			Off	Off	Off			On	On
16 (CN6-26)	Motion#4			Off	Off	Off		On	Off	Off
17 (CN6-32) 18 (CN6-31)	Motion#5		Off	Off	Off	Off		On	Off	On
19 (CN6-9)	Motion#6		Off	Off	Off	Off		On	On	Off
110 (CN6-8)	Motion#7			Off	Off	Off		On	On	On
N.A.	Motion#8			Off	Off	Off	On		Off	Off
	Motion#9		Off	Off	Off	Off	On		Off	On
	Motion#10			Off	Off	Off	On		On	Off
	Motion#11			Off	Off	Off	On		On	On
	Motion#12		Off	Off	Off	Off	On	On	Off	Off
	Motion#13		Off	Off	Off	Off	On	On	Off	On
	Motion#14		Off	Off	Off	Off	On	On	On	Off
	Motion#15			Off	Off	Off	On	On	On	On
	Motion#16		Off	Off	Off	On		Off	Off	Off
	Motion#17		Off	Off	Off	On		Off	Off	On
	Motion#18		Off	Off	Off	On		Off	On	Off
	Motion#19		Off	Off	Off	On		Off	On	On
	Motion#20		Off	Off	Off	On		On	Off	Off
	Motion#21		Off	Off	Off	On	Off	On	Off	On

Figure 3.1.2 Allocate the pins of signal



- (1) Users must configure Signal_Act signal as the switch to activate/stop the motion. If Signal_Act signal is triggered, servo drive will activate the designated motion. If Signal_Act signal is disabled, the specific motion (e.g., JOG) will be stopped.
- (2) After deciding the motion to be activated, keep the status of Signal_Act signal as disabled. After triggering the corresponding signal of Signal_0~8, trigger Signal_Act signal.



Motion#1 is the combination of I2 and I5, and I5 is Signal_Act signal. To activate Motion#1, host controller must trigger I2 first and then trigger I5. To activate Motion#1 again, host

	Signal_Act I5	Signal_1 I3	Signal_0 I2
Motion#1	On	Off	On
Motion#2	On	On	Off

controller must change the level of I5 first before triggering I2 and I5.

3. After the setting is done, click **Apply**.

MD32UE01-2312

Setting procedure

Signal Act		Signal 8	Signal 7	Signal 6	Signal 5	Signal 4	Signal 3	Signal 2	Signal 1	Signal 0
CN6-28) V		N.A.	17 (CN6-32)	16 (CN6-26)	18 (CN6-31)	14 (CN6-27)	I3 (CN6-29)	12 (CN6-30)	I1 (CN6-33)	110 (CN6-8)
	Motion#1		Off	On						
	Motion#2			Off		Off		Off	On	Off
	Motion#3		Off	Off		Off	Off	Off	On	On
	Motion#4		Off	Off		Off	Off	On	Off	Off
	Motion#5		Off	Off		Off	Off	On	Off	On
	Motion#6		Off	Off		Off		On	On	
	Motion#7			Off		Off	Off	On	On	On
	Motion#8			Off		Off	On	Off	Off	
	Motion#9			Off		Off	On	Off	Off	On
	Motion#10		Off	Off		Off	On	Off	On	
	Motion#11		Off	Off		Off	On	Off	On	On
	Motion#12		Off	Off		Off	On	On	Off	
	Motion#13			Off		Off	On	On	Off	On
	Motion#14		Off	Off	Off	Off	On	On	On	Off
	Motion#15		Off	Off	Off	Off	On	On	On	On
	Motion#16		Off	Off	Off	On	Off	Off	Off	Off
	Motion#17		Off	Off	Off	On	Off	Off	Off	On
	Motion#18		Off	Off	Off	On	Off	Off	On	Off
	Motion#19		Off	Off	Off	On	Off	Off	On	On
	Motion#20		Off	Off	Off	On	Off	On	Off	Off
	Motion#21		Off	Off	Off	On	Off	On	Off	On

Figure 3.1.3 Apply the setting

4. An information window will pop up. Click **OK** and check if there is a conflict in input signal configuration.







3.2 Set motion

1. After the setting of section 3.1 is done, "Multi-motion setting" window will generate the corresponding motion number. The default of each motion is **N.A.**.

MD32UE01-2312

Setting procedure

E Series Servo Drive Multi-Motion Function User Manual

					k « »
Motion#\$	Type of motion	Position (ctrl unit)	Velocity (rpm)	Direction	Number of station
Motion#1	N.A.	-	-	- 🗸	-
Motion#2	N.A.	v			
Motion#3	N.A.	-	-		-
Motion#4	N.A.	v			-
Motion#5	N.A.	v -	-		-
Motion#6	N.A.	v			
Motion#7	N.A.	v -	-		
Motion#8	N.A.	v			-
Motion#9	N.A.	v			
Motion#10	N.A.	-	-	- 🗸	-
Motion#11	N.A.	v			
Motion#12	N.A.				
Motion#13	N.A.	v			
Motion#14	N.A.	-			
Motion#15	N.A.	-			
Motion#16	N.A.	-			

Figure 3.2.1 Default motion setting

2. Select type of motion (refer to section 3.3) and set the corresponding parameters.

🚱 Multi-motion setting							- 🗆	×
2 🖻 🗄	40-	3	${}^{}$				K << >>	<u>></u>
Motion#\$	Type of motion		Position (ctrl unit)	Velocity (rpm)	Direction		Number of station	
Motion#1	Absolute move		1,000,000	100	Shortest path	▼		
Motion#2	Relative move		10,000	100	Negative	▼	-	
Motion#3	JOG			20	Positive	▼		
Motion#4	Indexing movement-1			10	Positive	▼	5	

Figure 3.2.2 Motion setting

3. With display unit switching, the value and unit of multi-motion parameters will change according to the converted unit.

