## OVEM-LK 使用调试指南 使用西门 PLC 通过 IO-LINK 控制



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#### 关键词:

OVEM-LK, IO-link, Siemens Simatic S7-1200

摘要:

本文简单介绍了 FESTO 真空发生器 OVEM-LK 版本基于西门子 S7-1200 PLC 的 IO-LINK 通讯配置。

目标群体:

本文档<mark>仅供内部使用</mark>,适用于机械工程师,以及对 PLC 不熟悉的人群。

声明:

本文档为技术工程师根据官方资料和测试结果编写,旨在指导用户快速上手使用 Festo 产品,如果发现描述与官方 正式出版物冲突,请以正式出版物为准。

我们尽量罗列了实验室测试的软、硬件环境,但现场设备型号可能不同,软件/固件版本可能有差异,请务必在理 解文档内容和确保安全的前提下执行测试。

我们会持续更正和更新文档内容, 恕不另行通知。

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## 1 硬件和拓扑

本示例中用到的主要元件:

型号	描述	版本
OVEM-10-H-B-QO-CE-N-LK	真空发生器	
SIMATIC S7-1200 CPU 1215F DC/DC/DC	西门子 PLC	
SIMATIC S7-1200 SM1278 IO-Link Master	西门子 IO-Link Master	
TIAV16	西门子操作软件	

#### 硬件拓扑结构:



### 2 OVEM-LK 简介

OVEM-LK 是一个能够传输数字量额定值与实际值的真空发生器,同时能够诊断和设置参数,在 IO-Link 模式中进行通信,支持 SIO 模式。

#### 2.1 电气接线

插头	针脚	芯线颜色	功能	
2	1	棕色(BN)	L+	+24 V
3 + 3 + 1	2	白色(WH)	D02	数字量输出 Out B (PNP)
	3	蓝色(BU)	L-	0 V
4	4	黑色(BK)	C/Q	10-Link 通信或数字量输出 Out A (PNP)₂
	5	灰色(GY)	DI1	未分配或数字量输入(PNP) <sup>3)</sup>

1) 使用附件中的连接电缆时

2) 在Fallback后或在 SIO 模式中,此针脚具有数字量开关输出的配置

3) 此针脚在 10-Link 模式中未分配。在Fallback后或在 SIO 模式中,此针脚具有数字量输入的配置

#### 2.2 显示元件

下图所示为 OVEM 显示屏和操作键, 1 outA 亮起,代表 OutA 有输出, 2 outB 亮起,代表 OutB 有输出,3 C 闪烁,代表 IO-LINK 通讯已经建立。Option 亮起,代表节能功能已经打开。



## 3 硬件接线

#### 3.1 连接 PLC 和 IO-Link Master

首先将 S7-1200 PLC 和 IO-Link Master 连接到一起,如下图所示。IO-Link Master 上的小滑块向左滑动,卡勾会划出,扣 住 PLC 接口处的凹槽。由于卡勾是凸起的,因此 PLC 与 Master 分开的时候,需要向下按压,然后再向右滑动。



#### 3.2 为 PLC 和 IO-Link Master 供电

给 PLC 和 IO-LINK master 供电,如下图所示,可以分别给 PLC 和 IO-Link Master 供 24V 电,或者如下图,将 IO-Link master 的 24V 并联到 PLC 供电上。



图 PLC 供 24V 电接线



图 IO-Link Master 供 24V 电接线



图 IO-Link Master 24V 电并接到 PLC

#### 3.3 连接 OVEM 和 IO-Link Master

将 OVEM 接到 IO-Link Master 上,如下图所示,棕正,蓝负,黑 IO-Link 通讯线,对应 IO-Link Master 上的 L, M, C/Q 位置。西门子 SM 1278 共有四排同样的接口口 C1,C2,C3,C4,可接四个 IO-Link 模块,以下只使用 C1 这一排接口。



#### 3.4 连接 PLC 和电脑

通过网线,将 PLC 和电脑连接,如下图所示。



### 4 软件调试

#### 4.1 调试器材

如上述章节所述,将西门子 S7-1200PLC 以及 SM1278 IO-Link 模块以及 OVEM-LK 连接好后,确认电脑安装了 Simens 的 TIAV16,并确认安装了 S7-PCT(西门子 IO-Link 配置软件)。

#### 4.2 调试过程

1) 下载 OVEM-LK 的 IODD 文件 登录 FESTO 官网,搜索 OVEM,下载 OVEM 的 IODD 文件。 下载链接: <u>https://www.festo.com.cn/cn/zh/search/?text=OVEM&tab=DOWNLOADS</u>



#### 2) 在 TIAV16 软件里配置 参数

#### 打开 TIAV16



#### 创建新的项目

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The switch is a		Create new project	Project1.ap16	C:\zjj\Project1	3/8/2022 1:59:20 PM	5
PEC			项目2.ap16	C:寧榭项目2	3/7/2022 3:57:54 PM	1
propramming		Migrate project	YJKP_EVO3_Plus.ap16	C:(王培全)20210918 YJKPIYJKP_EVO3_Plus	3/7/2022 10:45:11	
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Visualization			TestYJKPSiemens.ap16	C:\王培全\20210311YJKP\TestYJKPSiemens		
			项目3.ap16	C:\王培全\20210311YJKPl项目3		
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			Activate basic integrity check			
			Browse Remove		Open	1
		Installed software				
		Help				
		User interface language				
NO 200 CONTRACTOR						
Project view						

为新的项目命名,并创建保存路径。 <sup>706 Siemens</sup>

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			Create new project		Version:	V16	×
			Migrate project		Comment:	6	
		1998					
							Create
	Online &	~	Welcome Tour				
		15	First steps				
			Installed software				
			💮 Help				
			🚱 User interface language				
10							

新项目创建中

Creating	project
8	<b>Creating project</b> The project C:谆P鹏lovem-lklovem-lk.ap16 is being created. Please wait.
	Cancel

#### 在 First Steps 里,双击 Configure a device.

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Start	>	First steps	
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Motion & ***	Close project	Devices & Configure a device	
Online & Diagnostics	Welcome Tour First steps	PLC programming Write PLC program	
	- Ind Sep	Motion & Configure technology	
	Installed software	Visualization Configure an HMI screen	
	Help		
	🚯 User interface language	Project view     Open the project view	
Project view	Opened project: C:(향급)ovem-Ik\o	vem-lk	

		Totally Integrated Automation PORTAL
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Devices & state of the second	Show all devices	Details List Thumbnails
PLC programming	Add new device	
Motion & 🚓		
Visualization 📁		
Online & Jagnostics	Configure networks	
	Help	
Project view	Opened project: C:\郭肖\ovem-Ik\o	vem-ik

在 Controllers 里选择 SIMATIC S7-1200→CPU→CPU-1215 FC DC/DC/DC,所选的 PLC 型号和所使用的 PLC 型号一样,所使用的 PLC 型号在 PLC 设备侧面可以查询到。

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由于所使用的 PLC 的版本是 4.2 版本的,因此在 Device Version 选择 4.2 版本。如果版本未与实际相对应的话,在之后的 操作中会报错误。然后点击右下角 Add.



