



控制平台 AWP100 快速入门

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1 版本

版本	作者	发布日期	描述
1.0.0.0	CHS	2023-01-20	首次发布;

2 前言

2.1 关于 AWP100

AWP100 是为满足严苛应用环境而设计开发的高级控制系统平台,模块化控制器和 I/O 模块具有高度的可靠性、稳健性和灵活性。AWP100 产品系列模块之间采用机架背板总线 通信,机架之间采用扩展模块进行分布式连接。

2.2 安全提示

本文件所涵盖的所有操作活动中,操作人员应始终遵照相应国家、地区及厂商包括但不 仅限于:高低压电器操作规范、安全规程、个人防护、环境保护等与安全和环境相关的法律 法规进行规范操作。福氏新能源技术(上海)有限公司谢绝承担由于个人忽视相关法规条例 引发人身安全和财产损失的责任。

2.3 免责声明

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Linux[®]是 Linus Torvalds 注册商标。

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2.5 版权

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3 AWP100 连接设置

3.1 软件工具

3.1.1 软件下载

AWP100 使用的 CODESYS IDE、CODESYS TSP、C/C++ SDK 开发包、固件、软件工具、驱动程序等可以从福氏技术官方网站服务器下载。

3.1.2 开发电脑系统需求

开发电脑系统要求如下:

- ▶ Microsoft Windows 7 64 位系统。
- Microsoft Windows 8 64 位系统。
- > Microsoft Windows 10 64 位系统(推荐)。

3.1.3 连接工具

AWP100 控制器支持 SSH (Secure Shell) 和 SFTP (Secure File Transfer Protocol) 通信协议。

PuTTY – SSH 客户端:对于 Linux 命令 SSH 访问推荐使用免费工具软件 PuTTY,可以从福氏技术官方网站服务器下载。

WinSCP – SFTP 客户端:对于安全文件传输 SCP 或 SFTP 推荐使用免费工具软件 WinSCP,可以从福氏技术官方网站服务器下载。

3.2 建立连接

AWP100 通过控制器模块 PCM6.1 上的以太网端口进行配置和编程,既可用于开发直接访问,也可用于现场远程访问。AWP100 主要通过浏览器控制界面进行配置,也可以通过 SSH 或 SFTP 方式进行文件系统配置,服务目的或特殊情况下通过 USB 串行通信 SSH 连接 PCM6.1 服务端口进行访问。

3.2.1 Ethernet 端口连接

AWP100 控制器模块 PCM6.1 通过以太网线缆连接到开发电脑, PCM6.1 模块默认网络配置 Ethernet 端口 0 (eth0) 静态 IP 地址:

IP: 192.168.20.13

Mask: 255.255.255.0

Gateway: 192.168.20.1

Ethernet 端口1 (eth1) 默认 DHCP 配置。

请确保开发电脑网络设置与 PCM6.1 模块处于相同子网范围,比如将开发电脑 IP 设置

为 192.168.20.20, 使用开发电脑 CMD 向 PCM6.1 发送 ping 192.168.20.13 指令测试以

太网连接。

Internet Protocol Version 4 (TCP/IPv4)	Properties ×				
General					
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.					
O Obtain an IP address automatical	ly				
• Use the following IP address:					
IP address:	192 . 168 . 20 . 20				
Subnet mask:	255 . 255 . 255 . 0				
Default gateway:					
Obtain DNS server address autor	natically				
• Use the following DNS server add	resses:				
Preferred DNS server:					
<u>A</u> lternate DNS server:					
Validate settings upon exit	Ad <u>v</u> anced				
	OK Cancel				

Command Prompt	_	×
Microsoft Windows [Version 10.0.19044.2251] (c) Microsoft Corporation. All rights reserved.		^
C:\Windows\system32>ping 192.168.20.13		
Pinging 192.168.20.13 with 32 bytes of data: Reply from 192.168.20.13: bytes=32 time<1ms TTL=64 Reply from 192.168.20.13: bytes=32 time<1ms TTL=64 Reply from 192.168.20.13: bytes=32 time<1ms TTL=64 Reply from 192.168.20.13: bytes=32 time<1ms TTL=64		
Ping statistics for 192.168.20.13: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = Oms, Maximum = Oms, Average = Oms		
C:\Windows\system32>_		

3.2.2 PuTTY 连接

PuTTY 连接需要设置 IP address、连接类型 SSH、Port 22, 然后 Open。

🕵 PuTTY Configuration	×
Category:	
Session Logging Logging Terminal Keyboard Bell Features Window Appearance Behaviour Translation Selection Colours Connection Data Data	Basic options for your PuTTY session Specify the destination you want to connect to Host Name (or IP address) 192.168.20.13 22 Connection type: Raw Ielnet Rlogin Serial Load, save or delete a stored session Saved Sessions Default Settings
 Proxy Telnet Rlogin SSH Serial 	Save Delete Close window on exit. Always Never Only on clean exit Open Cancel

自动弹出对话窗口输入用户名和密码进行登录。



3.2.3 WinSCP 连接

WinSCP 连接需要设置 IP、协议 SFTP、Port 22、用户名、密码,然后 Login。

🌯 Login - WinSCP	- 🗆 ×
New Site	Session File protocol: SFTP V Host name: 192.168.20.13 22 User name: ****** Save Advanced V
<u>T</u> ools ▼ <u>M</u> anage ▼	Login Close Help