🚱 Multi-motion setting							- 0	×
2 🗳 🗎	304		${}^{}$				K << >>	<u>></u>
Motion#\$	Type of motion		Position (deg)	Velocity (deg/s)	Direction		Number of station	
Motion#1	Absolute move	▼	100	3,600	Shortest path	▼	-	
Motion#2	Relative move	▼	1	3,600	Negative	▼	-	
Motion#3	JOG	▼		3,600	Positive	▼	-	
Motion#4	Indexing movement-1	▼		3,600	Positive	▼	5	

Figure 3.2.3 Unit conversion

3.3 Type of motion

Multi-motion function supports the following types of motion:

Type of Motion	Applicable Mechanism	Description						
	Wiedenamen	Move the motor to the position specified by users with the velocity						
Absolute move	Rotary / Linear	and direction specified by users.						
		Move the motor for a distance specified by users with the velocity						
Relative move	Rotary / Linear	and direction specified by users.						
		The position of each station will be automatically calculated by the						
		number of station specified by users. After the command is triggered,						
		the motor will move to the next station with the velocity and direction						
		specified by users. Currently, there are two kinds of Indexing						
		movement:						
		Indexing movement-1						
		If the motor is disabled and moved to other position during indexing						
		movement the first command after the motor is re-enabled will move						
		the motor to the last target station						
		Indexing movement-2						
		If the motor is disabled and moved to other position during indexing						
		movement the first command after the motor is re-enabled will move						
Indexing	Rotary	the motor to the next station closest to the current position.						
movement	, ,	0						
		Take four stations and 90 degrees						
		movement as the motion planning.						
		When the servo drive receives the						
		command and moves the motor from 0						
		degree to 90 degrees, the motor is						
		disabled due to an error. During troubleshooting, the motor is						
		accidentally moved to the range between 90 to 180 degrees. When						
		the motor is re-enabled and the command is given:						
		 Indexing movement-1 will remember the last target station, so 						
		it will go back to 90 degrees.						
		 Indexing movement-2 will move to 180 degrees, the next station 						
		for the current position.						

MD32UE01-2312

Setting procedure

E Series Servo Drive Multi-Motion Function User Manual

Turne of Motion	Applicable	Description
Type of Motion	Mechanism	Description
100	Deter / Lineer	Keep moving the motor with the velocity and direction specified by
JOG	Rolary / Linear	users.
Homing	Detern / Lincor	Evenues the horning method ant by Dt700
Operation	Rolary / Linear	Execute the noming method set by Pt700.
Customized	Potony / Lincor	The motor will do the movement based on the motion process edited
motion	Rolary / Linear	by users in PDL (refer to section 3.6 for the example format).
Software	Potony / Lincor	Trigger activers enable command of the convertive
enable	Rolary / Linear	ringger software enable command of the serve drive.
Software	Potony / Lincor	Trigger activers disable command of the corrective
disable	Rolary / Linear	ringger soltware disable command of the servo drive.
Clear error	Rotary / Linear	Clear software error of the servo drive.
Zero Point		
Position Offset		
in Machine	Rotary / Linear	Set the current position of motor as new home position.
Coordinate		
System		



- (1) JOG is "high level trigger", so it will be activated or stopped based on high/low of Signal_Act signal. Others are "rising edge trigger". After activated by triggering Signal_Act signal, the motion cannot be stopped by disabling Signal_Act signal during the execution. Users must wait until the motion is done.
- (2) With Pt662. $\Box \Box \Box X$, users can decide whether to use the current direction or the shortest path to make Indexing movement-1 back to the last target station.
- (3) When increment encoder is used, before executing the motion of Absolute move, Indexing movement and Zero Point Position Offset in Machine Coordinate System, the homing must be completed by multi-motion function. Other methods of triggering homing (e,g., Thunder's "Homing Operation" window) are invalid.
- (4) Before executing the motion of Absolute move, Relative move, Indexing movement and JOG, the servo drive must be enabled.
- (5) When rotary mechanism is used, Absolute move only supports moving the motor to the position within one revolution (0~360 degrees). For example, the motor is currently at 0 degree, if users key in 760 degrees for Absolute move, the motor will only move to 40 degrees (760-360-360=40) instead of 760 degrees.

MD32UE01-2312 Setting procedure

E Series Servo Drive Multi-Motion Function User Manual

When Zero Point Position Offset in Machine Coordinate System is executed, the value of Pt704 will be modified, the motor will be disabled, and the parameters will be sent to servo drive. If the motor is enabled before the execution, the servo drive will automatically re-enable the motor after the execution.

3.4 Activate multi-motion function

Follow the procedure below to save the set multi-motion parameters to servo drive and activate multimotion function.

•	When the motor is enabled, the parameters cannot be saved to servo drive.

1. Click "Send to drive" icon 🗾

🚱 Multi-motion setting							- 🗆	\times
2 🗳 🗄	3 2 3		Ø				K << >>	<u>></u>
Motion#\$	Type of motion		Position (ctrl unit)	Velocity (rpm)	Direction		Number of station	
Motion#1	JOG	▼		30	Negative	▼	-	
Motion#2	Absolute move	▼	8,388,608	120	Shortest path	▼	-	
Motion#3	Homing Operation	▼	-		-	▼	-	
Motion#4	Software enable	▼				▼		

Figure 3.4.1 Save multi-motion parameters to servo drive

2. Read the check window and click **Yes**. At this time, the servo drive will automatically change the control mode to **Internal position mode**, and Fieldbus servo drive will automatically change the mastership to **MPI/API**.



Figure 3.4.2 Check window of activating multi-motion function

MD32UE01-2312

Setting procedure

 After the servo drive is power cycled, "Activate multi-motion function success!" window will pop up. After users click **OK**, the data will be successfully saved to servo drive. If there is no error or warning AL947 on the left side of Thunder main window, multi-motion function is successfully activated. If warning AL947 appears, check the cause and do troubleshooting (refer to chapter 6).