进入到 PLC 的主界面后,点击右侧 Hardware catalog,在子菜单中选择 Technology modules→IO-Link Master→SM1278 选择与实际使用的 IO-Link Master 一样的型号,实际使用的 IO-Link Master 型号,在设备侧面可以查看。





鼠标点住 6ES7 278-4BD32-0XB0,将其拖拽到 PLC 后的 2 的空白位置,如下图所示。



在 2 的位置会出现 IO-Link Master 设备的图片,如下图所示。然后点击下图箭头所指的 Compiling 按钮,系统会自动检测 配置的设备是否有问题。



Compiling 结束后,软件自动恢复到主界面,主界面下方会显示 Compiling 的内容,如果有问题的话,会黄色告知有问题的点,如下图所示。没问题的情况下,点击箭头标出的 load 按钮。将配置下载到设备里。

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Devices & networks	2		Sec					Pulse 7		1 33		1007 10	Pule	Filter F	Profile: <all></all>	•
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					*****									Description:		

#### 在 Extended download to device 界面里,点击 start search,搜索目标设备。



## 系统会自动进入到 load 程序,进入 load 程序前,系统会自动检测,如下图所示

		🚰 Toj	oology view	A Netv	work view	Device	e vi
PLC_1 [CPU 1215FC] 🔽 🖽 🖽 🛄 🕨		evice overview					
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Compiling before downloading to device							F
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Check before lo	oading					_	
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tatus	1	Target	Message	Action
<b>+</b> <sup>₩</sup>	4	▼ PLC_1	Loading will not be performed because preconditions are not met	Load 'PLC_1'
	4	<ul> <li>Protection</li> </ul>	Protection from unauthorized access	
	4		Devices connected to an enterprise network or directly to the internet must be appropriately protected against unauthorized access, e.g. by use of firewalls and network segmentation. For more information about industrial security, please visit http://www.siemens.com/industrialsecurity	
	4	Stop modules	The modules are stopped for downloading to device.	No action 👻
	0	Device configurati	Delete and replace system data in target	Stop all
	0	Software	Download software to device	Consistent download
1	•	· ·	· · · · · · · · · · · · · · · · · · ·	

## 在没有其他报错的情况下,选择右下角的 Load 按钮。

9 9	<ul> <li>Device configurati</li> </ul>	. Delete and replace system data in target	Download to device
>			
	Software	Download software to device	Consistent download
Ð	<ul> <li>Safety program</li> </ul>	Load safety program to device	Consistent download
9	Text libraries	Download all alarm texts and text list texts to device	Consistent download
i ~		<ul> <li>Safety program</li> <li>Text libraries</li> </ul>	Safety program Load safety program to device      Text libraries      Download all alarm texts and text list texts to device

## 系统会自动完成 Load 程序。

lus	1	Target	Message	Action
	0	Device configurat	i Delete and replace system data in target	Download to device
	0	► St Download to	device	nsistent download
	0	🔸 si 📈 Li	oading configuration	nsistent download
	0	Te St	top PLC_1 (current mode: STOP)	nsistent download
				Cancel

完成后,点击 Finish

Load res	sults	1 and 1 and 1		×
3	Status	and actions after download	ling to device	
Status	1	Target	Message	Action
+1	0	▼ PLC_1	Downloading to device completed without error.	Load 'PLC_1'
	0	Start modules	Start modules after downloading to device.	Start module
	0	CRC comparison	Result of CRC comparison	
			m	
			Finish	Load Cancel

Load res	sults			×
<b>?</b> •	Status	and actions after downloa	ading to device	
Status	1	Target	Message	Action
1	0	▼ PLC_1	Downloading to device completed without error.	Load 'PLC_1'
	0	Start modules	Start modules after downloading to device	Start module
		Download t	o device	_
			F <b>inish loading</b> Start PLC_1 (current mode: STOP)	
				Cancel
<			III	>
			Finish	Load Cancel

在主界面上, 鼠标选中 IO-Link Master 图标, 鼠标右键选择 change a device

						Topology V	/iew	A Netw	ork view	Device	view
PLC_1 [CPU 1215FC]	-	🖽 🕎 🖌		• 🖬	Devi	e overview		1		1	
				^		. Module		Slot	I address	Q address	Туре
	018			=		HSC_6		1 21	102010		HSC
C)	all					Pulse_1		1 32		100010	Puls
N.	V					Pulse_2		1 33		100210	Puls
						Pulse_3		1 34		100410	Puls
1	2	3	4	5		Pulse_4		1 35		100610	Puls
	_				-	PROFINET inter	face_1	1 X1			PRO
SIEMENS PROTECTION					1	SM1278_1		2	839	839	SM
								3			
	-	Character						4			
2848-015	<b>i i</b>	Change de	evice					5			
		Start Gevic	Le 1001					6			
	X	Cut			Ctrl+X			7			
• •		Copy			Ctrl+C			8			
		Paste			Ctrl+V			9			
	>	C Delete			Del						
		Pack addr	esses							-	
Ⅲ > 100%		Unpack ac	ddresses								>
		Compile				Roperti	es	🛓 Info 🔒	🛛 🕄 Diagn	ostics	
eneral Cross-refere	nces	Download	to device								
		Go online			Ctrl+K						
A Show all messages		Go offline			Ctrl+M						
	Ų	Online & d	liagnostic	cs	Ctrl+D						
Message	nar U4-	Assign de	vice nam	e		Go to	?	Date	Time		
'Main_Safety_RTG	1' was	Update ar	nd display	forced op	erands			3/8/2022	2:23:36	PM	
	ed suce	Cross-refe	rences		E11			3/8/2022	2:23:36	PM	
'FB1_C' was loade	was lo	Cross-refe	rence infr	ormation	Shift F11			3/8/2022	2:23:36	PM	
'FB1_C' was loade 'FOB_GLOBAL_1' v	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Clossiele	rence into	onnacion	SUIRT II			3/8/2022	2:23:36	PM	
'FB1_C' was loade 'FOB_GLOBAL_1' \ 'SPLIT_FOB_1_1' v	vas loa		pole	Ct	rl+Shift+C			3/8/2022	2:23:36	PM	
'FB1_C' was loade 'FOB_GLOBAL_1' ' 'SPLIT_FOB_1_1' v 'Main' was loaded	vas loa I succe	Show cata	-								
'FB1_C' was loade 'FOB_GLOBAL_1' 1 'SPLIT_FOB_1_1' v 'Main' was loaded 'FOB_RTG1' was lo	d succe aded	Show cata	dule labe	ling strips.				3/8/2022	2:23:36	PM	
'FB1_C' was loade 'FOB_GLOBAL_1' 1 'SPLIT_FOB_1_1' v 'Main' was loaded 'FOB_RTG1' was lo Online and offline	d succe aded - collec	Export mo	dule labe	eling strips	Alt_Enter			3/8/2022 3/8/2022	2:23:36 2:23:40	PM PM	