🌯 Public - root@192.168.20.13 -	🌯 Public - root@192.168.20.13 - WinSCP — 🗆 🗙				
Local Mark Files Commands	Session Options Remote Help				
🕀 🔁 📚 Synchronize 🗖 🦑 🛽	🛐 💮 🔛 🎒 Queue 🔹 Transfer	Settings Default 🔹 🥵 🗸			
📮 root@192.168.20.13 🚅 New	Session				
😲 C: (+ 🚰 🔽 🔶 + 👻 🖻 🔿	📕 / <root> 🔹 🚰 🔽</root>	🖛 🔹 🚽 📧 📾 🏠 🤁 Find Files	2		
🕼 Upload 🐊 📝 Edit 🎽 🛨 🎽	Download 🔐 📝 Edit 🗙 🛛	🖌 🕞 Properties 📑 🕞 📕 🖃 🗹			
C:\Users\Public	/				
 Documents Sogoulnput Videos Pictures Music Downloads 	 app bin boot data dev etc home lib nvram 	登录成功			
< >>	<pre>proc root run sbin sys tmp usb usr var</pre>				>

文件传输时请确认 WinSCP 工具设置"transfer to temporary filenames"处于 "disabled"状态。设置方法如下:

选择 "Tools" / " Preferences" / " Endurance" / "Disable" 。

🖺 Login - WinSCP				_		×
New Site		Session File protocol: SFTP Host name: 192.168.20.1 User name: ****** Save	3	Password:	Po <u>r</u> t numbe	r: 22 🖢
Iools Import Sites Import/Restore Configu Export/Backup Configu Clean Up Run Pageant Run PuTTYgen	Manage variation		∎ Login ▼	Close	He	lp
Check for Updates Preferences About Preferences	-		ę	Login	?	Cl X
Environment Interface Window Commander Explorer Languages Panels Remote Local Editors Transfer Drag & Drop Background Endurance Network Security Logging Integration Applications Commands Storage Updates	Enable transfer res All files Files aboye: Disable Automatic reconnes Automatic reconnes Automatic reconnes Automatically Reconnect at Automatically Reconnect at Keep reconnection	100 💭 KB ect / reconnect ses fter: / reconnect ses fter: / reconnect ses fter: / reconnect ses fter: / reconnect ses	to temporary filer	during transfer 5 seconds while idle 9 seconds 50 seconds ad seconds	5	
			ОК	Cancel	Help)

3.2.4 服务端口 USB 连接

开发电脑可以通过标准 USB-B 数据线连接到 PCM6.1 模块的服务端口进行控制器配置。当使用 USB 数据线连接开发电脑与控制器 PCM6.1 时, USB 驱动从 Windows Update 自动下载安装到开发电脑,也可以从福氏技术官方网站服务器下载 USB 驱动程序 手动安装。打开"我的电脑"/"设备管理"查看 COM Ports, USB 驱动占用 COM 端口 序号需要在 PuTTY 登录时使用。



PuTTY 连接需要设置 COM 端口号、连接类型 Serial、Speed 115200, 然后 Open。

🕵 PuTTY Configuration	X
Category:	
Session Logging Terminal Keyboard Bell Features Window Appearance Behaviour Translation Selection Colours Connection	Basic options for your PuTTY session Specify the destination you want to connect to Serial line Speed COM3 115200 Connection type: Raw Raw Ielnet Rlogin Load, save or delete a stored session Saved Sessions Default Settings Load
Data Proxy Telnet Rlogin ⊕ SSH Serial	Image: Construction Image: Construction Imag
<u>A</u> bout	<u>O</u> pen <u>C</u> ancel

弹出命令输入窗口界面后敲击"回车"按键,此时如果通信连接正常则会出现用户名和

密码输入窗口,如果敲击"回车"按键以后没有任何变化则可能通信连接错误。





3.3 浏览器控制界面

推荐使用 AWP100 浏览器控制界面进行控制器常规配置操作,其他如 PuTTY、WinSCP 或者 USB 服务端口都属于特定功能情况下使用,非必要不使用。

浏览器(推荐火狐浏览器)地址栏输入 PCM6.1 模块 IP(默认 192.168.20.13)进入 AWP100 浏览器控制界面。如果出现安全风险提示选择"高级"、"接受风险并继续"。

۷	⊌ 火狐:	主页	× +		\sim	-		×
$\leftarrow \rightarrow$	C	Q 192.168.20.13					•	≡
		〔官方站点 (新手上路		>>	> 🗋 其他共	恣 🗍移动	设备上的	书签
🝅 火狐	瓜主页	❷ 火狐浏览器		北星● 月京	设置 🕈 认	前记录	举报	
		-	0					
<	••							>

× +	
A 不安全 https://	/192.168.20.13/sys/
手上路	and a second to be a
	警告: 面临潜在的安全风险
	Firefox 检测到潜在的安全威胁,因此没有继续访问 192.168.20.13。若您访问此网站,攻击者可能会尝 试窃取您的密码、电子邮件、信用卡等信息。
	详细了解
	返回上一页(推荐) 高级
	192.168.20.13 使用了无效的安全业书。
	该证书因为其自签名而不被信任。
	错误代码: MOZILLA_PKIX_ERROR_SELF_SIGNED_CERT
	查看证书
	返回上一页(推荐) 接受风险并继续

3.3.1 HMI 界面

导航栏"Home"页面显示 AWP100 简介和进入 HMI 界面入口。点击"Web visu" 可以进入 HMI 网页控制界面,也可以浏览器地址栏输入 http://IP:8080/webvisu.htm 进入 HMI 界面(IP 填写 PCM6.1 实际的 IP)。



	Visualization	× +	- 🗆 X
\leftarrow	\rightarrow C	🔿 🗞 192.168.20.13:8080/webvisu.htm	驟 50% ☆ =
-Ð 🖣	入书签 🗋 火狐 🕯	含方站点 ' 新手上路 🔯 腾讯企业邮箱-登录入口	≫ □ 其他书签 □ 移动设备上的书签

HMI 控制操作示范

3.3.2 模块信息

导航栏"Modules"页面显示运行模块的名称、EtherCAT总线位置、固件版本、电流 消耗。模块的 EtherCAT 总线位置不一定等于模块的物理硬件位置。

۲	Advanced Progr	ammable Control	ler× +				
\leftarrow	\rightarrow C		O 🔓 htt	ps:// 192.16 8	3.20.13/sys/modules.sh	ntml	
予导	入书签… 🗋 火狐	【官方站点 🍯 新	〔手上蹤	1.0	and it was	100	
	n Home	Modules	Info	Tools	تمت Applications		

Module overview

Information about the modules in the system can be seen below. Note the information is only read during startup of the PCM.



