

ELCO

ABSOLUTE ROTARY ENCODER

ETHERCAT

----编码器使用手册



宜科 (天津) 电子有限公司 3/2020 Version 1.0





前言

1. 本手册适用范围:

适用于 ELCO 公司 EtherCAT 协议的多圈编码器产品。 通过手册中的信息,您可以在 EtherCAT 从站模式下连接控制器(PLC、DCS 等)运行 EtherCAT 总线上的多圈编码器产品。

2. 所需基本知识:

本手册假定您具有电气及自动化工程领域的基础知识。 本手册基于发行时的有效数据描述各组件,新组件及参数调整会在新版手册 中更新。

3. 指南:

本手册介绍了 EtherCAT 协议下多圈编码器的硬件及使用。 涵盖范围包括:

- 安装与接线
- 技术特性
- 使用实例
- 技术参数

4. 技术支持:

本手册尽可能全面的描述多圈编码器的产品特性及使用方法,如有疑问或关于此产品的其它问题,请联系当地 ELCO 公司办事处,或拨打服务热线400-608-4005。

您还可以通过 ELCO 公司网站了解更多自动化产品: <u>http://www.elco-holding.com.cn/</u>

5. 责任免除:

我们已对手册中所述内容与硬件和软件的一致性做过检查。 但不排除存在偏差的可能性,无法保证所述内容与硬件和软件的完全一致。 数据参数按规定已进行了相关检测,必要的修改会在新版本中完善。

6. 版权声明

EtherCAT® 是注册商标和专利技术,由德国倍福自动化有限公司授权。



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1. 产品概述

1.1 简介

EtherCAT 多圈编码器使用高速以太网作为接口通讯总线,高速以太网的应用 使编码器在工作中提供比传统现场总线更高的实时性,并实现了完整的 EtherCAT 通讯协议,可对 EtherCAT 主站完全支持。

1.2 产品介绍

EtherCAT 多圈编码器提供了包括 DC 时钟、实时位置、实时转速、方向设置、 单圈分辨率设置、总量程设定、预置值设置等功能。

1.3 特性

- LED 及屏幕状态指示,并提供在线诊断和通道保护功能
- 具备旋转方向、单圈分辨率、总量程等可配置参数。

1.4 产品型号

EAM58C10-BF6XTR-4096/8192ECND



2. 技术特性

2.1 接口说明

此图片为 EtherCAT 多圈编码器的示意图。

端子配置:

功能		M12 接	插件			
	信号:	数据发送+	数据接收+	数据发送-	数据接收-	1 2
总线接口1	缩写:	TxD+	RxD+	TxD-	RxD-	D coded
	针脚:	1	2	3	4	4 3
中温森口	信号:	电源+	-	Voltage -	-	4 3
电你时女日	缩写:	+ V	-	0 V	-	A coded
	针脚:	1	2	3	4	
	信号:	数据发送+	数据接收+	数据发送-	数据接收-	1_2
总线接口2	缩写:	TxD+	RxD+	TxD-	RxD-	D coded
	针脚:	1	2	3	4	4 3



EtherCAT 多圈编码器使用高速以太网作为接口通讯总线,高速以太网的应用 使编码器在工作中提供比传统现场总线更高的实时性,并实现了完整的 EtherCAT 通讯协议,可对 EtherCAT 主站完全支持。

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|--|



2.2 硬件参数

网关 项目 EAM58C10-BF6XTR-4096/8192ECND 电源输入 +24VDC 输入电压 18VDC~30DCV 工作温度 **-40...80**℃ 存储温度 **-45...85**℃ 抗振动性 10G 10...2000Hz 抗冲击性 50G/11ms 轴负荷 40N 轴向 80N 径向 防护等级 IP65 10⁹转数 轴承寿命

2.3 LED 指示功能

指示灯名 称	指示灯状态	指示灯含义	可能原因
L/A	灭	未接入网络	1. 网络线缆故障
			2. 网关损坏
	绿闪	网络数据交换中	数据连接中
Power	灭	无供电	1. 供电线缆故障
			2. 网关损坏
	绿	正常供电	
ERR	灭	无通讯错误	
	红闪	通讯故障或配置故障	
RUN	灭	EtherCAT-Init 状态	
	闪烁	EtherCAT-Preop 状态	
	慢速闪烁	EtherCAT-Safeop 状态	
	常亮	EtherCAT-Op 状态	



3. 安装尺寸

3.1 尺寸图







4. 使用实例

4.1 安装编码器 ESI 文件

使用 ESI 文件(XML 格式)组态 EtherCAT 编码器设备, ESI 文件用于将编码器作为标准 EtherCAT IO 集成到您的系统中。您可以访问 ELCO 公司网站获得最新的 ESI 文件或拨打客户服务热线联系技术人员。