在 change device 界面,查看当前系统内的设备是否与实际的设备型号和版本都是一样的。在右侧 controller 菜单里,一级一级的选择到实际使用的 IO-Link Master 设备,可以看到实际的设备与当前系统的设备版本不一样,点击右下角的 ok 选型,将系统内的 设备改为 V2.0 版本的设备。

		New device:	1 <u>1 1</u>	<ul> <li>Controlle</li> <li>Ciii SIMATI</li> <li>Ciii Tec</li> <li>Ciii Tec</li> <li>Ciii Tec</li> </ul>	rs IC 57-1200 Innology modules IO link master ISM 1278
Article no.: Version: Description: 4-channel ser connection of	SM 1278, 4 X IO-LINK MASTER 6ES7 278-4BD32-0XB0 V2.1	Article no.: Version: Description: 4-channel seria connection of IC parameter assi with port config	SM 1278, 4 X IO-LINK MASTER 6E57 278-48D32-0X80 V2.0	2	
Compatibilit	y information			<u>۲</u>	III ] 3

回到主界面后,选择如下箭头所指的 go online 按钮,对配置进行在线监测。

₩ Siemens - C:\郭禺\ovem-Ik\ovem-Ik						_ # X
Project Edit View Insert Online Options	Tools Window Help				Totally Integrated Aut	omation
📑 📑 🔒 Save project 📑 🐰 🏥 🗊 🗙 🍤	🛨 (🍽 🗄 🛄 🕼 🖳 🕼 🕼 Go online 🧬 Go offline 🛔 🖪 🖪	🗶 📑 🛄 (Search in project> )	-		Totally integrated Aut	PORTAL
Project tree 🔲 🖣	ovem-lk + PLC_1 [CPU 1215FC DC/DC/DC]			_ 🖬 🖬 🗙	Hardware catalog	
Devices		🚪 Topology view	B Network view	Device view	Options	
	👉 [PLC_1 [CPU 1215FC] 🔽 🖽 🕎 🖌 🖼	Device overview				
ž					× Catalog	dw
💈 💌 📄 ovem-lk		T Module	103	s Q'address Type	Search	and and 5
🖹 🎽 Add new device			103	-	Gearch	_ mm mm 8
🚆 👗 Devices & networks	Sta		102		Filter Profile: <all></all>	- 🖬 🛓
PLC_1 [CPU 1215FC DC/DC/DC]			101	CPU	CPU	Đ
Device configuration		Di 14/00 10 1	11 0.1	0.1 011	Signal boards	
Online & diagnostics	1 2 3 4 5 6	0114/00 10_1	101	01 011	Communications boards	8
Safety Administration	a market a	AI 2IAQ 2_1	12 6467	6467 AI 2	Battery boards	0
Program blocks			13		🕨 🍺 DI	1
Technology objects		HSC_1	1 16 10001	IO HSC	+ 🧊 DQ	let
External source files	and the second s	HSC_2	117 10041	IU HSC	▶ 📺 DI/DQ	00
PLC tags	accest and a second accession and a second accession and a second accession	HSC_3	1 18 10081	IU HSC	🕨 🖬 Al	S
PLC data types		HSC_4	1 19 10121	IO HSC	▶ 🛅 AQ	-
Watch and force tables	4	HSC_5	1 20 10161	IO HSC	▶ 🛅 Al/AQ	
Online backups		HSC_6	1 21 10201	IO HSC	Communications modules	2
Traces		Pulse_1	1 32	100010 Puls	Technology modules	ks
Device proxy data		Pulse_2	1 33	100210 Puls		
Program info		Pulse 3	1 34	100410 Puls	-	<u> </u>
PLC alarm text lists						5
Local modules		Q Properties	Info Dia	ignostics	✓ Information	ora
	General Cross-references Compile				Device	^ rie
SM1278 1					Device.	- °
Ungrouped devices	Show all messages					-
Security settings					-	Ad
Cross-device functions	1 Message	Go to ?	Date Time			= =
Common data	Start downloading to device.		3/8/2022 2:29:	:52 PM	•	15
Documentation settings	▼ PLC_1		3/8/2022 2:29	:53 PM		
Languages & resources	<ul> <li>Hardware configuration</li> </ul>		3/8/2022 2:29:	:54 PM		
Version control interface	Hardware configuration was loaded successfully.		3/8/2022 2:30	:08 PM	Article no.:	
Online access	Loading completed (errors: 0; warnings: 0).		3/8/2022 2:30	:11 PM	the start of the s	
Card Reader/USB memory	Connected to PLC_1, via address IP=192.168.0.1.		3/8/2022 2:30:	:13 PM	version:	· · ·
	The F-CPU "PLC_1" was successfully registered for online changes t	o the safety mode and saf.	3/8/2022 2:30	:14 PM	Description:	
	Connection to PLC_1 terminated.		3/8/2022 2:30:	:29 PM	\$7-1200 CPU	
> Details view	<			>		~
Portal view     Overview	PLC_1 h PLC_1				Connection to PLC 1 terminated.	