Name	Software version	Current	Pos.
PDM6.1		2500	
PCM6.1 Computer Module	1.0.1.0	-1384	0
DIO6.1 Digital Input and Output Module	N/A	-40	1
AIO6.1 Analogue I/O Module	1.0.0.0	-270	2
TIM6.1 Temperature Input Module	1.0.0.0	-270	3
SIM6.2 Station Interface Module	N/A	-167	4
Available current in rack		369	

Locate PCM modul

Click the below button to rappidly flash the Status LED on the PCM for 30 seconds $\fbox{\sf Flash Status LED}$

3.3.3 系统信息

导航栏 "Info" 页面显示控制器系统信息, OS 版本、CPU 频率/负载、内存等。

Advanced Programmable C	Controller× +	
$\leftarrow \ \ \rightarrow \ \ \mathbf{G}$	🔿 🔒 https://192.168.20.13/sys/info.shtr	nl
① 导入书签 2 火狐官方站点	🍯 新手上路	
Home Modules	Info Tools Applications	
Firmware		
OS version:		1.0.1.0
OS version: Bootloader version:		1.0.1.0
OS version: Bootloader version: Resources CPU frequency:	1200 MHz	1.0.1.0 1.0.1.0
OS version: Bootloader version: Resources CPU frequency: CPU load:	1200 MHz 10% (cpu0: 11% cpu1: 9%)	1.0.1.0 1.0.1.0
OS version: Bootloader version: Resources CPU frequency: CPU load: Memory:	1200 MHz 10% (cpu0: 11% cpu1: 9%) 933 MB free, 8% used	1.0.1.0 1.0.1.0
OS version: Bootloader version: Resources CPU frequency: CPU load: Memory: Diskspace:	1200 MHz 10% (cpu0: 11% cpu1: 9%) 933 MB free, 8% used 3036 MB available, 1% used	1.0.1.0 1.0.1.0

3.3.4 系统日志下载

导航栏 "Tools" 页面可以下载系统日志、更新可执行文件、恢复出厂设置、用户管理、网络设置、时间设置。

Advanced Programmable Controller× +			
← → C O A https://192.168.20.13/sys/logging.shtml			
① 导入书签 □ 火狐官方站点 👹 新手上路			
Home Modules Info Tools Applications System logs Firmware update Factory reset Users Network configuration Date and time			
System logs			
16 out of 16 logs selected (remove all)			
app-svscan > boot > devd > dupdate > fnvram > kernel > ledd > lighttpd > network > openssh > Select logs to display	powerfail ×	svscan ×	syslog ×
Last hour			
<pre>Index: 16#1C13 SubIndex: 11 Data: 16#1A1A Result: 16#00 2022-11-11T15:17:22.492399+0000 app/codesys: 2022-11-11T15:17:22.489Z: Cmp=IoDrvEtherCAT, Index: 16#1C13 SubIndex: 12 Data: 16#1A1B Result: 16#00 2022-11-11T15:17:22.5120340000 apn/codesys: 2022-11-11T15:17:22.505Z: Cmp=IoDrvEtherCAT.</pre>	, Class=1,	Error=0, Error=0,	Info=0 Info=0
Index: 16#1C13 SubIndex: 13 Data: 16#1AL Result: 16#00 2022-11-11T15:17:22.523213+0000 app/codesys: 2022-11-11T15:17:22.521Z: Cmp=IoDrvEtherCAT,	, Class=1,	Error=0,	Info=0
<pre>Index: 16#1C13 SubIndex: 13 Data: 16#1AIC Result: 16#00 2022-11-11T15:17:22.523213+0000 app/codesys: 2022-11-11T15:17:22.521Z: Cmp=IoDrvEtherCAT, Index: 16#1C13 SubIndex: 14 Data: 16#1AID Result: 16#00 2022-11-11T15:17:22.543698+0000 app/codesys: 2022-11-11T15:17:22.537Z: Cmp=IoDrvEtherCAT, Index: 16#1C13 SubIndex: 15 Data: 16#1AIE Result: 16#00</pre>	Class=1, Class=1,	Error=0, Error=0,	Info=0 Info=0

- ▶ 点击导航栏 "Tools"、"System logs"进入下载系统日志页面。
- ▶ 选择需要下载的日志内容,默认全部选择, "16 out of 16 logs selected"表示选择全部日志内容。
- ▶ 选择日志下载的时间范围,根据实际需要选择时间,建议选择下载所有日志信息。
- ▶ 点击 "Download feedback file" 开始下载。
- ▶ 首次登录需要输入用户名和密码。
- > 下载完成后保存在本地电脑浏览器默认下载位置。