Figure 3.4.3 Message window of successfully activating multi-motion function

4. After multi-motion function is activated, if warning AL947 does not appear, in the bottom-left corner of Thunder main window, the light of "Multi-motion activated" will light up.



Figure 3.4.4 The light of "Multi-motion activated" lights up



MD32UE01-2312

E Series Servo Drive Multi-Motion Function User Manual

Setting procedure

- II. If any of the following actions has been executed on customer's stage: change servo drive, change motor, change rotation direction of motor (Pt000.□□□X), before activating multi-motion function, execute absolute encoder initialization once, save the parameters to servo drive and power cycle servo drive.
- III. If the home position of load side has been positioned by homing method -3 (Pt700 = -3), after absolute encoder initialization is executed, the home position must be repositioned.

3.5 Disable multi-motion function

Follow the procedure below to clear the multi-motion parameters saved in servo drive and disable multimotion function. To keep the setting of multi-motion parameters, refer to section 4.2 to save multi-motion parameters as multi-motion parameters file (*.mtk).

•	Before disabling multi-motion function, ensure there is no code related to customized motion in PDL (refer to
	section 3.6).

1. Click "Clear data" icon 🔽



Figure 3.5.1 Clear multi-motion parameters

2. Read the check window and click **Yes**. At this time, the servo drive will be power cycled.



Figure 3.5.2 Check window of disabling multi-motion function

MD32UE01-2312

3. After the servo drive is power cycled, "Disable multi-motion function success!" window will pop up. After users click **OK**, the multi-motion parameters saved in servo drive will be successfully cleared and multi-motion function will be disabled.



Figure 3.5.3 Message window of successfully disabling multi-motion function

4. After multi-motion function is disabled, in the bottom-left corner of Thunder main window, the light of "Multi-motion activated" will be gray.



Figure 3.5.4 The light of "Multi-motion activated" is gray

3.6 Instructions for customized motion

Follow the procedure below to use customized motion.

1. Copy the example format below to PDL editing window.

```
/*The customized PDL sample for multi-motion function*/
#define RUN 1
#define END 2
/*Each motion number should be the same as the multi-motion setting in Thunder.*/
3-12 HIWIN MIKROSYSTEM CORP.
```

MD32UE01-2312

```
E Series Servo Drive Multi-Motion Function User Manual
```

Setting procedure

```
#define motion1 1
#define motion2 2
#define motion3 3
#define motion4 4
/*-----main-----*/
#task/01;
MotionSample:
 till(CsMotion_Flag = RUN);
 if(MotionSel = motion1)do
   /*Motion process
     Do something*/
   CsMotion Flag = END;
 end;
 if(MotionSel = motion2)do
   /*Motion process
     Do something*/
   CsMotion_Flag = END;
 end;
 if(MotionSel = motion3)do
   /*Motion process
     Do something*/
   CsMotion_Flag = END;
 end;
 if(MotionSel = motion4)do
   /*Motion process
     Do something*/
   CsMotion_Flag = END;
 end;
goto MotionSample;
ret;
```



- (1) CsMotion_Flag is the flag to judge the motion status; 0 indicates no motion, 1 indicates in motion, and 2 indicates motion ends.
- Information (2) MotionSel is the motion number set in "Multi-motion setting" window.
- 2. Modify #define motion1 1 and so on in sequence to make them be the same as the motion number in "Multi-motion setting" window.

MD32UE01-2312

Setting procedure

E Series Servo Drive Multi-Motion Function User Manual



Figure 3.6.1 The motion number corresponding to customized motion

3. Edit motion process based on the requirement.



Figure 3.6.2 Edit motion process of customized motion

4. Refer to section 9.5.3 **Compile and save PDL** in "E Series Servo Drive Thunder Software Operation Manual" to compile and save PDL. After that, customized motion can be used.

3.7 Application setting: infinite rotation function

When multi-turn absolute AC servo motor rotates in a single direction for a long time by exceeding the countable limit of the encoder revolution, the rotation number will overflow, and the previous absolute position will not be maintained after servo drive is power cycled. Refer to section 8.17 **Infinite rotation function setting** in "E1 Series Servo Drive User Manual" and section 8.17 **Infinite rotation function setting** in "E2 Series Servo Drive User Manual" to set Pt205 - Upper limit of motor rotation number, which prevents the influence of encoder rotation number overflow and keeps the correct absolute position after servo drive is power cycled. This application is mainly for the rotary mechanism infinitely rotating in a single direction, such as indexing plate and turntable.



(1) Pt205 is only applicable to multi-turn absolute encoder with rotary mechanism, not with linear mechanism.

Important

(2) Complete the setting of Pt205 once before activating the motion.

Setting example – Rotary mechanism with reduction ratio of 3:7

- Refer to chapter 2. In Thunder's "Electronic gear ratio setting" window, select **Round table** for mechanical structure and set reduction ratio as 3:7. (Control unit is based on the requirement.)
- 2. Set Pt205 = 7.
- 3. Execute absolute encoder initialization.
- 4. Save the parameters and power cycle servo drive.



When multi-turn absolute AC servo motor with rotary mechanism is used with multi-motion function, if Pt205 is not set, after it rotates in a single direction for a long time, the absolute position may be lost after servo drive is power cycled, which leads multi-motion function to move the motor to the wrong position.

3.8 Advanced setting

Automatic enabling function after power-on

After multi-motion function is activated, to make the servo drive be automatically enabled after poweron, users can set $Pt662.\square\square\square$ to use the automatic enabling function after power-on.