## 界面内没有红色标注的话,说明配置内容无错误。如果有红色标注的错误地方,检查错误的内容,修改后重新 go online.

Siemens - C:\郢[马\ovem-Ik\ovem-Ik						
roject Edit View Insert Online Options	ools Window Help					
🛐 🛃 Save project 📑 🐰 💷 🗎 🗙 🧉	: (▲ ± 💼 🛄 🚹 🚆 🚰 🖉 Go online 🦉 Go offline 🏭 🖳 📑 🏋 🚽 🛄 <earch in="" project=""></earch>	'n				
Project tree	ovem-lk + PLC_1 [CPU 1215FC DC/DC/DC]					>
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1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	🔐 PLC_1 [CPU 1215FC] 💌 🖽 💹 🎜 🖽 🛄 * 🛃 Device overview					
	A Module	Slot	Laddress O	address	Type	F
🔻 📋 ovem-lk 🗹		103	rooticis Q	oouress	ijpe	5
🏙 Add new device	a state	103				f
Devices & networks		101				
PLC_1 [CPU 1215FC DC/DC/DC]		1			CPU	1.
Device configuration		11	0 1 0	1	011	1
V Online & diagnostics		17	01 0.	1	011	
Safety Administration		12	0407 04	40/	AI 2	L
Program blocks		1.16	1000 10		нес	
Technology objects		1 10	1004 10		HSC	
External source files		117	100410		HSC	
PLC tags		1 10	1013 10		HSC	
C data types		1 19	101210		HSC	
Watch and force tables		1 20	101810		HSC	
Online backups	Bules 1	1 21	102010	000 10	Bule	
Fight Traces		1 32	1	00010	Pule	
Device proxy data		1 33	1	00210	Puls	•
Program info		1 34		00410	Puls	
PLC alarm text lists						
👻 🛅 Local modules 🛛 🗹		Info	<b>Diagnost</b>	ICS		
1 PLC_1 [CPU 1215FC DC/DC/	General Cross-references Compile					
SM 1278 1	Show all mercager					-
La Ungrouped devices						
Security settings		12000	1940 Talakon ko			
Cross-device functions	! Message Go to ?	Date	Time			
Common data	Hardware configuration	3/8/2022	2:29:54 PM			1
Documentation settings	Hardware configuration was loaded successfully.	3/8/2022	2:30:08 PM			
Languages & resources	Loading completed (errors: 0; warnings: 0).	3/8/2022	2:30:11 PM			
Version control interface	Connected to PLC_1, via address IP=192.168.0.1.	3/8/2022	2:30:13 PM			
Online access	The F-CPU "PLC_1" was successfully registered for online changes to the safety mode and saf.	3/8/2022	2:30:14 PM			
Card Reader/USB memory	Connection to PLC_1 terminated.	3/8/2022	2:30:29 PM			-
	Connected to PLC_1, via address IP=192.168.0.1.	3/8/2022	2:31:39 PM			
< "	The F-CPU "PLC_1" was successfully registered for online changes to the safety mode and saf.	3/8/2022	2:31:40 PM			
> Details view					>	

# 点击 go offline, 然后鼠标选中 IO-Link Master 图标, 鼠标右键选择 start device tool № Siemens - C:駅 (Sovem-Ikovem-Ik

Project tree 🔲 🖣	ovem-lk ► PLC_1 [CPU 1	215FC DC/DC/DC	]								_ •
Devices						2	Topology view	N B	Network vie	w 🛛 🖌 C	evice view
11 III III III III III III III III III	PLC_1 [CPU 1215FC]	- 🖽 🖽		📗 🔍 ±	2		Device ove	rview			
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Add new device		18/						Pulse_1		1 32	
								Pulse_2	2	1 33	
Device conferencies	V							Pulse_3	3	1 34	
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Contine & diagnostics	1	2 3	4 5	6	7 8	1	•	PROFINE	ET interface_1	1 X1	
Salety Administration		-					5	M 1278_1		2	839
	15 BRUX D-100	Change devi			1					3	
External source flor		Start device	tool	2						4	
					2					5	
PIC data tuner	500.050	Cut		Ctrl+X						6	
Watch and force tables		Copy		Ctrl+C						7	
Online backups	-	LE raste		Cui+v						8	
Traces	4	X Delete		Del						9	
Device proxy data		Pack address	es			- 1					
Program info	4	Unpack addr	esses			i -	1	1	10		3
PLC alarm text lists		Compile		•	- <u> 7</u>						
<ul> <li>Local modules</li> </ul>		Download to	device	•			Q Properties	5 <b>Ľ</b>	Info 📴 D	iagnostics	
PLC 1 [CPU 1215FC DC/DC/DC]	General Cross-ref	er 🝠 Go online		Ctrl+K							
SM1278 1	Show all merra	Go offline		Ctrl+M							
Grouped devices		🖳 🖳 Online & diag	gnostics	Ctrl+D							
Security settings		Assign device	e name								r
Cross-device functions	! Message	Update and o	display force	d operands			Go to ?	Da	ate Tin	1e	
Common data	Hardware	Cross-referen	ices	F11	-			31	8/2022 2:3	10:08 PM	
Documentation settings	Loading completed	Cross-referen	ice informati	on Shift+F11				3/	(8/2022 2:3	10:11 PM	
Languages & resources	Connected to PLC_1,	VI - Show catalog		Ctrl Shift C				31	8/2022 2:3	0:13 PM	
Version control interface	The F-CPU PLC_1 w	is show catalog	9	Curtoninete	the safety mode	e and	sat.	31	8/2022 2:3	0:14 PM	
Online access	Connection to PLC_1	te 📑 Export modu	le labeling st	rips				31	18/2022 2::	0:29 PM	
Card Reader/USB memory	Connected to PLC_1,	Properties		Alt+Enter				31	18/2022 2::	1:39 PM	
and the first of the second	ine F-CPU PLC_1 w	15			-the safety mode	e and	sar.	31	812022 2:3	1:40 PM	

P To	nology view	A Netwo	rk view		vice view	
	Device over	iow	in them		nee nen	
	Device over		1			
	Modu	le		Slot	laddress	-
		HSC_6		1 21	102010	. /
218		Pulse_1		1 32		
SN1		Pulse_2		1 3 3		
Start device tool		Puise_s		1 34		
		UISE_4		1 35		-
1 2 3 Select tool or access point		ROFINE I Intern	ace_1	2	0 20	
S7-PCT		12/0_1		2	0	-
				4		-
		-		5		
				6		
Telefore 19. 19.				7		
				8		
				9		
				-		
Provides the configuration for IO-Link devices.						1
III > 100%					>	
		1 Info	<b>V</b> Diagn	ostics		
			1			
General Cross-references Con Start	Cancel					
A Show all messages						
Message	Go to ?	Date	Time			
Hardware configuration was loaded successfully.		3/8/2022	2:30:08	PM		1
Loading completed (errors: 0; warnings: 0).		3/8/2022	2:30:11	PM		
Connected to PLC_1, via address IP=192.168.0.1.		3/8/2022	2:30:13	PM		
The F-CPU "PLC_1" was successfully registered for online changes to the safety mode and sa	af.	3/8/2022	2:30:14	PM		
Connection to PLC_1 terminated.		3/8/2022	2:30:29	PM		
Connected to PLC_1, via address IP=192.168.0.1.		3/8/2022	2:31:39	PM		-
The F-CPU "PLC_1" was successfully registered for online changes to the safety mode and sa	of.	3/8/2022	2:31:40	PM		
Connection to PLC_1 terminated.		3/8/2022	2:32:10	PM		-
l III III III III III III III III III I					>	