Home Modules I	i Tools Applications
System logs Firmware update Factory System logs 16 out of 16 logs selected (ramewa all)	reset Users Network configuration Date and time 选择下载的内容,默认全部选择,不做任何删减
app-svscan boot devd	dupdate finnam kemel ledd lighttpd network opensish powerfail siscan syslog isfpd watchdog appicodesys s
All availble data	0+0000 app/codesys: 2022-10-20T03:02:01.5132: Cmp=IOUTVETNETCRI, Class=1, Error=0, INIO=0, pszinio= SD0 Write ok: Address:
Last 30 minutes Last hour	5+0000 app/codesys: 2022-10-20T03:02:01.5292: Cmp=IoDrvEtherCAT, Class=1, Error=0, Info=0, pszInfo= SDO write ok: Address:
Last 3 hours 边择 Last 6 hours 下去	<pre>s+0000 app/codesys: 2022-10-20103102:01.54521 cmp=loDrVxtnerCAT, Class-1, Error-0, Into-0, pszInto- SD0 write ok: Address: 5+0000 app/codesys: 2022-10-20103:02:01.56122 Cmp=loDrvEtherCAT, Class=1, Error=0, Info=0, pszInfo= SD0 write ok: Address:</pre>
Last 12 hours 中初	0+0000 app/codesys: 2022-10-20T03:02:01.5772: Cmp=IoDrvEtherCAT, Class=1, Error=0, Info=0, pszInfo= SDO write ok: Address: 1+0000 app/codesys: 2022-10-20T03:02:01.5932: Cmp=IoDrvEtherCAT, Class=1, Error=0, Info=0, pszInfo= SDO write ok: Address:
Last 2 days Last 3 days	9+0000 app/codesys: 2022-10-20T03:02:01.6092: Cmp=IoDrvEtherCAT, Class=1, Error=0, Info=0, pszInfo= SDO write ok: Address:
Last 7 days Custom time range	+40000 app/codesys: 2022-10-20T03:02:01.6252: Cmp=IoDrvEtherCAT, Class=1, Error=0, Info=0, pszInfo= SD0 write ok: Address: 8+0000 app/codesys: 2022-10-20T03:02:01.6372: Cmp=IoDrvEtherCAT, Class=1, Error=0, Info=0, pszInfo= All slaves safe-operati
All availble data Since last reboot	P+0000 app/codesys: 2022-10-20703:02:01.7172: cmp=IoDrvEtherCAR, Class=1, Error=0, Info=0, pszInfo= Set operational mode 1+0000 app/codesys: 2022-10-20703:02:01.7372: cmp=IoDrvEtherCAR, Class=1, Error=0, Info=0, pszInfo= Startup finished: All s 0+0000 app/codesys: 2022-10-20703:02:01.7412: Cmp=IoDrvEtherCAR, Class=1, Error=0, Info=0, pszInfo= Startup finished: All s 0+0000 app/codesys: 2022-10-20703:02:30.8092: Cmp=CmpGwCommDrvTcp, Class=1, Error=0, Info=0, pszInfo= GWCommDrvTCP: gateway 0+0000 app/codesys: 2022-10-20703:02:30.8092: Cmp=CmpGwCommDrvTcp, Class=1, Error=0, Info=0, pszInfo= GWCommDrvTCP: gateway
Auto refresh 🗌	
Feedback log The feedback log is a compressed file that Download feedback file	at contains additional debug information. 下载按钮

3.3.5 可执行文件下载更新

AWP100 控制器的 OS、Firmware、Runtime、CODESYS 应用程序、功能库等都可以生成可执行文件,通过浏览器进行下载更新。更新可执行文件方法:

▶ 点击导航栏 "Tools" 、 "Firmware update" 、 "浏览"。

Но	me	Modules	Info		Tools	Applicatio	ns	
System logs	Firm	vare update	Factory reset	Users	Network	configuration	Date and time	
Updat	e							
To update th [浏览] 未	ie contro 选择文	oller, select an 件。	update file (.d	update) from you	r computer.		

> 本地电脑中选择需要下载更新的可执行文件。

🎃 文件上传							×
← → • ↑	> Thi	is PC > Desktop > 可执行文件	~	Ü	Search 可执 Search 可加 Search	行文件	
Organize 🔹 Ne	ew folde	r			1 1 1	•	?
	^	Name	Date mod	lified	Туре	9	Size
		application_demo.dupdate	2022/10/	18 10:16	DUPDATE I	ile	77
OneDrive							
🧢 This PC							
🧊 3D Objects							
📃 Desktop							
Documents							
🖊 Downloads							
👌 Music						/	
Dicturos	~	<					>
	File <u>n</u> am	ne: application_demo.dupdate		\sim	所有文件		\sim
					<u>O</u> pen	Cancel	

▶ 点击"Upload"开始下载更新,更新过程中保持控制器 PCM6.1 与本地电脑网络连接正常,否则更新失败。因此开始下载更新之前需要进行网络连接测试,建议使用
 CMD 命令 Ping IP (IP 默认 192.168.20.13)。

Custom I	Ame	Modules		Tools	Application	ns Data and time
Upda	ate	are update Fa	clory reset Us	sers Network	conliguration	Date and time
To update 浏览	e the controll	ler, select an up _demo.dupdate	odate file (.dup e Upload (date) from you	r computer.	

- ▶ 首次登录需要输入用户名和密码。
- 当出现绿色字体 "The update was applied successfully" 表示此次文件下载更新 完成。绿色提示字体出现之前,不可中断下载更新,不可进行其他操作,个别大文件 下载更新可能需要几分钟时间,请耐心等待。
- ▶ 点击 "Reboot" 使文件下载更新生效。

Home Modules Info Tools Applications System logs Firmware update Factory reset Users Network configuration Date and time
Update
To update the controller, select an update file (.dupdate) from your computer.
 Application_demo.dupdate The update was applied successfully Upload another file
Reboot
Reboot the controller (<u>show advanced options</u>).