🧭 Modify [Pt662.all] window	-	×
3 2 1 0 Current value = 0 0 0 New value = 0 0 1 Cancel		
Pt662.all : [Multi-motion application] Pt662. 0 O O X : Indexing movement-1 method of going back to the last target station. 0 - Use the setting direction. 1 - Use the shortest path. Pt662. O O X O : Multi-motion automatic enabling function. 0 - Do not use multi-motion automatic enabling after power-on. 1 - Use multi-motion automatic enabling after power-on. Pt662. O X O O : Reserved (Do not modify.) Pt662. X O O O : Reserved (Do not modify.)		





Set the debounce time of Signal_Act signal

After multi-motion function is activated, if there is a risk that Signal_Act signal may be falsely triggered by noise, users can set Pt664 to extend the debounce time of Signal_Act signal to reduce the risk.

🕑 Modify [Pt664] window		-	×
Current value = <u>30</u> New value = <u>30</u>	Apply Cancel		
Pt664 : [Multi-motion input Signal_A	t debounce time]		

Figure 3.8.2 Set the debounce time of Signal_Act signal

E Series Servo Drive Multi-Motion Function User Manual

Setting procedure

Overtravel alarm selection

With Pt663. $\Box \Box \Box X$, users can select whether to output multi-motion alarm (AL.EF9) if overtravel is triggered during the execution of the motion.

🛃 Modify [Pt663.al	l] window		
Current value = New value =	3 2 0 0 0 0	1 0 0 1 0 1	Apply Cancel
Pt663.all : [M	ulti-motic	n application 2]	
Pt663. O O (O X : Mu	ılti-motion overtra 0 - Do not outpu 1 - Output multi-ı	avel alarm selection. t alarm when overtravel is triggered. motion alarm (AL.EF9) when overtravel is triggered.

Figure 3.8.3 Set overtravel alarm selection

MD32UE01-2312

Setting procedure

E Series Servo Drive Multi-Motion Function User Manual

(This page is intentionally left blank.)

4. Save/Load multi-motion parameters file

4.	Save/Load multi-motion parameters file							
	4.1	Read multi-motion parameters from servo drive	4-2					
	4.2	Save/Load multi-motion parameters file (*.mtk)	4-2					

4.1 Read multi-motion parameters from servo drive

If the multi-motion parameters are already saved in servo drive, users can click "Read from drive" icon to read and display them. Users can modify motion number, the configuration of input pins, type of motion and other motion parameters before saving them to servo drive again.

😏 Multi-motion setting						- 0	×
2 🖻 🗎	8 0 5					<u>k << >></u>	>
Motion#\$	Type of motion	Position (ctrl unit)	Velocity (rpm)	Direction		Number of station	
🚱 Multi-motion setting						- 0	×
2 🏱 🖯	404	\bigcirc				K << >>	<u>></u>
Motion#\$	Type of motion	Position (ctrl unit)	Velocity (rpm)	Direction		Number of station	
Motion#1	Absolute move	1,000,000	100	Shortest path	▼		
Motion#2	Relative move	10,000	100	Negative	▼		
Motion#3	JOG 🗸		20	Positive	▼		

Figure 4.1.1 Read multi-motion parameters

4.2 Save/Load multi-motion parameters file (*.mtk)

To save the set multi-motion parameters as multi-motion parameters file (*.mtk), click "Save as a file" icon key in file name of multi-motion parameters file (*.mtk), select archive path, and click **Save**.

🚱 Multi-motion setting					- 🗆	×
2 🗳 🖯	40	\bigcirc			K << >>	기
Motion#\$	Type of motion	Position (ctrl unit)	Velocity (rpm)	Direction	Number of station	

Figure 4.2.1 Save multi-motion parameters file

To load multi-motion parameters and display them on "Multi-motion setting" window, click "Load from file" icon icon select multi-motion parameters file (*.mtk), and click **Open**.

🧭 Multi-motion setting					- 🗆	×
2 🖻 🖯	40.	Ŷ			K << >>	>
Motion#\$	Type of motion	Position (ctrl unit)	Velocity (rpm)	Direction	Number of station	

Figure 4.2.2 Load multi-motion parameters file

5. Test run

5.	Test run		5-1
	5.1	Test run for multi-motion	5-2
	5.2	Monitor load position	5-5

MD32UE01-2312

5.1 Test run for multi-motion

After completing the setting of multi-motion parameters, users can open "Test run for multi-motion" window to test the motion and ensure the configuration of digital input pins.



- (1) "Test run for multi-motion" window may be different in different Thunder version.
- (2) Before test run for multi-motion, complete servo drive configuration first and ensure servo drive's status is at "Servo ready" state. Refer to section 7.4 Inspection before trial operation in "E1 Series Servo Drive User Manual" and section 7.4 Inspection before trial operation in "E2 Series Servo Drive User Manual" for the related inspections. As for troubleshooting, refer to section 13.4 Causes and corrective actions for abnormal operation in "E1 Series Servo Drive User Manual" and section 13.4 Causes and corrective actions for abnormal operation in "E1 Series Servo Drive User Manual" and section 13.4 Causes and corrective actions for abnormal operation in "E1 Series Servo Drive User Manual" and section 13.4 Causes and corrective actions for abnormal operation in "E1 Series Servo Drive User Manual" and section 13.4 Causes and corrective actions for abnormal operation in "E1 Series Servo Drive User Manual" and section 13.4 Causes and corrective actions for abnormal operation in "E1 Series Servo Drive User Manual" and section 13.4 Causes and corrective actions for abnormal operation in "E1 Series Servo Drive User Manual" and section 13.4 Causes and corrective actions for abnormal operation in "E1 Series Servo Drive User Manual" and section 13.4 Causes and corrective actions for abnormal operation in "E1 Series Servo Drive User Manual" and section 13.4 Causes and corrective actions for abnormal operation in "E1 Series Servo Drive User Manual"
- (3) For some servo motors, phase initialization must be done before test run. Refer to section4.6 in "E Series Servo Drive Thunder Software Operation Manual" for details.