#### 进入到 S7-PCT 工具的界面,在 Option 选项里,选择 Import IODD

File Edit View	Device	Opti	ions He	lp			IO-Link			
i 🕑 🖬 🗗 📕	XIII		Import IC	DDD			Port C	onfigurati	on To	ool
PLC_1*	278 <u>1</u>		IODD Ver Export Ca Import Ca Restore D Supporte User Role Language Communi	ndor List atalog Default Catal d Modules e e ication Settin	og		Catalog Search Text sea Profile:	arch V1.0 and V1.1 D Link V1.0 D Link V1.1	init.	ې ۱
	1	Colu	umn Filter	1						
		Port	Autosense	Mode		lame IO-Link Version In				
		1		Deactivated	~	No				
		2		Deactivated	~	No				
	_	3		Deactivated	~	No				
		4		Deactivated	~	No				
	ĺ	Vend Vend	ils							

在 Import IODD Files 页面,点击右侧的 Browse 按钮,选择要导入的 IODD 文件,

Import IODD F	les								×
Select the Show warning IODD File	directory of IODD fi gs for: <b>:5</b>	les: User	~				_		Browse
Selected	IODD File Name	Vendor Name	Device ID	Device Family	Device Name	Version	Device Details	Status	
Select All	Deselect A Down	load IODDs from Int	ernet with IODDfin	<u>nder</u>					
Import								Close	Help

## 找到之前在 FESTO 官网下载的 IODD 文件,选择跟实际使用的 OVEM 对应的型号

PLC_1*     [Slot 2] SM 1	Ports 278_1 Ge	Addresses Status 18M Command neral Master Info	S				^ Ca	talog earch	4 ×
t IODD Files									
port IO-Link Device						×			Browse
→ · <b>↑</b> • •	< 用户 → ts	> 桌面 > 8046250 www	~	ō		www"			
	ate .	-			Rec -		-		
87.* 新建文件:	× (75h)	^	はなったロギ用		ш • <u>че</u> ти	+4	Device Details	Status	
OneDrive - Pers	白标		修成口朔		突坚	大小			
📃 此电脑	Fes	to-OVEM-H-CE-20171207-IODD1	2018/8/29	9 23:01	XML 文档	51			
] 3D 对象	E Fes	to-OVEM-H-CPE-20171207-IODD	2018/8/29	9 23:01	XML 文档	51			
📕 视频	E Fes	to-OVEM-H-OE-20171207-IODD1	2018/8/29	9 23:01	XML 文档	51			
12 图片	E Fes	to OVEN L CE 20171207-1000.	2018/8/25	9 23:01	XIVIL X1	51			
	E Fes	to-OVEM-L-CE-20171207-10001	2010/0/2:	9 23:01	XMI 文档 YMI 文档	51			
	e Fes	to-OVEM-L-OE-20171207-IODD1	2018/8/29	9 23:01	XML 文档	51			
▼ 1.32	Fes	to-OVEM-L-OPE-20171207-IODD	2018/8/29	9 23:01	XML 文档	51			
Windows (C:)									
Network								Cl	Nelp Kelp
TREWOIK	v (					,	-		

选中要导入的 IODD 文件,选择 Import, Import 1000 Files

Select the directory of IODD files:       C:\Users\ts\Desktop\8046250_www         Show warnings for:       User         IODD Files										
Selected	IODD File Name	Vendor Name	Device ID	Device Family	Device Name	Version	Device Details	Status		
	Festo-OVEM-H-CE	. Festo AG & Co. KG	62	OVEM	OVEM-H-CE	2017-12-0	Show			
Select All	Deselect A Downl	oad IODDs from Inter	net with IODDfi	nder						
Import	] 🕘							Close	Help	

lotally

在右侧 catalog→IO Link V1.1下,找到之前导入的 OVEM 的 IODD 文件 OVEM-H-CE,然后鼠标选中后,将其拖拽到 Port 1 的位置。因为在 IO-Link Master 的四个口中,之前把 OVEM 接在了 1 号口,所以这里把 IODD 文件拖拽到 Port 1.\_\_\_\_\_

R STRATIC S7-PCT - PLC_1	_ ¤ ×
File Edit View Device Options Help	IO-Link
19 🕑 🖬 🖉 🚢 X 🗉 🖻 🗙 🛄 🖬 🖬 🖉 🔛 😮	Port Configuration Tool
▼ PLC_1* Ports Addresses Status I&M Commands	∧ Catalog ₽ X
[Slot 2] SM 1278_1 General Master Info	Search Text search
Product Name SM 1278 IO-Link Master	ted Lie
Article Number: 6ES7 278-4BD32-0XB0	
Comment:	Profile: V1.0 and V1.1 ~
	IO Link V1.0
Port Info	▼ JII Festo AG Co. KG
Column Filter	
Part Automase Made Name	SIEMENS AG
	> STANDARD
	No
	No
4 Deactivated V	No
Dataila	Device:
	-
Vendor Name:	
Vendor URL:	
Device Name:	
Description:	Product Name: OVEN U.C.
	Product Text: OVEM H CE IO
	Firmware Rev
×	· · · · · · · · · · · · · · · · · · ·
Communication Results	
Ready STEP 7 (Integrated) Commis	sioning
STEP / (integrated) Commiss	Sioning

S7-PCT 工具会自动载入 OVEM 的 IODD 文件,选择箭头指向的图标 Load,将 IODD 设备描述文件下载到 PLC。或者选择 旁边的 Load with device 也是可以的。

K SIMATIC S7-PCT - PLC_	1		/					_
File Edit View Devic	ce C	Options	Help				IO-Link	
[[] [] [] [] [] [] [] [] [] [] [] [] []		× 💾 🖽	i 🖸 🖸 🎽 🛛				PortC	onfiguration Tool
▼ PLC_1*	orts )	Addresses	Status I&M C	ommands			^	Catalog 4 X
Slot 2] SM 1278_1	Gene	eral Mas	ter Info					Search
Children Hot	Produ	uct Name	SM 1278 IO-Link M	laster				Text search
	Articl	e Number:	6ES7 278-48D32-	1XB0				Tini 4m
	Com	nent						Profile: V1.0 and V1.1 $ \smallsetminus $
	Com	nem.						D Link V1.0
								▼ 10 Link V1.1
								▼ 🚺 Festo AG _Co. KC
	Port		-				_	- OVEM
	Col	umn Filter						OVEM-H
	Port	Autosense	Mode	Name	10-Link Version	Inspection Level	Ba	SIEMENS AG
	1		10-Link 🗸	OVEM-H-CE	V1.1	Type compatible	Bac	STADATO
	2		Deactivated ~			No check	Off	
	3		Deactivated ~			No check	✓ Off	< >
	4		Deactivated ~			No check	Off	Device:
	Deta	ils						
			Fasta AC	1 C+ 1/C		_		
	Vend	for Name:	resto Ala	8 CO. NG				
	Vend	for URL:	http://ww	w festo.com				
	Devi	ce Name:	OVEM-H-	CE				
	Desc	cription:	OVEM-H-	CE IO-Link version, Device Family OVEM, Release Date 2	017-12-07	^	. 00	Product Name: OVEN
								Product Text: OVEN
						U		Firmware Rev.:
	<					6	>	< >
Communication Results								
Loads the configuration of a	all IO-L	ink Maste	rs/Devices of th	e selected level to the corresponding IO-Link M	lasters/Devices			