3.3.6 系统时间设置

- ▶ 点击导航栏 "Tools" 、 "Date and time" 。
- > "Time"显示当前系统时间,比如 2020-01-01 00:00:09。
- ➢ "Timezone"选择时区。
- ▶ 点击小扳手图标开始修改系统时间。

		i	41		
Home	Modules	Info	Tools	Applicatio	ons
System logs Fir	mware update Fac	tory reset Us	ers Network	configuratior	Date and time
Date and	l time				
Date and time c	an either be set mar	nually or syncl	hronized usin	g NTP.	
Time: 💙	2020-01-01 00:00:	09 🔎 🗸 00			
Timezone:	UTC (Coordinated	l Universal Tir	ne)		~
	network time sy	nchronization			
Save					

- ▶ 弹出对话框重新设置系统时间,比如 "2022-10-01 10:10",点击 "Save"。
- ▶ 首次登录需要用户名和密码。

Date: Time:	October v 01 v 2022	
	Car	Save

- ▶ 点击下方 "Save",看到绿色提示字体 "Changes successfully saved"闪现,表示系统时间修改完成。
- ▶ 再次查看 "Time" 时间变成 "2022-10-01 10:10:07" 验证时间修改成功。

1	A		Ĩ			5		
H	ome	Module	s In	o	Tools	Applicatio	ons	
System log	gs Firmw	vare update	Factory res	et Users	Network	configuration	Date and tin	ne
Date	and t	ime						
Date and	time can	either be se	t manually o	r synchro	nized usin	g NTP.		
Time:	2	022-10-01 1	0:10:07 🎤					
Timezone	e: (JTC (Coordi	nated Unive	rsal Time)			~	
		network tin	ne synchron	ization				
Changes s	successfu	lly saved						

3.3.7 网络设置

- ▶ 点击导航栏 "Tools" 、 "Network configuration" 。
- ▶ "Show advanced settings"可以查看更多网口设置信息。
- ▶ 默认网口 "eth0 / br0" 可以修改 "IP address"。
- ▶ "IP address" 输入新的 IP 地址。
- ≻ 点击 "Apply"。

Home System logs Firmw	Modules vare update Facto	Info	Tools sers Networ	Application	s Date and time
Interface of	configura	tion			
br0	+ add	new interface	e		
192.168.20.13					
Ports: • eth0 • eoe0s*					
Show advanced se	ettings				
Apply	ට් <u>de</u>	lete interfac	e		
Home System logs Firm	Modules ware update Fact	Info tory reset U	Tools	Applicatio rk configuratior	ns Date and time
Interface of	configura	tion			
br0	+ add	new interfac	ce		
IP address					
192.168.20.13					
Ports:					
• eth0					
• eoe0s*	ottingo				
Show advanced s	eungs				
Apply Changes saved su	ticcessfully	elete interfac			

- > 首次登录需要用户名和密码。
- ▶ 出现绿色提示字体 "Changes saved successfully"表示控制器 IP 修改成功。

> CMD 命令行发送 ping 指令验证控制器 IP 是否修改成功。

Microsoft Windows [Version 10. 0. 19044. 2130] (c) Microsoft Corporation. All rights reserved. C:\Windows\system32>ping 192. 168. 20. 13 Pinging 192. 168. 20. 13 with 32 bytes of data: Reply from 192. 168. 20. 13: bytes=32 time<1ms TTL=64 Reply from 192. 168. 20. 13: bytes=32 time<1ms TTL=64 Reply from 192. 168. 20. 13: bytes=32 time<1ms TTL=64 Reply from 192. 168. 20. 13: bytes=32 time<1ms TTL=64 Ping statistics for 192. 168. 20. 13: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 0ms, Maximum = 0ms, Average = 0ms

3.3.8 用户管理与恢复出厂设置

恢复出厂设置"Factory reset"和用户管理"Users"两个功能属于研发预留,禁止随

意操作,否则会导致控制器运行异常或者数据丢失。



3.3.9 Runtime 信息

导航栏 "Applications"页面显示 PCM6.1 模块 Runtime 信息。

Advanced Programmable Controller×	+			
\leftarrow \rightarrow C \bigcirc A	https://192.168.20.13/sys,	/applications.shtml		
🕣 导入书签 🗋 火狐官方站点 📦 新手上	And a state of the local state o	and the second se	and the second second	and the local division of the local division
Home Modules Info	Tools Applica] Itions		
Applications				
Applications run on the controller. Any applicat (/app/service/applicationname/www/index.html	ions located in /app/service/) that file will be accessible th	will be listed below.If there is arough a link in the list below	an index.html file located in	the application folder
() Application mode]	
Application mode is enabled on the controller. NB! Stopping application mode will cause all a	applications listed below to st	op. Stop application mode		
Application	Location	State	Startup type	
v1.3.0.4-blarge_rest-91-g360ac1d	/app/service/codesys	9 Up	Automatic 🗸	stop view log
□ Display uptime				

4 CODESYS 软件开发包

AWP100 使用的 CODESYS package 可以从福氏技术官方网站服务器下载,包括:

- ▶ CODESYS IDE: CODESYS 开发环境安装包。
- CODESYS TSP: AWP100 CODESYS TSP (Target Support Package) 安装在开发
 电脑中,包括设备描述文件和功能库均自动安装。

4.1 安装 CODESYS IDE

开发电脑安装 CODESYS IDE 采用默认安装,点击运行 CODESYS 安装文件比如

"CODESYS 3.5.15.20.exe"。首次安装可能需要某些辅助软件优先安装,这些辅助软件可以在线自动下载并完成安装,请保持开发电脑 internet 网络连接正常。

CODESY	S 64 3.5.15.20 - InstallShield Wizard	
ځ	CODESYS 64 3.5.15.20 Setup is preparing the Ins Wizard, which will guide you through the program Please wait.	tallShield setup process.
Extract	ing: CODESYS 64 3.5.15.20.msi	
-		Cancel



选择"I accept the terms of the license agreement",然后"Next"。



选择"I have read the information",然后"Next"。

🔀 CODESYS 64 3.5.15.20 - InstallShield Wizard	×
Very important information Please read the following information carefully.	CODESYS
COMPATIBILITY_INFORMATION	^
CDS-68431 WebServer: Heap Buffer overflow vulnerability [[GENERAL]] For more details see Advisory 2019-10, which is available on the CODESY website:	′S
Shttps://customers.codesvs.com/fileadmin/data/customers/security/2019/ I have read the information I have not read the information yet	/Advi ♥ rint
InstallShield 	ancel