将 ESI 文件集成到系统中取决于您所使用的组态软件。以 EtherCAT 系统所使用的 Beckoff 公司的 TwinCAT 编程软件为例,按照以下步骤添加 ESI 文件:

安装 TwinCAT, 然后在复制编码器的 xml 文件(后称 xml 文件)到如下安装目录下: C:\TwinCAT\lo\EtherCAT\

4.2 项目建立

本节通过建立新项目,展示组态连接的实际操作流程,让用户全面了解 EtherCAT 编码器实际使用。本例采用 ELCO 公司的 EtherCAT 编码器作为 EtherCAT 从站连接 Beckoff 公司的 TwinCat。默认用户已安装 TwinCAT 并设置所需网卡信息、 安装了 ESI 文件、完成所有的供电及总线连接(操作流程请详见 TwinCat 使用说明 及前面各相关章节)。

我们通过图片形式表明具体的软件组态调试流程。

1) 新建项目:

🗾 无标题 - TwinCAT System Manager		- 0 X
File Edit Actions View Options Help		
D 🖆 📽 🖬 🍜 🖪 🕺 🗛 8 🔒	프	
SYSTEM - Configuration		
NC - Configuration	General Boot Settings	
PLC - Configuration		
I/O - Configuration		
I/O Devices	TwinCAT System Manager Choose Target	
Mappings	v2.11 (Build 2285)	
	TwinCAT Evaluation	
	v2.11 (Build 2302)	
	Copyright BECKHOFF © 1996-2011	
	http://www.beckhoff.com	
	Registration:	
	Name:	
	Company:	
	RegKey: ???????	
Ready		.ocal (192.168.30.181.1.1) Config Mode

EtherCAT ENCODER 8/17	
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2) 选中 Choose Target:

テ 无标题 - TwinCAT System Manager File Edit Actions View Options Help		- 0 ×
SYSTEM - Configuration		
📴 NC - Configuration	General Boot Settings	
🖻 👿 I/O - Configuration	TuicAT Cuture Manage	
	Choose Target	
Mappings	V2.11 (Build 2285)	
	Choose Target System X	
	Cancel	
	Search (Ethernet)	
	Cearch (Fieldbur)	
	Search (Fleidbus)	
	Set as Default	
	Connection Timeout (c):	
	Connection Hintbult [5].	
Ready		.ocal (192.168.30.181.1.1 Config Mod

3) 点击 Broadcast search

无标题 - TwinCAT System Manager File Edit Actions View Options	Help					- 0 X
D 📽 📽 🖬 🎒 🗛 🕹 🖬 🖷	3 🙃 A 👌 🔜 🕯	in 🗸 谢 👧 👧 🗞 i	🔨 🔕 🚯 🖹 🔍 🖉	66' 🍢 🕵 🧶 😰 😵		
SYSTEM - Configuration NC - Configuration	G	General Boot Settings				
PLC - Configuration	dd Route Dialog				Х	
I/O Devices Mappings	Enter Host Name	/ IP:		Refresh Status	Broadcast Search	
	Host Name	Conne Address	AMS NetId Twin	CAT OS Versi Comment		
	CX-365DBF	X 169.254	5.54.93.191 2.11.	2 Win CE (
	Route Name (Targe	t): CX-365DBF		Route Name (Remote):	GAOZANBIN-PC	
	AmsNetId:	5.54.93.191	.1.1	Target Route	Remote Route	
	Transport Type:	TCP/IP	~	O Project	O None	
	Address Info:	CX-365DBF		Static Temporany	Static Temporary	
	Host Name	O IP Address		O remporary		
	Connection Timeout	t (s): 5	A			
				Add Route	Close	
Ready						.ocal (192.168.30.181.1.1 Config Mo