Follow the procedure below to perform test run for multi-motion. Here takes Motion#1 as an example.

1. Click "Send to drive" icon 🛃 to save the set multi-motion parameters to servo drive and activate multi-motion function.

🧭 Multi-motion setting							- 🗆	×
2 2 8			\bigcirc				K << >>	<u>></u>
Motion#\$	Type of motion		Position (ctrl unit)	Velocity (rpm)	Direction		Number of station	
Motion#1	Absolute move	•	32,768	10	Shortest path	▼		
Motion#2	Relative move	▼	5,000	5	Negative	▼		
Motion#3	JOG	▼	-	8	Positive	▼		
Motion#4	Homing Operation	•	-		-	▼	-	
Motion#5	Indexing movement-1	▼	-	6	Negative	▼	8	
Motion#6	Indexing movement-2	▼	-	12	Positive	▼	4	
Motion#7	Customized motion	▼	-			▼		
Motion#8	Customized motion	▼	-			▼		

Figure 5.1.1 Save the parameters to servo drive

2. Click "Test Run" icon 🔯 to open "Test run for multi-motion" window.

MD32UE01-2312

Test run

E Series Servo Drive Multi-Motion Function User Manual

🛃 Multi-motion setting					- 🗆	\times
2 🖻 🗎	40.	\bigcirc			K << >>	>
Motion#\$	Type of motion	Position (ctrl unit)	Velocity (rpm)	Direction	Number of station]
Motion#1	Absolute move	32,768	10	Shortest path		
Motion#2	Relative move 🗸 🔻	5,000	5	Negative 🗸	-	

Figure 5.1.2 Open "Test run for multi-motion" window

3. Users cannot modify the configuration of digital input pins displayed in this window, since it is based on the data saved in the servo drive. To modify the configuration, close this window and click "New or Modify" icon I to open "Set motion number and specify input signal" window. After the modification, send the setting to drive.

🧭 Test run for multi-mot	tion									-	
Servo ready	Enable	Signal_Act On	Clear Signals							Test Motion#	
Signal_Act		Signal_8	Signal_7	Signal_6	Signal_5	Signal_4	Signal_3	Signal_2	Signal_1	Signal_0	
I1 (CN6-33)		N.A. 🔻	N.A. 🔻	N.A. 🔻	N.A. 🔻	N.A. 🔻	15 (CN6-28)	I4 (CN6-27)	13 (CN6-29) 🗸	12 (CN6-30)	
1	Motion#1							Off	Off	On	
1	Motion#2						Off	Off	On	Off	
1	Motion#3						Off	Off	On	On	
	Motion#4						Off	On	Off	Off	
	Motion#5						Off	On	Off	On	
	Motion#6						Off	On	On	Off	
	Motion#7						Off	On	On	On	
1	Motion#8						On	Off	Off	Off	

Figure 5.1.3 "Test run for multi-motion" window

4. Click **Enable** and ensure the light of "Servo ready" lights up.

🦻 Test run for multi-n	notion									-	
Servo ready	Disable	Signal_Act On	Clear Signals							Test Motion#	
Signal_Act		Signal_8	Signal_7	Signal_6	Signal_5	Signal_4	Signal_3	Signal_2	Signal_1	Signal_0	
l1 (CN6-33) 🔻		N.A. 🔻	N.A. 🔻	N.A. 🔻	N.A. 🔻	N.A. 🔻	15 (CN6-28)	14 (CN6-27)	13 (CN6-29)	12 (CN6-30)	
	Motion#1						Off	Off	Off	On	
	Motion#2						Off	Off	On	Off	
	Motion#3						Off	Off	On	On	
	Motion#4						Off	On	Off	Off	
	Motion#5						Off	On	Off	On	
	Motion#6						Off	On	On	Off	
	Motion#7						Off	On	On	On	
	Motion#8						On	Off	Off	Off	

Figure 5.1.4 Enable the motor

5. Key in **1** in **Test Motion#** column to trigger the corresponding digital input signals in simulated conditions.

MD32UE01-2312

Test run for multi-motion								-			
Servo ready	Disable	Signal_Act On	Clear Signals							Test Motion#	1
Signal_Act		Signal_8	Signal_7	Signal_6	Signal_5	Signal_4	Signal_3	Signal_2	Signal_1	Signal_0	
I1 (CN6-33)		N.A. 🔻	N.A. 🔻	N.A. 🔻	N.A. 🔻	N.A. 🔻	15 (CN6-28)	14 (CN6-27)	13 (CN6-29)	12 (CN6-30)	
	Motion#1						Off	Off	Off	On	
	Motion#2						Off	Off	On		
	Motion#3						Off	Off	On	On	
	Motion#4						Off	On	Off	Off	
	Motion#5						Off	On	Off	On	
	Motion#6						Off	On	On	Off	
	Motion#7						Off	On	On	On	
	Motion#8						On	Off	Off	Off	

Figure 5.1.5 Trigger the corresponding digital input signals in simulated conditions

6. Click **Signal_Act On** to trigger the digital input signal corresponding to Signal_Act in simulated conditions. At this time, servo drive will perform the motion of Motion#1.