选择安装路径,这里采用默认路径。

CODESY	S 64 3.5.15.20 - InstallShield	Wizard		×
Destinati Click Nex	on Folder at to install to this folder, or clid	k Change to install	to a different folder	CODESYS
	Install CODESYS 64 3.5.15.20 C:\Program Files\CODESYS 3.	0 to: 5.15.20\		Change
InstallShield -		< Back	Next >	Cancel

选择"Complete",然后"Next"。

CODESYS 64 3	.5.15.20 - InstallShield Wizard	\times
Setup Type		
Choose the set	tup type that best suits your needs.	CODESYS
Please select a	setup type.	
Complete		
	All program features will be installed. (Requires the most disk space.)	
O Custom	Choose which program features you want installed and where they will be installed. Recommended for advanced users.	
InstallShield	< Back Next > 0	Cancel

CODESYS 64 3.5.15.20 - InstallShield Wizard	\times
Ready to Install the Program	
The wizard is ready to begin installation.	CODESYS
Click Install to begin the installation.	
If you want to review or change any of your installation settings, click Back. Click Ca exit the wizard.	ncel to
InstallShield	
< Back Install 0	Cancel

安装过程需要持续一段时间,请耐心等待。

CODESY:	S 64 3.5.15.20 - InstallShield Wizard —	\times
Installing	CODESYS 64 3.5.15.20	
The prog	ram features you selected are being installed.	CODESYS
P	Please wait while the InstallShield Wizard installs CODESYS 64 3.5.15.20. This may take several minutes.	
	Status:	
InstallShield –	< Back Next > C	Cancel

点击 "Finish" 完成 CODESYS IDE 安装。



4.2 安装 CODESYS TSP

CODESYS IDE 安装完成以后,继续安装 AWP100 CODESYS TSP (Target Support

Package)。打开已经完成安装的 CODESYS IDE 软件。



CODESYS × _ File Edit View Project Build Online Debug Tools Window Help ₹ 🎦 🚔 🔜 | 🎒 | ロ ロ よ 助 絶 🗙 | 桷 🎎 🍓 🎕 ₽ Package Manager... Οğ. ► ■ 🖋 | [] = 4] 6] Ŧ **m** Library Repository... Devices **-** 4 X -Device Repository... • Visual Element Repository • Visualization Style Repository... • License Repository... Latest news License Manager... Scripting ۲ Customize... Options... CODESYS Import and Export Options... Device Reader... p

菜单栏点击 "Tools" / "Package Manager"。

弹出的 Package Manager 窗口中,选择"Install"。

Package Manager					
Currently installed packages Refresh			Sort by	Name ~	Install
Name ODESYS SoftMotion	Version 4.6.0.0	Installation date 11/24/2021	Update info Free version 4.10.0.0 available!	License info Searching	Uninstall Details
					Updates Search Updates Download CODESYS Store Rating CODESYS Store
Display versions 🔽 Saa	rch undates	in background			Close

- → × ↑ 📙 « Prod	duct > AWP100 > PCM61 installation v 💍	Search PCM61 installation
Organize 🔹 New folder		BEE 🔻 🔟 🤇
Documents	Name	Date modified
🕂 Downloads	AWP100 DeviceDescription	11/23/2021 3:01 PM
👌 Music	os	10/26/2021 9:32 AM
Pictures	runtime	11/22/2021 12:52 PM
Videos 📃	CODESYS Memory Tools 3.5.15.0.package	11/3/2021 12:23 PM
Local Disk (C:)	pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.package	6/25/2021 4:54 PM
Local Disk (C:)	pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.package	6/25/2021 4:54 PM
Local Disk (C:)	pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.package	6/25/2021 4:54 PM
Local Disk (C:) New Volume (D: TIMOTHY (E:) deif-cp (\\deif c; V)	pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.package	6/25/2021 4:54 PM
Local Disk (C:) Mew Volume (D: TIMOTHY (E:) deif-co (\deif c:) File nar	pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.package k me: pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.pac	6/25/2021 4:54 PM
Local Disk (C:) New Volume (D: TIMOTHY (E:) deif-cn (\\deif ci)	pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.package c me: pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.pac	6/25/2021 4:54 PM
Local Disk (C:) Mew Volume (D: TIMOTHY (E:) deif-cp () deif cr File nar	<pre>pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.package < c me: pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.pac</pre>	6/25/2021 4:54 PM
Local Disk (C:) Hew Volume (D: TIMOTHY (E:) deif-cn (\\deif c:) File nar	<pre>pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.package c me: pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.pac</pre>	6/25/2021 4:54 PM 'ackage (*,package) ~ Open Cancel
Local Disk (C:) File nar	pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.package < c me: pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.pac P	6/25/2021 4:54 PM
Local Disk (C:) File nar	<pre>pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.package c me: pcm6.1-amc600-codesys-3.5.15.20-tsp-v1.3.0.3-g1b59819.pac</pre>	6/25/2021 4:54 PM Package (*.package) ~ Open Cancel

本地电脑中选择需要安装的 TSP Package。

选择"Complete setup",然后"Next"。

Name CODESYS SoftMotion PCM6.1 (AMC 600) CODESYS 3.5.15. Please selectthe type of setup youwould liketo	.20 TSP [1.3.0.3]	×	Uninstall
CODESYS SoftMotion PCM6.1 (AMC 600) CODESYS 3.5.15. Please selectthe type of setup you would like to	.20 TSP [1.3.0.3]		
PCM6.1 (AMC 600) CODESYS 3.3.13. Please select the type of setup you would like to	20 15P 11.3.0.31		Details
Please select the type of setup you would like to	···· [-····]		
	o perform.	QEID	Updates
			Search Updates
Complete setup			Download
All package components will be installed	i.		
			CODESYS Store
○ Typical setup			Rating
The most commonly used package comp	oonents will be installed.		i i i i i i i i i i i i i i i i i i i
			CODESYS Store
Customized setup	anto ano installad		
Recommended for advanced users.	ients are installed.		
Cancel	seck Next >	Finish	