出现 Download successful 的时候,即表示下载成功。然后选择下图 2 指向的 go online 按钮,测试连接是否有问题。

SINATIC S7-PCT - PLC_	_1		6	2						_ 🗆 ×
File Edit View Devi	ice Op	tions He	lp	4					IO-Lin	k
🕒 🖻 🖬 🖉 📕 🗶 🗓	1 i ×		t 🗈 🚺	/ 😐 😮					Port	Configuration Tool
▼ PLC_1*	Ports	Addresses	Status I	&M Comman	ids				^	Catalog 및 X
▼ [Slot 2] SM 12/8_1	Gene	ral			_			7		Search
	Last C	Operation:				Download succ	essful 🔽			ivit ivit
	Pr Pr	ocessed ort configurati	on ok				E-Coding p	olugged		Profile: V1.0 and V1.1 ~
		CTIVATED/R	JN				S	tatus at 3/8/2022 2:4	0:20 PM	IO Link V1.0     IO Link V1.1
	Port	Info								✓ La Festo AG Co. KC     ✓ La Festo AG Co. KC     ✓ La OVEM     ✓
	Port	Information	Warning	Diagnostics	Running	PROFlenergy pause	Cycle Time [ms]	Status		SIEMENS AG
	1						4.70	Device type OK		• 🛅 STANDARD
	2						0.00	Deactivated		
	3						0.00	Deactivated		
	4						0.00	Deactivated		< >
	Even	t Buffer	÷							Device:
		II Ports		Port Typ	e	Instance	Mode	Owner	Description	
										Product Name: OVEN
										Product Text: OVEN
									~	Firmware Rev.:
	<								>	< >

## Online 测试正常后,点击箭头所示的 go offline

A SIMATIC S7-PCT - PLC_1							_ ¤ ×
File Edit View Device Options Help						IO-Lin	ık
<b>21 21 21 21 × 호호 호 시 문 역 문 연 연</b>	A 🖬 🕄					Port	Configuration Tool
✓ _ PLC_1*			ONLIN	Æ		^	Catalog 4 ×
Status	I&M Commands	3					Search
General							Text search V
Last Operation:			Online succ	essful 🗹			
Processed Port configuration ok Address configuration of ACTIVATED/RUN	k			E-Coding p	tatus at 3/8/2022 2:4	2:11 PM	VI.0 and VI.1     VI.0 Link VI.0     D Link VI.0     D Link VI.1     D Link VI.1
Port Info							
Port Information Warnin	g Diagnostics I	Running	PROFlenergy pause	Cycle Time [ms]	Status		STANDARD
1 🗆				4.70	Device type OK		
2				0.00	Deactivated		
3				0.00	Deactivated		< >
4				0.00	Deactivated		Device: ^
Event Buffer							
All Ports	Port Type	6	Instance	Mode	Owner	Description	
< Communication Results						>	Product Name: OVEM Product Text: OVEM Firmware Rev.:
Ready				STEP 7 (Integr	ated) Commissionin	Online	

然后关闭 S7-PCT	♪工具,╯	保存配置。
-------------	-------	-------

File       Edit       View       Do Link         Policy       Policy       Policy       Policy         VIEVE       View       View       Policy         VIEVE       View       View       View       View         VIEVE       View       View       View       View         VIEVE       View       View       View       View       View         View	🏹 SIMATIC S7-PCT - PLC	9				_ 🗆 ×
Pott	File Edit View Dev	vice Options Help			10	-Link
Ports Addesses Satus BM Commands General General Seads 25M1229.1 General Seads Comparison of Comparison of Concentration of Concentration of Comparison of Concentration of	🕒 🕒 🖬 🗗 📕 🗶 🗉		🥖 💷 😮		Po	ort Configuration Tool
Image: Search and the search and th	▼ ]] PLC_1*	Ports Addresses Status	I&M Commands			∧ Catalog 및 X
Last Operation:       Download successful       Image: Completion of the search	▶ [Slot 2] SM 1278_1	General				Search
Less Operation:       Download Successing         Professed       E-Coding plugged         Port Info       Status at 3/6/2022 2:40:20 PM         Port Info       Status at 3/6/2022 2:40:20 PM         Port Info       Do you want to save changes on 'PLC_1'?         ed       ed         a		Last Occupitors				Text search ~
E-Coding plugged         Port Info         Status at       3/8/2022 2:40:20 PM         Port Info         Port Info         I       Do you want to save changes on 'PLC_1'?         ded       ded         A differs       Ves         No       Cancel         end       ded         All Ports       Ves         No       Cancel         end       ded         All Ports       Ves         Communication Results       Status at         Communication Results       Status at			Dow			tin Lin
Encoding proget       Encoding proget         Address configuration ok       Status at       3/8/2022 2:40.20 PM         Port Info		Processed		E-Coding plugged		Profile: V1.0 and V1.1 V
Image: Communication Results         Communication Results     Status at 3/8/2022 2:40:20 PM  Image: Communication Results		Port configuration ok     Address configuration	k	E-Coding plugged		
Port Info       SIMATIC 57-PCT (1:145)         Pot Info       Do you want to save changes on 'PLC_1'?         ted       ted         ted		ACTIVATED/RUN		Status at	3/8/2022 2:40:20 PM	IO Link V1.0
Port Info       Image: Stream of the served changes on 'PLC_1'?         Protection Results       Do you want to save changes on 'PLC_1'?         Bed       Red         All Ports       Yes         No       Cancel         Image: No       Cancel         Product Name:       Over         Product Name:       Over         Product Name:       Over         Product Text:       Over				Sidius ai	3/0/2022 2.40.2011	Festo AG Co. KG
Pot       information       SIMATIC 57-PCT (1:145)       me         Pot       information       Do you want to save changes on 'PLC_1'?       me       med         Image: Simatic stress       Do you want to save changes on 'PLC_1'?       me       me       me         Image: Simatic stress       Image: Simatic str		Port Info	-			- OVEM
Pot       momanon       varine         1       0       po you want to save changes on 'PLC_1'?       red         ted       ted       ted		Det leferentine March	SIMATIC S7-PCT (1:145)	×		OVEM H
Image: Communication Results         Red		Port information vvami	M -			- SIEMENS AG
Image: Step 2 (Integrated)       Step 2 (Integrated)       Communication Integrated)			Do you want to save char	nges on 'PLC 1'?	ype OK	STANDARD
Step 7 (Integrated) Commissioning		2	-	-	ted	-
Event Buffer     Yes     No     Cancel       All Ports     Description       All Ports     Product Name:       Overview     Product Text:       Overview     Product Text:       Overview     STEP 7 (Integrated)		3 1 1	-		tod	-
Event Buffer     Yes     No     Cancel     Description       All Ports     mer     Description     Product Name:     OVEN       Product Text:     OVEN     Product Text:     OVEN       Communication Results     STEP 7 (Integrated)     Commissioning		4			neu -	
All Ports     Product Name:     OVEM       Product Text:     OVEM       Product Text:     OVEM       Firmware Rev.:        Communication Results		Event Buffer	- Yes	No Cancel		- Device:
Product Name: OVEM Product Text: OVEM Firmware Rev.:		All Ports			vner Description	-
Product Name: OVEM Product Text: OVEM Firmware Rev.:						
Product Name: OVEN Product Text: OVEN Firmware Rev.: Communication Results Ready STEP 7 (Integrated) Commissioning						
Product Name: OVEN Product Text: OVEN Firmware Rev.:  Communication Results Ready STEP 7 (Integrated) Commissioning						
Communication Results     STEP 7 (Integrated)     Commissioning						
Communication Results     STEP 7 (Integrated)     Commissioning						
Communication Results     STEP 7 (Integrated)     Commissioning						Product Name: OVEM
Communication Results Ready STEP 7 (Integrated) Commissioning						Product Text: OVEN
Communication Results Ready STEP 7 (Integrated) Commissioning						Firmware Rev.:
Communication Results Ready STEP 7 (Integrated) Commissioning		<			3	, < >
Ready STEP 7 (Integrated) Commissioning	Communication Result	ts				
	Ready			STEP 7 (Integ	grated) Commissioning	