4)选中搜到的路由,点击上图 add route



 Ó	X

SYSTEM - Configuration		General B	oot Settings							
NC - Configuration PLC - Configuration	Add Route Dialog		<u>-</u>						×	
I/O - Configuration	rida noute bialog								~	
醇 I/O Devices 音 Mappings	Enter Host Nar	ne / IP:				Ref	resh Status	Broadcast Se	arch	
	Host Name	Conne	Address	AMS NetId	TwinCAT	OS Versi	Comment			
	CX-365DBF	х	169.254	5.54.93.191	2.11.2	Win CE (
	Route Name (Targ	get):	CX-365DBF			Route N	ame (Remote):	GAOZANBIN-PC		
	Route Name (Targ AmsNetId:	get):	CX-365DBF 5.54.93.191			Route N Target F	ame (Remote): oute	GAOZANBIN-PC Remote Route		
	Route Name (Targ AmsNetId: Transport Type:	get):	CX-365DBF 5.54.93.191	.1.1 US V		Route N Target F O Proj	ame (Remote): oute ect	GAOZANBIN-PC Remote Route O None		
	Route Name (Targ AmsNetld: Transport Type:	jet):	CX-365DBF 5.54.93.191 IIO LIGHTB0	.1.1 US ~		Route N Target F O Proj © Stat	ame (Remote): oute ect c	GAOZANBIN-PC Remote Route O None @ Static		
	Route Name (Targ AmsNetld: Transport Type: Address Info:	get):	CX-365DBF 5.54.93.191 IIO LIGHTBI 169.254.31.	.1.1 US ~ 136		Route N Target F O Proj © Stat O Tem	ame (Remote): oute ect c porary	GAOZANBIN-PC Remote Route None ® Static O Temporary		
	Route Name (Targ AmsNetId: Transport Type: Address Info: O Host Name	get): @ IP Ad	CX-365DBF 5.54.93.191 110 LIGHTBI 169.254.31. Idress	.1.1 JS ~ 136		Route N Target F O Proj ® Stati O Tem	ame (Remote): oute ect c porary	GAOZANBIN-PC Remote Route None © Static Temporary		

注意:若是通过上述无法搜到 PLC,可以通过点击 Actions 中子菜单(set/reset TwinCAT to Config Mode),然后再重新搜索即可。

野 无标题 -	TwinCAT System Manager			- 0	×
	Actions view Options Help	Ctrl+M			
	✓ Check Configuration	Ctrl+H	199 126 126 76 7 6 147 E 4 14 00 1 12 14 6 0 1		
NC	💣 Activate Configuration	Ctrl+Shift-F4	ral Boot Settings		
PLC	🙊 Set/Reset TwinCAT to Run N	1ode Ctrl+F4			
🖻 📝 I/O	Set/Reset TwinCAT to Confid	a ModeShift-F4			
	💫 Reload Devices	F4	VincAT System Manager Choose Target		
	I Choose Target System	F8			
	Read Target Server Version	s	TwinCAT Evaluation		
	Access Bus Coupler/IP Link	Register	v2.11 (Build 2302)		
	Update Firmware/E2PROM	•			
	EtherCAT Devices	•	Copyright BECKHOFF © 1996-2011		
	Export XML Description	Ctrl+E	http://www.beckhoff.com		
	Import XML Description	Ctrl+I			~
Server (Po	Delete Unused Variable Tvp	es			
1 TwinCAT	Check Variable Links		er TcEventLogger !		
1 TwinCAT	Sy 2019/3/21 10:53:11 282	TCIO Server start	ted: TCIO.		
1 TwinCA	Sy 2019/3/21 10:53:11 230	TCRTIME Server s	started: TCRTIME.		
TwinCAT	Sy 2019/3/21 10:53:11 200	Error >> Unknow	wn error 0x9811000F << init COM Server TcEventLogger !		
1 TwinCA	Sy 2019/3/21 10:53:11 190	Initializing COM S	Server TcEventLogger !		
1 TwinCA	Sy 2019/3/21 10:53:11 187	Loading configura	ration of COM server TcEventLogger !		
1 TwinCAT	Sy 2019/3/21 10:53:10 256	Saving configurat	tion of COM server TcEventLogger !		
1 TwinCA	r Sy 2019/3/21 10:53:10 253	TwinCAT System (Config mode requested from AmsNetId: 192.168.30.181.1.1 por		
				20%	45℃ 🌢
Set/Reset T	winCAT to Config Mode, All Serv	ers will be tempora	ary stopped	ocal (192 168 30 181	CPU温度
		are tempore			and a mout

5)点击下图 OK (无需填写密码)



🗅 🗃 🗃 🖬 🏐 🗟 🏅 🖷		´∰ ∰ ∰ \$\$ \\ ® \$\$ E Q # #	s 🕺 🖉 🖉 🤋		
NC - Configuration	Gener	al Boot Settings			
PLC - Configuration	Add Route Dialog			Х	
- B I/O Devices Mappings	Enter Host Name / IP:		Refresh Status	Broadcast Search	
	Host Name Conr	ne Address AMS NetId TwinCAT	OS Versi Comment		
	CX-365DBF X	Logon Information			
		Fiter a user name and password remote system. User name: Password: OK Cancel	hat is valid for the		
	Route Name (Larget):	CX-305DDF	Route Name (Remote):	GAUZANDIN-PC	
	AmsNetid:	5.54.93.191.1.1	Target Route	Remote Route	
	Transport Type:	IIO LIGHTBUS ~	Static	Static	
	Address Info:	169.254.31.136	O Temporary	O Temporary	
	○ Host Name 🏾 🌒	IP Address			
	Connection Timeout (s):	5	Add Doute	Close	