Name Installation - Setup Completed Image: CodeSys SoftMotion PCM6.1 (AMC 600) CODESYS 3.5.15.20 TSP [1.3.0.3] Details Updates Search Updates Search Updates Download CODESYS Store Rating	Refresh	Sort by Name 🗸	Install
the summary. CODESYS Store Rating CODESYS Store CODESYS	Name CODESYS SoftMotion	Installation - Setup Completed PCM6.1 (AMC 600) CODESYS 3.5.15.20 TSP [1.3.0.3] The package has been successfully installed. Click Finish to exit the wizard or Next to see	Uninstell Deteils Updates Search Updates
Cancel < Back Next > Finish		the summery.	CODESYS Store Rating CODESYS Store
		Gancel Finish	

点击"Finish", TSP Package 安装完毕。

4.3 语言设置

CODESYS 可以根据个人需求设置为中文/英语/德语三种语言环境。依次点击

"Tools" / " Options" / " International Settings" 设置用户界面和帮助文档语言。





4.4 帮助文档

点击 "Help / Contents" 可以进入 CODESYS Help 离线帮助文档系统。

点击 "Help / Index" 或者 https://help.codesys.com 可以进入 CODESYS Help 在

线帮助文档系统。





4.5 添加设备描述文件

安装 AWP100 CODESYS TSP 安装包时, AWP100 设备描述文件会自动安装到开发电脑 CODESYS 设备库中, 如果需要新增设备描述文件可以使用手动添加方式。

选择工具栏 "Tools" / "Device Repository"。

控制平台 AWP100 快速入门



弹出对话框中选择"Install"。

ocation	System Repositor (C:\ProgramData	Y CODESYS\E	evices)		~	Edit Locations.
nstalled d	evice descriptions		Vendor	All under a		Install
Name	fiscellaneous ieldbuses IMI devices LCs oftMotion drives	Vendor	Version	Description		Uninstall Export

开发电脑本地路径选择需要手动添加的设备描述文件(.XML),比如 SIM6.3 模块设备描述文件"sim63-esi_v1.0.0.0.XML"。

Install Device Description							X
← → × ↑ 📙 > This PC	> Deskto	p → XML		~	Q		
Organize 👻 New folder							• 🔳 🔞
💻 This PC	^	Name	^	Date mo	dified	Туре	Size
3D Objects		🗐 sim6	3-esi_v1.0.0.0	2021/3/4	20:50	XML File	
E Desktop							
Documents							
🕹 Downloads							
b Music							
E Pictures							
Videos							
🔛 OS (C:)							
🚔 New Volume (D:)							
🚔 New Volume (E:)							
👷 Practek-SH (\\practek.cn\	sh) (Z:) 🗸	<					>
File <u>n</u> ame:	sim63-esi	v1.0.0.0			~	All supported descri	ption files ($ \smallsetminus $
					C	<u>O</u> pen	Cancel

添加完成后,自动显示设备描述文件成功安装提示信息, "Close"结束添加。

<u>L</u> ocation	System Repository V	Edit Locations
	(C:\ProgramData\CODESYS\Devices)	
Installed d	e <u>v</u> ice descriptions	
String for	a fulltext search Vendor: <all vendors=""> V</all>	<u>I</u> nstall
Name	^	<u>U</u> ninstall
	PCM6.1 Computer Module	Export
	SIM6.1 Station Interface Module SIM6.2 Station Interface Module	
	SIM6.2 Station Interface Module	
	SIM6.3 Station Interface Module	
	TIM6.1 Temperature Input Module	
	Input and Output Modules	
<	>	
🖻 🚯 C	: \Users\shenshuo\Desktop\XML\sim63-esi_v1.0.0.0.xml	
l	Device "SIM6.3 Station Interface Module" installed to device repository.	<u>D</u> etails

4.6 添加库文件

工程项目使用的 AWP100 功能库和 CODESYS 标准库,并不一定会全部自动安装在开发电脑 CODESYS 库管理器中,有时需要根据使用需求手动添加和管理库文件。

CODESYS File Edit View Project Build Online Debug__Tools Window Help Package Manager... 🎦 📽 📓 🙆 い べ 🌡 陶 亀 🗙 🖓 ใ Library Repository... 🗸 a 🗙 🗊 Device Repository... Devices Visual Element Repository -Patch 2 Visualization Style Repository... License Repository... Latest news License Manager... Scripting . Customize... Options... Import and Export Options... CODESYS Device Reader... 弹出对话框选择"Install"。 Library Repository × Location System \sim Edit Locations... (C:\ProgramData\CODESYS\Managed Libraries) Installed libraries: Install... Company (All companies) \sim 🗏 🖁 (Miscellaneous) Export... Application Docs 🗄 📲 Intern 🗄 🖁 System 🗉 📲 Use Cases Find.... Details... Trust Certificate Group by category Dependencies... Library Profiles... Close

选择工具栏 "Tools" / "Library Repository"。

开发电脑本地路径选择需要手动添加的库文件,比如添加用于 Modbus 通信功能的库

文件 "CmpLibModbus.library" 。

👔 Select Library								×
\leftarrow \rightarrow \checkmark \uparrow \square \Rightarrow This PC	> Desktop	> Lib	~	Ō	,∕⊂ Sea	arch Lib		
Organize 🔻 New folder								?
💻 This PC	^	Name	Date mod	ified	Ту	pe	Si	ze
3D Objects		CmpLibModbus	2015/4/28	13:21	CC	DESYS library		308
📃 Desktop								
Documents								
🖶 Downloads								
👌 Music								
Pictures								
🚆 Videos								
🎬 OS (C:)								
🚔 New Volume (D:)								
🚔 New Volume (E:)								
素 Practek-SH (\\practek.cn\	sh) (Z:) 🗸	<						>
File <u>n</u> ame:	CmpLibMod	dbus		~	All files			\sim
	-				<u>O</u> pe	en	Cancel	