## 系统会自动配置 IO-Link 信息,以下的页面会自动消失。

ovem-lk   PLC_1 [C	PU 1215FC	DC/DC/I	DC]											7 i	=×
								2	Topology	view	h Netwo	ork view	D 11	evice viev	v
PLC_1 [CPU 1215F	c] •	• 🖽	name		€ ±				Device	overvi	ew				
								^	<b>**</b>	Module			Slot	I address	
								≡		ł	HSC_6		1 21	102010	
	182									F	Pulse_1		1 32		
	121									F	Pulse_2		1 33		
	Ste									F	Pulse_3		1 34		
										F	Pulse_4		1 35		
			1000	-		-	-			•	PROFINET inter	face_1	1 X1		
1	2	3	4	2	0	/	8	•		SM	1278_1		2	839	
1947. Iv-10								1					3		
			Co	ntigure iC	)-Link					×			4		
				ool name:	67.P								5		
CPU dest	1 11' 11'			oorname.	3740								6		
	11. 11.		S	tatus:	Conr	nected to	S7-PC	т					7		
		_	10	10000000000	000000	00000000	000000	000000000	00000000000	10000			8		
													9		
									Discourse						
								d.	Disconneo					-	1
		> 10	0%				_								>
									Q Proper	ties	1 Info	🛿 Diag	nostics		
General Cross	-reference	s ()	omnile												
	Tererence			×.											_
Show all n	essages		•												
												-			Los L
Message									Go to	!	Date	Time			
Hardv	are configur	ation was	loade	d successfu	illy.						3/8/2022	2:30:0	8 PM		1
Loading comple	ted (errors: (	0; warning	gs: 0).								3/8/2022	2:30:1	1 PM		
Connected to Pl	.C_1, via add	ress IP=19	92.168	.0.1.							3/8/2022	2:30:1	3 PM		
The F-CPU "PLC_	1" was succe	essfully re	gistere	d for online	chang	es to the	safety	mode an	d saf.		3/8/2022	2:30:1	4 PM		
Connection to P	LC_1 termina	ated.		2.2							3/8/2022	2:30:2	9 PM		
Connected to Pl	.C_1, via add	ress IP=1	92.168	.0.1.							3/8/2022	2:31:3	9 PM		1
The F-CPU *PLC_	1" was succe	essfully re	gistere	d for online	chang	es to the	safety	mode an	d saf.		3/8/2022	2:31:4	OPM		
Connection to P	LC_1 termina	ated.									3/8/2022	2:32:1	0 PM		V
							1111								>

#### 3)PLC 控制 OVEM

在左侧 Project Tree 下选择 watch and force tables→add new watch tables→新建 watch table-1



## 由于 SM 1278 IO-Link Master 所分配的位置为 8...39, 如下图所示

averally N PLC 2 CPU 1215EC DC	所分配的位直为 <b>6</b>	如下图別小						~
OVERHAR P PLC_2 [CPU 1215FC DC	JOODCI					(m) -		4
1			Topolo	ogy view	Netwo	ork view	e view	L
PLC_2 [CPU 1215FC]	Device over	view						
	▲ ₩ Mod	ule	Slot	I address	Q address	Туре	Arti	
218		HSC_6	1 21	102010		HSC		^
all's and		Pulse_1	1 32		100010	Pulse generator (PTO/P	<u>(.</u>	
<b>x</b>		Pulse_2	1 33		100210	Pulse generator (PTO/P	<u></u>	
		Pulse_3	1 34		100410	Pulse generator (PTO/P		
1 2	3 🗹	Pulse_4	1 35		100610	Pulse generator (PTO/P	£.,	
		PROFINET interface_1	1 X1			PROFINET interface		
	s s s	M1278_1	2	839	839	SM 1278, 4 X IO-LINK	. 6ES	
SIGMENS INUT IN			3				-	=
	-		4					
1 12	12		5					
	11		6					
			0					
(FF)			0					
			,					
	~							~
< III >	•		111				>	
因此在 Address 下分别添加 II	IB8, IB9, QB8, QB9,	然后点击回车,	IB 代表输	入参数,	即 OVEM	I反馈给 PLC 的参	≷数,Q	В
代表输出参数,即 PLC 发送组	合 OVEM 的参数。在 Dis	play format 下,	将参数改	为 Bin,	2 进制的	参数。		
ovem-lk > PLC 1 [CPU 1215EC D	DC/DC/DC] > Watch and for	ce tables 🕨 Watch	table 1	, <b>.</b> .				×
				_	_		_	
<i>₽ ₽ £ ₽</i> ₺ 9,8 ₽	00h 00h ⊳ 1							
i Name Addres	Display format	Monitor value	Modify value	9	Comm	ent		
1 %188	Bin							
2 %189	Bin							
3 %Q88	Bin							
4 🔳 %QB9	Bin 💌							
5 <add r<="" td=""><th>new&gt;</th><td></td><td></td><td></td><td></td><td></td><td></td><td></td></add>	new>							
<		Ш						>