6) 点击下图 OK

Image: Configuration Image: Choice Budgestungs Image: Choice Target System X Image: Choice Target Sys	
Connection Timeout (s): 5	

7) 选中工具栏 CONFIG MODE 点击确定



表示题 - TwinCAT System Manager - 'CX-365DB	BF'	- 0 ×
File Edit Actions View Options Help		
🗋 🗅 📽 🖬 🎒 🥵 📐 🐇 🛍 🛍 🙈 🗛 8	ð 🖳 📾 🗸 🏙 🎪 🌺 🔧 🌾 🖲 💁 🖹 🔍 🞜 🚱 🖉 🛠 👷	
🗉 🛃 SYSTEM - Configuration	Number Device Type	
🖃 🛒 I/O - Configuration		
1/O Devices	TwinCAT System Manager ×	
Appings		
	Restart TwinCAT System in Config Mode	
	施定 取消	
Peadu		Y 265DRE (5.54.02.101.1.1.1 Config Mode

8)在 I/O device 选中 SCAN DEVICES

郹 无标题 - TwinCAT System Manager - 'CX-365DBF'				- 0	×
File Edit Actions View Options Help					
D 🛎 📽 🖬 🍜 🖪 🌡 🖻 🛍 🍰 🗛 ð 🗷	🗒 in 🗸 💣 🎰 🖗 👯 🔨 🛞	🍫 🖹 Q, 🖧 66 🍢 🕵 🛞 🤋			
SYSTEM - Configuration	Number Device	Туре			
🖶 🛒 I/O - Configuration					
→ I/O D → Append Device					
G [™] I <u>m</u> port Device					
😪 Scan Devices					
Paste Ctrl+V					
as Paste with LinksAit+Ctri+V					
Ready			X-365DBE (5.	54.93.191.1.1 Conf	fia Mode

9) 点击 OK, 如图:



📕 无标题 - TwinCAT System Manager - 'CX-3	I65DBF'	- 0	×
File Edit Actions View Options Help			
D 📽 📽 🖬 🎯 🖪 🕺 🖉 🖻 📾	👫 ð 🗐 📾 🗸 🏄 🏡 👧 🎨 🌂 🚳 🖹 🔍 🔗 🚧 🔩 🖉	2 🕈	
B- 🛃 SYSTEM - Configuration	Number Device Type		
🖃 🛃 I/O - Configuration			
I/O Devices	3 new I/O devices found	×	
Mappings			
	Device 1 [EtherCAT]	ОК	
	Device 2 [R1-Ethernet] [FEC1]		
		Cancel	
		Palast All	
		Select All	
		Unselect All	
Ready		Y.365DBE (5.54.03.101.1.1	ia Mode

10) 点击是 (Y), 如图:

- 天标题 - TwinCAT System Manager - 'CX-365DBF' - File Edit Actions View Options Help		- 0 X
	l 📾 🗸 🏙 👧 😫 🔨 🛞 👒 🖹 Q 🔐 🚧 👷 🖉 🧶 🖉 🕈	
G SYSTEM - Configuration SYSTEM - Configuration SYC Can - Configuration G Z Can - Configuration J // O - Configuration SY // O - Configuration SY // O Devices B ➡ Device 1 (EtherCAT)	Number Device Type	
B ← ● Device 3 (NOV/DP-RAM)	TwinCAT System Manager X	
	Scan for boxes	
	是(V) 晋(N)	
Ready		4 93 191 1 1 Config Mode

11) 点击是 (Y), 如图:



表标题 - TwinCAT System Manager - 'CX-365DBF' File Edit Actions View Options Help			- ō ×
General Configuration Configuration PLC -	S eneral General General Name: Type: Comment:	Image: Service	

12) 能正常显示位置值 Value(当前编码器数据)

罗 无标题 - TwinCAT System Manager - 'CX-365DBF' File Edit Actions View Options Help			- 0	×
🗅 🗳 📽 🔛 🝜 🔃 👗 🛍 🛍 🍰 👭 👌 💻	l 🙃 🗸 💣 强	i 👧 💱 🔨 🚳 🖹 Q. 🚜 60 🍢 📌 🧶 🗊 🕈		
B- SYSTEM - Configuration 	Variable Flags	s Online		
	Value:	0x00000855 (2133)		
⊖-∰ I/O Devices ⊖-₩ Device 1 (EtherCAT)	New Value:	Force Release Write		
→ Device 1-Image → Device 1-Image-Info	Comment:	^		
e light linguts e light ligh				
FirroData FirroData FirroData FirroData FirroData FirroData FirroData				
⊟-\$† Encoder Env - \$† Position Value				
← �↑ RPM Value		2133		
Ready	,	X-365DBF (5.54	.93.191.1.1 Conf	g Mode