ervo ready	Disable	Signal_Act On	Clear Signals							Test Motion#	1
Signal_Act		Signal_8	Signal_7	Signal_6	Signal_5	Signal_4	Signal_3	Signal_2	Signal_1	Signal_0	
CN6-33)	7	N.A. 🔻	N.A. 🔻	N.A. 🔻	N.A. 🔻	N.A.	15 (CN6-28)	I4 (CN6-27)	13 (CN6-29)	I2 (CN6-30)	•
	Motion#1						Off	Off	Off	On	
	Motion#2						Off	Off	On	Off	
	Motion#3						Off	Off	On	On	
	Motion#4						Off	On	Off	Off	
	Motion#5						Off	On	Off	On	
	Motion#6						Off	On	On	Off	
	Motion#7						Off	On	On	On	
it run for mult	Motion#8 ti-motion						On	Off	Off	Off	
st run for mul	ti-motion Disable	Signal_Act Off	Clear Signals				On	Off	Off	Off 	
t run for mult vo ready gnal_Act	ti-motion Disable	Signal_Act Off Signal_8	Clear Signals Signal_7	Signal_6	Signal_5	Signal_4	On Signal_3	Off Signal_2	Off Signal_1	Off - Test Motion# Signal_0	 1
t run for mul vo ready gnal_Act N6-33)	ti-motion Disable	Signal_Act Off Signal_8 N.A.	Clear Signals Signal_7 N.A.	Signal_6 N.A.	Signal_5 N.A. ▼	Signal_4 N.A.	On Signal_3 15 (CN6-28)	Off Signal_2 14 (CN6-27) ▼	Off Signal_1 13 (CN6-29)	Off Test Motion# Signal_0 ▼ 12 (CN6-30)	1
t run for mult rvo ready gnal_Act :N6-33)	ti-motion Disable Motion#1	Signal_Act Off Signal_8 N.A. ▼	Clear Signals Signal_7 N.A.	Signal_6 N.A. ▼	Signal_5 N.A. ▼	Signal_4 N.A.	On Signal_3 15 (CN6-28)	Off Signal_2 14 (CN6-27) Off	Off Signal_1 13 (CN6-29) Off	Off Test Motion# Signal_0 ↓ 12 (CN6-30) On	1
t run for mul no ready ignal_Act :N6-33)	Motion#3	Signal_Act Off Signal_8 N.A.	Clear Signals Signal_7 N.A.	Signal_6 N.A. ▼	Signal_5 N.A.	Signal_4 N.A.	On Signal_3 15 (CN6-28) Off Off	Off Signal_2 14 (CN6-27) Off Off Off	Off Signal_1 13 (CN6-29) Off On	Off Test Motion# Signal_0 I2 (CN6-30) On Off	1
t run for mult no ready ignal_Act CN6-33)	Motion#8 ti-motion Disable Motion#1 Motion#2 Motion#3	Signal_Act Off Signal_8 N.A.	Clear Signals Signal_7 N.A.	Signal_6 N.A. ▼	Signal_5 N.A.	Signal_4 N.A.	On Signal_3 15 (CN6-28) Off Off	Off Signal_2 I4 (CN6-27) ✓ Off Off Off	Off Signal_1 I3 (CN6-29) Off On On	Off Test Motion# Signal_0 I2 (CN6-30) On Off On	- 1
t run for mul no ready ignal_Act :N6-33)	Motion#8 ti-motion Disable Motion#1 Motion#2 Motion#4	Signal_Act Off Signal_8 N.A. ▼	Clear Signals Signal_7 N.A.	SignaL6 N.A. ▼	Signal_5 N.A.	Signal_4 N.A.	On Signal_3 I5 (CN6-28) Off Off Off Off	Off Signal_2 I4 (CN6-27) ▼ Off Off Off Off Off	Off Signal_1 13 (CN6-29) Off On On Off	Off Test Motion# Signal_0 I2 (CN6-30) On Off On Off On Off	1
t run for muli nvo ready ignal_Act IN6-33)	Motion#8 ti-motion Disable Motion#1 Motion#2 Motion#4 Motion#5	Signal_Act Off Signal_8 N.A. ▼	Ciear Signals Signal_7 N.A.	Signal_6 N.A. ▼	Signal_5 N.A.	Signal_4 N.A.	On Signal_3 IS (CN6-28) Of Of Of Of Of Of	Off Signal_2 I4 (CN6-27) ▼ Off Off Off Off Off Off Off	Off Signal_1 13 (CN6-29) Off On Off Off Off	Off Test Motion# Signal_0 I2 (CN6-30) On Off On Off On	1
it run for mul nvo ready ignal_Act CN6-33)	Motion#8 ti-motion Disable Motion#1 Motion#2 Motion#4 Motion#6	Signal_Act Off Signal_8 N.A.	Clear Signals Signal_7 N.A.	Signal_6 N.A.	Signal_5 N.A.	Signal_4 N.A.	On Signal_3 IS (CN6-28) Off Off Off Off Off Off	Off Signal_2 14 (CN6-27) Off On On	Off Signal_1 I3 (CN6-29) Off On Off Off On	Off Test Motion# Signal 0 I2 (CN6-30) On Off Off	1
st run for mull ano ready iignal_Act CN6-33)	Metion#8 ti-motion Disable Metion#1 Metion#2 Metion#6 Metion#6 Metion#6	Signal_Act Off Signal_8 N.A. ▼	Clear Signals Signal_7 N.A. ▼	Signal_6 N.A. ▼	Signal_5 N.A.	Signal_4 N.A.	On Signal_3 15 (CN6-28) Off Off Off Off Off Off Off	Off Signal_2 I4 (CNS-27) Off Off Off Off Off Of Of Of Of Of Of O	Off Signal_1 13 (CN6-29) Off Off Off Off Off Off Off Off Off		1

Figure 5.1.6 Trigger the digital input signal corresponding to Signal_Act in simulated conditions

- When the motion is done, click Signal_Act Off to clear Signal_Act signal, click Clear Signals to clear Signal 0~8 signals, and click Disable.
- 8. The servo drive will be automatically power cycled after users close "Test run for multi-motion" window.



Figure 5.1.7 Check window of automatically power cycling servo drive

5.2 Monitor load position

To monitor load position after activating multi-motion function, open Thunder's "Scope" window 🔛 and select physical quantity 26 - Load side single-turn position (multi-motion only).