然后点击戴眼镜的小图标,可以看到 Monitor value 会有 2 进制的数值出现,点击右侧 Run 按钮后,会看到 Monitor value 的值会不断变化。

ovem-ll	PLC_1 [CPU 12]	15FC T COC	Watch and fo					_ 🖬 🖬 🗙	Testing		
		<b>Y</b>							Options		
$\exists^\flat \equiv^\flat$	11 II I	3 🛷 😁 💁									
i	Name	Address	Display format	Monitor value	Modify value	9	Comment		✓ CPU operator	panel	
1		%IB8	Bin	2#1100_1111							
2		%IB9	Bin	2#0110_1011						C DCDCDCJ	
3		%QB8	Bin	2#0000_0001					RUN / STOP	RUN	2
4		%QB9	Bin	2#0000_0010					ERROR	STOP	
5		<add new=""></add>							L CALINIT	LIDEC	ę.
									MAINI	IVIRES	
											-
-											
-											
1				m							
				all.							

在 Modify Value 栏写入想要的操作,可以控制真空发生器的动作。根据 OVEM 的操作手册描述,其过程输出数据,如下 图所示,最后两位控制真空电磁阀的开关以及喷射脉冲电磁阀的开关。

过程输出数据(Process data OUT)

位	7	2	1	0
Process data <sup>1)</sup>	预留		BCS2 <sup>2)</sup>	BCS1 <sup>3)</sup>
Data content <sup>1)</sup>	预留		Drop	Vacuum
	(Data Stanana)			

W = 写入,无数据存储(Data Storage)
 值: BCS2 = 0:喷射脉冲电磁阀未接通,BCS2 = 1:喷射脉冲电磁阀已接通
 值: BCS1 = 0:真空电磁阀未接通,BCS1 = 1:真空电磁阀已接通

#### Tab. 25 过程输出数据 (Process data OUT)

在 PLC 系统里,QB8 的最后两位,控制真空发生器的抽真空和破真空。当最后两位为 10 时,喷射脉冲打开,当最后两 位为 01 时,真空发生器抽真空,当最后两位为 00 时,OVEM 处于待机状态。在 Modify Value 栏写入想要的操作后,回 车,然后点击下图中的闪电按钮,确认命令操作。

ove	ovem-lk > PLC_1 [CPU 1215FC DC/DC/DC] > Watch and force tables > Watch table_1											
	i	Name	Address	Display format	Monitor value	Modify value	9	Comment				
1			%IB8	Bin	2#1101_0101							
2			%IB9	Bin	2#1000_1011							
3			%QB8	Bin	2#0000_0001	2#0000_0001						
4			%QB9	Bin 💌	2#0000_0010							
5			<add new=""></add>									
						,						

ov	ovem-lk  PLC_1 [CPU 1215FC DC/DC/DC]  Watch and force tables  Watch table_1										
2 2 1 Lo 1, 2 2 5 5 1											
-	i	Name	Address	Display format	Monitor value	Modify value	9	Comment			
1			%IB8	Bin	2#0000_0000	6					
2			%IB9	Bin	2#0000_0000						
3			%QB8	Bin	2#0000_0010	2#0000_0010	M 📐				
4			%QB9	Bin	▼ 2#0000_0010						
5			<add new=""></add>								
							•				

OVEM-LK 在进行 IO-LINK 通讯的时候,其过程输入数据,如下图所示,最后两位表示 OUTA 和 OUTB 是否有输出,O 代表 无输出,1代表有输出,真空压力值由前14位通过p2=压力值\*(1000 mbar/16383)计算。

过程输入数据 (Process data IN)

位	15 (MSB)	2 (LSB)	1	0
Process data <sup>1)</sup>	Process Data Variable (PDV)		BDC3	BDC1/BDC2 <sup>2)</sup>
Data content <sup>1)</sup>	Pressure Value <sup>3)</sup>		Out B	Out A (Air-save) ⁄ Out A

#### 1) R = 读取

BDC 的分配取决于 Air-saving function 参数: Air-save ON = BDC1, Air-save OFF = BDC2
 3) 将当前压力值 (pressure value) 标准化并缩放为 14 位。公式: p2 = 压力值\*(1000 mbar/16383)

Tab. 24 过程输入数据(Process data IN)

以下图中的 2 进制数据为例 1101010100010,换算成 10 进制的为 13666,此值为所测得的真空压力值,将其带入到 p2 = 压力值\*(1000 mbar/16383),计算出 P2 为 834,单位为 mbar,与 OVEM 显示屏上显示的数据-0.834 一样,单位 bar。

ove	em-lk	PLC_1 [CP	U 1215	FC DC/DC/D	C] 🕨 Watch and	for	e tables 🔸 Wa	tch table_1	
		at in a	<i>A A</i>	(20) 000 000			蓝色	框内为实际的测量的	真空压力值
illi.	₹.		71 %	1					
	i	Name	1	Address	Display format	t	Monitor Jue	Modify value	9
1			•	%IB8	Bin		2#1101 0101	代表outA&outB	是否有输出
2			4	%IB9	Bin		2#1000_1011		
3			•	%QB8	Bin		2#0000_0001	2#0000_0001	A 1
4				%QB9	Bin	-	2#0000_0010		
5				<add new=""></add>					

除了以上位置可以查看 OVEM 和 PLC 通讯的参数外,也可以在 S7-PCT 工具里查看 OVEM 相应的参数,类似连接 CDSU 查 看的参数一样。

A STATIC S7-PCT - PLC_2									
File Edit View Device Options Help									
1 🕑 🗔 🖉 📕 X 🗉 🖫 🗙 🔃 🖉 🌽 🚱 🚱									
▼ PLC_2*	Identification Parameters Monitoring Diagnostics Connection								
▼ [Slot 2] SM 1278_1	Column Filter								
CIIOVEM-H-CE	Parameter 2	Value	Icon	Unit	Status	Help			
	Monitoring								
-	⊡Process data	h							
	Process data (In)	-0.0		mbar	3				
	Process data (In)	Disable							
	Process data (In)	Disable							
	Minimum process value	-3		mbar					
	Maximum process value			mbar					
	Last process value			mbar					
	Maximum evacuation time	0		ms					
	Last evacuation time	0		ms					
	Minimum ventilation	0		ms					
	Maximum ventilation	0		ms					
	Last ventilation time	0		ms					

## 5 其他注意事项

OVEM-LK 其他 IO-Link 通讯时所需的其他参数,可参考 OVEM-LK 的操作说明书,链接如下。 https://www.festo.com.cn/net/SupportPortal/Files/702116/OVEM-\_-LK\_operating-instr\_2020-07e\_8140371z1.pdf