4.3 编码器数据读取及设置项的使用

编码器提供包括 DC 时钟、旋转方向、单圈分辨率、总测量范围、保存设置、 恢复默认设置、预置值设置等在内的多个可设置项。除 DC 时钟外,所有设置项 均以 CoE 方式下发给从站。

1) 选中 BOX4(SPEC-Encoder)对编码器参数进行配置(CoE-Online 选项):

EtherCAT ENCODER 14/1/	<u>EtherCAT</u>	ENCODER	<u> </u>
------------------------	-----------------	---------	----------



🛎 🖬 🥔 🖪 👗 🗞 🛍 📾 🖊	ð 🗏 📾 🗸 💣 🏂	👧 💱 🔨 💽 🗣 📑	Q P	66 옷 🙎	° 🖉 🤣 🕯	8			
STEM - Configuration	General Ether	CAT DC Process D	ata Start	up CoE -	Online Onli	ne			
m - Configuration									
- Configuration	Update	e List 🗌 Auto	Update	Single U	Jpdate 🗌 Sh	ow Offlin	e Data		
I/O Devices	Advan	her							
Device 1 (EtherCAT)	Auvan	.eu							
-+ Device 1-Image	Add to St	artup Online	Data	Mo	dule OD (Ao	E 0			
- Device 1-Image-Info									
œ− \$ † Inputs	Index	Name		Flags	Value				
Outputs	1009	Hardware Version		RO	1.01				
B− ♦ InfoData	- 100A	Software Version		RO	1.01				
	1010	Store Application Para	meter	RW	0x65766	173 (1702	257011)		
Box 4 (SPEC-Encoder)	- 1011	Restore Application Pa	arameter	RW	0x64616	F6C (1684	107116)		
- St Encoder Env	· 1018:0	Identity		RO	> 4 <				
- I Position Value	E 1A00:0	Encoder Output		RO	> 2 <				
- ST RPM Value		Sync manager type		RO	> 4 <				
wcstate		TxPDO assign		RO	> 1 <				
Drive 2 (NOV/DD RAM)	€-1C33:0	SM input parameter		RO	> 32 <				
Device 3 (NOV/DP-NAIVI)	2010	RPM		RO	0x0000 (0)			
Mappings	2020	Direction Setting		RW	0x01 (1)				
in appings	6000	Operating Parameters		RW	0x0004 (4)			
	6001	Measuring Units per R	evolution	RW	0x00001	000 (4096)		
	6002	Total Measuring Rang	e	RW	0x01000	000 (1677	7216)		
	6003	Preset Value		RW	0x00000	(0) 000			
	6004	Position Value		RO	0x00024	BF7 (1497	51)		
	⊛- 6030:0	Speed Value		RO	>1<				
	Name	Online	Туре	Size	>Add	In/Out	User	Linked to	
	Of Position Value	0x000248F7 (149.	UDINT	4.0	39.0	Input	0		
	♦ RPM Value	0x0000 (0)	UINT	2.0	43.0	Input	0		
	♦ WcState	0	BOOL	0.1	1522.1	Input	0		
	♦ ↑ InputToggle	0	BOOL	0.1	1524.1	Input	0		
	♦↑ State	0x0008 (8)	UINT	2.0	1566.0	Input	0		

指令功能如下:

读写命令 (RW): 1010 保存指令、2020 方向修改、6001 单圈分辨率、6002 总 分辨率、6003 预设值

读命令(RO): 6004 编码器当前位置值

2) 双击 2020 direction setting (0 代表反向、 1 代表正向)