For physical quantity 26 - Load side single-turn position (multi-motion only), note the following points:

Important

(1) It has different meanings for rotary mechanism and linear mechanism. Rotary mechanism: Display the current single-turn position of load; the values will not exceed one revolution of load side, and they are always positive. Linear mechanism: Display the current position of load relative to home position; the values can be positive or negative.



(2) It supports electronic gear ratio and display unit switching.

Figure 5.2.1 Load side single-turn position: rotary mechanism (left), linear mechanism (right)

MD32UE01-2312

Test run

E Series Servo Drive Multi-Motion Function User Manual

(This page is intentionally left blank.)

6. Related warning and alarm

6.	Related warning and alarm	6-1	1
----	---------------------------	-----	---

MD32UE01-2312

Related warning and alarm

When multi-motion related warning AL947 or alarm ALEF9 occurs, multi-motion function may become invalid. If multi-motion function is invalid, in the bottom-left corner of Thunder main window, the light of "Multi-motion activated" will be gray. With the following steps and Table 6.1 or Table 6.2, users can check if multi-motion function is invalid when the warning or the alarm occurs, the cause and the troubleshooting method.

1. Ensure warning AL947 or alarm ALEF9 occurs.



Figure 6.1 Warning AL947 or alarm ALEF9 pops up

2. Open Thunder's "Messages + command prompt" window to check the messages shown in the window.



Figure 6.2 Check warning or alarm messages

MD32UE01-2312

E Series Servo Drive Multi-Motion Function User Manual

Related warning and alarm

Table 6.1 Multi-motion related wa	arning messages - AL947
-----------------------------------	-------------------------

Warning Message	Cause	Corrective Action				
		Change control mode to internal				
	The control mode setting is wrong.	position mode, save it to servo drive				
position mode		and power cycle servo drive.				
Fieldbus servo drive	The mastership of Fieldbus servo drive	Set Pt010.□□□0, save it to servo				
mastership error	is Controller.	drive and power cycle servo drive.				
		Go to "Electronic gear ratio setting"				
		window in Thunder's Configuration				
Ctrl unit of one revolution	The control unit (ctrl unit) value setting	Wizard to change the setting, make the				
	of load side's one revolution exceeds	control unit value of load side's one				
	2^31.	revolution less than 2^31, save it to				
		servo drive and power cycle servo				
		drive.				
		Refer to section 8.11 Internal homing				
	The serve drive fails to execute the	in "E1 Series Servo Drive User				
Homing process failed	homing with multi-motion function	Manual" and section 8.11 Internal				
	noning war mala-motor randaon.	homing in "E2 Series Servo Drive				
		User Manual" for troubleshooting.				
		(1) The servo drive cannot be				
		automatically disabled. After				
		manually disabling servo drive,				
		execute Zero Point Position				
		Offset in Machine Coordinate				
		System again.				
	The servo drive fails to execute the	(2) If absolute encoder is used and				
Homing offset failed	motion "Zero Point Position Offset in	the servo drive fails to execute				
	Machine Coordinate System".	homing method -3, refer to				
		section 8.11 Internal homing in				
		"E1 Series Servo Drive User				
		Manual" and section 8.11				
		Internal homing in "E2 Series				
		Servo Drive User Manual" for				
		troubleshooting.				
Please enable first	The motion is executed when the	Enable the servo drive before				
	servo drive is disabled.	executing the motion.				
Please homing first	The motion is executed when the	Complete homing with multi-motion				
	homing is not completed with multi-	function before executing the motion.				

MD32UE01-2312

Related warning and alarm

E Series Servo Drive Multi-Motion Function User Manual

Warning Message	Cause	Corrective Action		
	motion function.			
Not support the mechanical structure	The mechanism type cannot execute the motion.	Refer to section 3.3 to select the motor and the mechanism suitable for the motion.		
Not support LM	Linear motor cannot execute the motion.	Refer to section 3.3 to select the motor and the mechanism suitable for the motion.		

Table 6.2 Multi-motion related alarm messages - ALEF9

Alarm Message	Cause	Corrective Action			
		Check if the travel distance of the			
Multi-motion overtravel	Overtravel is triggered during the	motion exceeds the overtravel position.			
error	execution of the motion.	Adjust the travel distance of the motion			
		to avoid triggering overtravel.			

7. Appendix

7.	Appendix		7-1
	7.1	Release note for multi-motion function	7-2
	7.2	Old version's related warning	7-5

7.1 Release note for multi-motion function

The following table shows the functions added/supported and setting limits of multi-motion function in each Thunder version.

Thunder		Function added/supported		Setting Limit
version				
	1.	Support standard voltage command and pulse	1.	When standard servo drive is
		model (model: ED1S-Va) and Fieldbus mega-		used, save an input pin to
		ulink model (model: ED1F-H□).		configure S-ON.
	2.	Support direct drive motor (DM) and torque motor	2.	The homing method of
		(TM).		absolute direct drive/torque
1.4.8.1	3.	Both standard servo drive and Fieldbus servo		motor is always finding index
		drive support 64 motions.		signal with the shortest path.
	4.	Support type of motion: Absolute move, Relative	3.	When the multi-motion
		move, Indexing movement, JOG, Homing		parameters are saved to
		Operation.		servo drive, electronic gear
				ratio will be changed to 1:1.
	1.	Add type of motion: Customized motion.	1.	When standard servo drive is
				used, save an input pin to
				configure S-ON.
			2.	The homing method of
				absolute direct drive/torque
1.6.11.0				motor is always finding index
				signal with the shortest path.
			3.	When the multi-motion
				parameters are saved to
				servo drive, electronic gear
				ratio will be changed to 1:1.
	1.	Support linear motor (LM).	1.	When standard servo drive is
				used, save an input pin to
				configure S-ON.
1.6.19.0			2.	The homing method of
				absolute direct drive/torque
				motor is always finding index
				signal with the shortest path.

Table 7.1.1 Release note for multi-motion function

MD32UE01-2312

E Series Servo Drive Multi-Motion Function User Manual

Appendix

Thunder Version	Function added/supported	Setting Limit
		3. When the multi-motion
		parameters are saved to
		servo drive, electronic gear
		ratio will be changed to 1:1.
	1. Support AC servo motor (AC).	1. When standard servo drive is
	2. Support AC servo motor used with rotary/linear	used, save an input pin to
	mechanism with reduction ratio of 1:250 or below.	configure S-ON.
1.7.17.0	3. Support electronic gear ratio.	2. The homing method of
	4. Add "Test run for multi-motion" window.	absolute direct drive/torque
	5. Add monitoring physical quantity 26 - Load side	motor is always finding index
	single-turn position (multi-motion only).	signal with the shortest path.
	1. Support Fieldbus EtherCAT model (model: ED1F-	1. When host controller is used,
	E□), Fieldbus MECHATROLINK-III model (model:	Fieldbus servo drive does not
	ED1F-L□) and Fieldbus PROFINET model	support multi-motion function.
	(model: ED1F-P□).	When the multi-motion
	2. Support AC servo motor used with rotary/linear	parameters are saved to
	mechanism with reduction ratio of 1:5000 or	servo drive, the mastership
	below.	will be set as $Pt010.\Box\Box\Box$.
	3. Standard servo drive supports 255 motions;	2. Fieldbus MECHATROLINK-III
	Fieldbus servo drive supports 127 motions.	model only supports electronic
	4. Add type of motion: Software enable, Software	gear ratio as 1:1.
	disable, Clear error, Zero Point Position Offset in	3. When Fieldbus servo drive is
	Machine Coordinate System.	used, configure the motions
1.8.8.0	5. The bottom-left corner of Thunder main window	"Software enable" and
	adds the light of "Multi-motion activated". It will	"Software disable".
	light up when multi-motion function is activated; it	
	will be gray when multi-motion function is	
	disabled/invalid.	
	6. Support Pt662.□□□X - Indexing movement-1	
	method of going back to the last target station,	
	Pt662.□□X□ - Multi-motion automatic enabling	
	function and Pt664 - Multi-motion input	
	Signal_Act debounce time.	
	7. Thunder adds Pt205, which can used with multi-	
	motion function.	
	8. Fieldbus mega-ulink model used with multi-	

MD32UE01-2312

Appendix

E Series Servo Drive Multi-Motion Function User Manual

Thunder Version	Function added/supported		Setting Limit
	motion function supports electronic gear ratio.		
1.9.20.0	 Support Pt663.□□□X - Multi-motion overtravel alarm selection. Add alarm ALEF9 - Multi-motion alarm. 	1. · · · · · · · · · · · · · · · · · · ·	When host controller is used, Fieldbus servo drive does not support multi-motion function. When the multi-motion parameters are saved to servo drive, the mastership will be set as Pt010.□□0. When Fieldbus servo drive is used, configure the motions
			"Software enable" and "Software disable".

7.2 Old version's related warning

If warning AL947 appears when old Thunder version is used, refer to chapter 6 to check warning messages, and do troubleshooting according to the following table.

Worping Massage			
	Cause	Corrective Action	
AC need nigher firmware	The current Thunder version does not	Update Thunder version to 1.7.17.0 or	
Version	support AC servo motor.	above.	
Not support AC motor			
Electronic gear ratio must be 1	The electronic gear ratio (Pt20E, Pt210) setting is wrong.	Change electronic gear ratio (Pt20E,	
		Pt210) to 1:1, save it to servo drive	
	, , , ,	and power cycle servo drive.	
Only support in internal position mode		Change control mode to internal	
	The control mode setting is wrong.	position mode, save it to servo drive	
		and power cycle servo drive.	
Reduction ratio is too big		Use the reducer with reduction ratio of	
	The reduction ratio setting exceeds 1:250.	1:250 or below and change the setting	
		of "Electronic gear ratio setting"	
		window.	
	The motor keeps moving more than 32000 revolutions when multi-turn absolute AC servo motor is used with rotary mechanism.	The servo drive will stop the motor,	
		automatically disable the motor, and	
Encoder is closed to overflow		re-enable the motor. After the servo	
		drive re-enables the motor, activate the	
		motion again.	
	The motion moves more than 256		
Movement is too big	revolutions of motor at a time when	Reduce the moving distance of motion.	
	multi-turn absolute AC servo motor is		
	used.		
EEPROM write error	The servo drive malfunctions.	Replace the servo drive.	
Multi-turn Data clear fail	The servo drive fails to reset multi-	The AC servo motor or the servo drive	
	motion data when multi-turn absolute	may malfunction. Replace the AC	
	AC servo motor is used.	servo motor or the servo drive.	
Homing process failed	The servo drive fails to execute the	Refer to section 8.11 Internal homing	
		in "E1 Series Servo Drive User	
	homing with multi-motion function.	Manual" for troubleshooting.	
Please homing first	The motion is executed when the	Complete homing with multi-motion	

Table 7 2 2 Old	version's mult	ti-motion relate	d warning	messages
	VCISION S IIIUI		u wanning	messages

MD32UE01-2312

Appendix

E Series Servo Drive Multi-Motion Function User Manual

Warning Message	Cause	Corrective Action		
	homing is not completed with multi-	function before executing the motion.		
	motion function.			
Not support LM	Linear motor cannot execute the motion.	Refer to section 3.3 to select the motor		
		and the mechanism suitable for the		
		motion.		
Time Out	The executed motion is not completed in 30 seconds (except for JOG).	(1) Check if the motor cannot move		
		due to the disabled status or the		
		pop-up alarm.		
		(2) Ensure the setting value of Pt522		
		is appropriate to avoid not		
		completing the positioning		
		(COIN).		