i 🖬 🖶 🖓 🐧 🖌 🖻 📾 🙈 🗚	ð 🔜 📾 🗸 💣 🖉	L 💁 👯 🔨 🛞 🐐 🖹 Q ،	9 ² 60'	🏃 🕵 🧶	3 🖇									
SYSTEM - Configuration	General EtherC	AT DC Process Data Startu	p CoE	- Online Onl	ine									
Cam - Configuration														
/O - Configuration	Update	List Auto Update	Single	e Update 🗌 S	how Offline	Data								
9 I/O Devices	Advance	- I												
🗯 Device 1 (EtherCAT)	Auvano	cu												
🛶 Device 1-Image	Add to St	artup Online Data	N	Aodule OD (Ad	DE 0									
- Device 1-Image-Info														
	Index	Name	Flags	Value										
Outputs	1011	Restore Application Parameter	RW	0x64616	F6C (168410	7116)								
	⊞-1018:0	Identity	RO	> 4 <										
Ban 4 (CDEC Franker)		Encoder Output	RO	> 2 <										
Box 4 (SPEC-Encoder)	⊕ 1C00:0	Sync manager type	RO	> 4 <			L.	Set Value Dialog				×	1	
At Position Value	E 1C13:0	TxPDO assign	RO	>1<										
et BPM Value	E 1C33:0	SM input parameter	RO	> 32 <				Dec:	1			OK		
- WcState	2010	RPM	RO	0x0000	(0)				0.01			<u> </u>		
- InfoData	2020	Direction Setting	RW	0x00 (0)				Hex:	UXU1			Cancel		
Device 3 (NOV/DP-RAM)	6000	Operating Parameters	RW	0x0004	(4)			Float:	1					
- <ia (el6751)<="" 2="" device="" td=""><td>6001</td><td>Measuring Units per Revolution</td><td>RW</td><td>0x00001</td><td>000 (4096)</td><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></ia>	6001	Measuring Units per Revolution	RW	0x00001	000 (4096)	10								
Mappings	6002	Total Measuring Kange	RW	0x01000	000 (16///4	16)								
	6003	Preset Value	RW	0x00000	000 (0)	64)		Bool:	0	1		Hex Edit		
	60004	Position Value	RO	0x00FDt	5/06 (1002/	+0++)		Discont	01			1		
	6500	Operating Status	RO	0-0004	(4)			binary.	01					
	6501	SingleTurn Resolution	RO	0,00004	(4)			Bit Size:	01 08	016	0 32 0 64	0?		
	6502	MultiTurn Resolution	RO	0×01000	000 (16777	16)								
			110				-							
	Name	Online	1	lype S	ize >Ad	d In/C	Dut Us	ser Linked to						_
	Position Value	0x00FDB708 (16627464)	L	JDINT 4	1.0 39.0	Inpu	ut 0							
	STRPM Value	0x0000 (0)	L	JINT 2	2.0 43.0	Inpu	ut 0							
	•TWcState	0	E	300L (0.1 152	.1 Inpu	ut 0							
	♥ InputToggle	0	E	300L (0.1 1524	.1 Inpu	ut 0							

3) 双击 6001 Measuring Units Per Revolution 修改单圈分辨率



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YSTEM - Configuration	General Ethert	CAT DC Deserve Data Start	COE .	Online	Delles										
LC - Configuration	General Ether	CAT DC Process Data Starti	ip cor	onine (Jhine										
Cam - Configuration	Undate	List Auto Undate	C Single	Undate [Show O	filine Data									
O - Configuration	opean		≥ single	opuate L	31104 0										
Devices	Advan	ced													
Device 1 (EtherCAT)	12 as hiles	Opline Data	M	dule OD	(AoE	0	-								
- Device 1-Image-Info	Add to Si	Onine Data				·									
- St Inputs	Index	Name	Flags	Value											
- & Outputs	1011	Restore Application Parameter	RW	0x646	516F6C (1	68410711	6)								
⊕-\$ InfoData	· 1018:0	Identity	RO	> 4 <			-,								
	+ 1A00:0	Encoder Output	RO	> 2 <											
Box 4 (SPEC-Encoder)	· 1C00:0	Sync manager type	RO	> 4 <	5										
- St Encoder Env	⊕ 1C13:0	TxPDO assign	RO	>1 <				Set V	alue Dialog					×	
— ♀↑ Position Value		SM input parameter	RO	> 32	<				2						
└─ �† RPM Value	2010	RPM	RO	0x000	00 (0)			De	c:	4096			OK		
B-8 WcState	2020	Direction Setting	RW	0x01	(1)					00000100	0		01		
E-S InfoData	6000	Operating Parameters	RW	0x000	04 (4)			пе	x:	0,0000100	10		Cancer	-	
General 2 (EL6751)	6001	Measuring Units per Revolution	RW	0x000	001000 (4	096)		Flo	at:	4096					
Mappings	6002	Total Measuring Range	RW	0x010	000000 (1	6777216)									
	6003	Preset Value	RW	0x000	0) 000000)									
	6004	Position Value	RO	0x000	0248F7 (1-	49751)		Bo	ol:	0	1		Hex Edit		
	· 6030:0	Speed Value	RO	> 1 <	¢			Bir	and	00 10 00 0	n		4		
	6500	Operating Status	RO	0x000	04 (4)			0.	iury.					-	
	6501	SingleTurn Resolution	RO	0x000	001000 (4	096)		Bit	Size:	01 08	016	32 (64 0?		
	6502	MultiTurn Resolution	RO	0x010	000000 (1	6777216)									
		0.1	-		c'.										
	Name	Unline	Ту	pe	Size	>Add	In/Out	User	Linked to						
	Position Value	Ux000248F7 (149751)	U	DINT	4.0	39.0	Input	0							
	VI RPM Value	0x0000 (0)	UI	NI	2.0	43.0	Input	0							
	vi wcState	0	BC	DOL	0.1	1522.1	input	0							
	vinputloggle	0	BC	JUL	0.1	1524.1	input	0							

4) 双击 6002 total Measuring Range,修改总分辨率

YSTEM - Configuration LC - Configuration	General EtherC	AT DC Process Data Starts	Jp CoE	- Online On	line								
am - Configuration /O - Configuration	Update	List Auto Update	Single	e Update 🗌 9	Show Offlin	e Data							
I/O Devices	Advance	ed					1						
Device 1 (EtherCAT)	Add to Sta	Online Data	N	Module OD (A	oE 0								
Device 1-Image-Into Device 1-Image-Into	Index	Name	Flags	Value									
Outputs	1011	Restore Application Parameter	RW	0x6461	6F6C (1684	107116							
- InfoData	· 1018:0	Identity	RO	> 4 <									
🖅 🗄 Term 1 (EK1200)	÷ 1A00:0	Encoder Output	RO	> 2 <									
Box 4 (SPEC-Encoder)	+ 10000	Sync manager type	RO	> 4 <									
🖨 😂 Encoder Env	÷ 1C13:0	TxPDO assign	RO	>1<				Set Value Dialog				×	
- I Position Value	÷ 1C33:0	SM input parameter	RO	> 32 <							_	2	
↓ ♦↑ RPM Value	2010	RPM	RO	0x0000	(0)			Dec:	16777216			ОК	
	2020	Direction Setting	RW	0x01 (1)			Hex:	0×0100000	0		Cancel	
InfoData	6000	Operating Parameters	RW	0x0004	(4)					-			
Device S (NOV/DP-NAM)	6001	Measuring Units per Revolution	RW	0x0000	1000 (4096)		Float:	16777216				
Mappings	6002	Total Measuring Range	RW	0x0100	0000 (1677	7216)							
mappings	6003	Preset Value	RW	0x0000	(0) 0000								
	6004	Position Value	RO	0x0002	48F7 (1497	51)		Bool:	0	1		Hex Edit	
	⊕ 6030:0	Speed Value	RO	>1<				Binary:	00 00 00 0	1		4	
	6500	Operating Status	RO	0x0004	(4)			S					
	6501	SingleTurn Resolution	RO	0x0000	1000 (4096)		Bit Size:	01 08	○16 ●:	32 064	0 ?	
	6502	MultiTurn Resolution	RO	0x0100	0000 (1677	7216)							
				_	-								
	Name	Online		Type	Size >4	Add	In/Out	User Linked to					
	Position Value	0x000248F7 (149751)	(UDINT	4.0 39	.0	Input	0					
	♦TRPM Value	0x0000 (0)	1	UINT	2.0 43	.0	Input	0					
	Q ⊺WcState	0	8	BOOL	0.1 15	22.1	Input	0					
	Q ⊺InputToggle	0	8	BOOL	0.1 15	24.1	Input	0					
	♥T State	0x0008 (8)	L.	UINT	2.0 15	66.0	Input	0					

5) 双击 6003 Preset Value 预设值设置(编码器清零和编码器数值设置)



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STEM - Configuration	General EtherC	AT DC Process Data Startu	p CoE -	Online Online						
- Configuration										
) - Configuration	Update	List Auto Update	Single U	Jpdate Show	Offline Data	з				
I/O Devices	Advanced									
Device 1 (EtherCAT)										
+ Device 1-Image	Add to Startup Online Data Module OD (AoE 0									
+ Device 1-Image-Info										
	Index	Name	Flags	Value						
🗄 🌒 Outputs	- 1011	Restore Application Parameter	RW	0x64616F6C	(168410711	6)				
⊕- \$ InfoData	⊕-1018:0	Identity	RO	> 4 <						
⊕- ☐ Term 1 (EK1200)		Encoder Output	RO	> 2 <						
Box 4 (SPEC-Encoder)		Sync manager type	RO	> 4 <			Set Value Dialo	9	Х	
E-S Encoder Env	E-1C13:0	TxPDO assign	RO	>1 <				-	14	
Position Value	⊕ 1C33:0	SM input parameter	RO	> 32 <			Dec:	10000	OK	
WeState	2010	RPM	RO	0x0000 (0)			Have	0~00002710	Cancel	
	2020	Direction Setting	RW	0x01 (1)			HCA.	000002110	Calicer	
Device 3 (NOV/DP-RAM)	6000	Operating Parameters	RW	0x0004 (4)			Float:	10000		
(in Device 2 (EL6751)	6001	Measuring Units per Revolution	RW	0x00001000	(4096)					
î Mappings	6002	Total Measuring Range	RW	0x01000000	(16777216)					
	6003	Preset Value	RW	0x00000000	0000000 (0)		Bool:	0 1	Hex Edit	
	6004	Position Value	RO	0x000248F7	(149751)		Binand	10 27 00 00	4	
	€ 6030:0	Speed Value	RO	>1<			Dinary.	10 21 00 00		
	6500	Operating Status	RO	0x0004 (4)			Bit Size:	○1 ○8 ○16 ●32 ○	64 0 ?	
	6501	SingleTurn Resolution	RO	0x00001000 (4096)						
	6502	MultiTurn Resolution	RO	0x0100000	(16///216)					
		0.1	-			1.00				
	IName	Unline	Typ	pe Size	>Add	in/Out	User Linked to			
	♥ Position Value	0x000248F7 (149751)	UD	201NT 4.0	39.0	Input	0			
	VI KPM Value	0x0000 (0)	UI	NI 2.0	43.0	Input	0			
	WcState	0	BC	OL 0.1	1522.1	Input	0			
	♥ InputToggle	1	BC	OL 0.1	1524.1	Input	0			

6) 双击 1010 Store Application Parameter 对所设置的参数进行保存

<mark>注意:参数修改完后使用指令 1010 进行保存,否则修改的数据不能保存生效,</mark> 停电再送电设置将回复到以前状态。

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YSTEM - Configuration	General EtherC	AT DC Process Data Startu	n CoE	- Online Online								
LC - Configuration	General Ediere	Al DC Process Data Starto	p tot	Children Children								
am - Configuration	Update	List Auto Update	Sing	e Undate 🗌 Show	Offline Data							
U - Configuration						_						
Devices 1 (EtherCAT)	Advance	ed										
Device 1 (LaterCAT)	Add to Sta	Online Data	1	Module OD (AoE	0							
- Device 1-Image-Info	10000	and print										
€-¥† Inputs	Index	Name	Flags	Value								
- \$ Outputs	1000	Device type	RO	0x00020196	(131478)							
⊕-\$ InfoData	1001	Error Register	RO	0x00 (0)								
	1008	Device name	RO	ECCD								
Box 4 (SPEC-Encoder)	1009	Hardware Version	RO	1.01			-					
⊟- \$† Encoder Env	100A	Software Version	RO	1.01			Set Value Dialog				х	
I Position Value	- 1010	Store Application Parameter	RW	0x65766173	170225701	1)		[
- of RPM Value	1011	Restore Application Parameter	RW	0x64616F6C	168410711	6)	Dec:	170225701	1		ОК	
Wcstate	1018:0	Identity	RO	> 4 <			Hex:	0×6576617	3		Cancel	
Device 2 (NOV/DD PAM)	⊞ 1A00:0	Encoder Output	RO	> 2 <			_					
Ce Device 3 (FL6751)		Sync manager type	RO	> 4 <			Float:	170225701	1			
Mappings	⊕ 1C13:0	TxPDO assign	RO	> 1 <								
	€ 1C33:0	SM input parameter	RO	> 32 <				-				
	2010	RPM	RO	0x0000 (0)			Bool:	0	1		Hex Edit	
	2020	Direction Setting	RW	0x01 (1)			Binary:	73 61 76 6	5		4	
	6000	Operating Parameters	RW	0x0004 (4)								
	6001	Measuring Units per Revolution	RW	0x00001000 (4096)			Bit Size:	01 08	016	932 064	0?	
	6002	Total Measuring Range	RW	0x01000000	(16777216)		1					
		0.5		-		1.00						
	Name	Unline		Type Size	>Add	In/Out	User Linked to					
	♥ Position Value	Ux000248F7 (149751)		UDINT 4.0	39.0	Input	0					
	VI RPM Value	UX0000 (0)		2.0	43.0	Input	0					
	VI WcState	0		BOOL 0.1	1522.1	input	0					
	vi inputi oggle	0.0000 (0)		BUUL 0.1	1524.1	Input	0					