库文件添加完成后, 弹出对话框显示已经完成添加的库文件名称以及版本信息,

"Close"结束添加。

ocation.	System (C:\ProgramData\CODESYS\Managed Libraries)	~	Edit Locations
Installed lib	praries:		Install
Company	(All companies)	~	Uninstall
	IFM51_ComDriver DEF LibModbus D =F 		Export
	PCM5.1 Clib DEF		Dataila
	Svs Util DEF		Details
	WT COWE 2 0 MW Control Algorithm DEFE	¥	Trust Certificate
Group	by category		Dependencies

然后点击"Library Manager" / "Add Library" 将库文件加载到工程中方便调用。



弹出对话框中进行库文件关键词搜索,输入"LibModbus"从库管理器中自动筛选出 与关键词匹配的库文件,选中需要的库文件"OK"加载到工程中。或者使用

"Advanced" 高级功能,根据库文件具体信息进行筛选。

1	Add Library		×
ſ			
	Library	Company	
	Advanced	OK	Cancel

Add Library	×
LibModbus	
Match	Library
LibModbus	
	LibModbus
	LibModbus
Advanced	OK Cancel

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4.7 文件拷贝功能

CODESYS 应用程序运行过程中需要记录重要的运行数据或者故障记录,数据保存在 PCM6.1 内部存储磁盘中。为了确保数据安全,需要定期使用 WinSCP 工具软件从 PCM6.1 磁盘拷贝出来。WinSCP 登录连接 PCM6.1 有两种拷贝文件方法: ▶ 拷贝文件方法 1:将文件系统比如 tmp 文件夹内的 test 文件,用鼠标拖拽到左侧文

件夹 A1, 文件 test 会复制到本地电脑的文件夹 A1 中。



> 拷贝文件方法 2: 鼠标右键点击文件系统比如 tmp 文件夹内的 test 文件,选择

Download 下载,选择 Browser 本地存储路径,点击 OK 开始下载。



5 创建 CODESYS 工程

创建 CODESYS 工程可以参考帮助文档 "您的第一个 CODESYS 程序"。



5.1 新建工程

点击 "File / New Project" 创建一个新工程项目。



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	ries Libraries Projects		Templates	HMI project	t Standard project	Standard project w
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Categories/Libraries: 创建库文件。

Categories/Projects: 创建工程。

Templates/Empty project: 创建空程序,需要手动添加程序单元。

Templates/Standard project: 创建标准程序, Device、Library、PLC_PRG、Task 已经存在。

Name: 自定义程序名称。

Location: 自定义程序存放路径。

Device: 选择硬件设备。

PLC_PRG in: 选择编程语言。

创建新工程项目命名为 Test Project。

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5.2 添加总线

鼠标右键点击"Device",选择"Add Device",弹出对话框中选择"EtherCAT Master"进行 EtherCAT 总线添加。

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5.3 添加控制器设备

添加控制器设备 PCM6.1,程序中设备的种类、数量、顺序必须与实际硬件配置相

同。鼠标右键点击"EtherCAT_Master"添加 PCM6.1 设备。





Version: 1.0.0.0 表示 PCM6.1 的设备描述文件版本号为 1.0.0.0, 如果出现多个版本

通常选择最新版本。

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	Status	
EtherCAT_Master (EtherCAT Master)	Information	
PCM61 (PCM6.1 Computer Module)		

5.4 添加 IO 设备

添加 I/O 设备例如 DIO6.1, 鼠标右键点击 "PCM6.1",选择 "Add Device"进行设备 DIO6.1 添加。

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添加 I/O 设备例如 AIO6.1, 鼠标右键点击 "PCM6.1", 选择 "Add Device"进行设

备 AIO6.1 添加。



Add Device \times Name AIO61 Action ● Append device ○ Insert device ○ Plug device ○ Update device String for a fulltext search Vendor <All vendors> ~ Name Vendor 🖃 🔟 Fieldbuses Brow EtherCAT Brow Slave 😟 🚞 Beckhoff Automation GmbH & Co. KG 🚊 🗠 🚞 DEIF 🚊 - 🚞 AMC 600 AIO6.1 Analogue I/O Module 4 DEIF CMM6.1 Condition Monitoring Module DEIF CMM6.2 Condition Monitoring Module DEIF DIO6.1 Digital Input and Output Module DETE DIO6.1 Digital Input and Output Module DETE IFM6.1 Interface and Fieldbus Module DEIF IFM6.1 Interface and Fieldbus Module DEIF IFM6.1 Interface and Fieldbus Module DEIF -----. < > Group by category Display all versions (for experts only) Display outdated versions Name: AIO6.1 Analogue I/O Module ~ Vendor: DEIE Categories: Slave Version: Revision=16#00000003 Order Number: AIO61 Description: EtherCAT Slave imported from Slave XML: DEIF_AIO61_v1.0.0.0.xml Device: AIO6.1 Analogue I/O Module Append selected device as last child of PCM61 (You can select another target node in the navigator while this window is open.) 0 Add Device Close Test Project.project* - CODESYS <u>File Edit View Project Build Online Debug Tools Window H</u>elp 🎦 😅 🔚 | 🚭 | い 🖙 🕹 🛍 🕿 🗙 | 🏘 🍰 🍓 🌿 | 📕 🧌 🧌 🦄 | 🛅 🖉 | 🎽 🖄 🖓 | 🖓 👘 🖄 🖓 👘 👔 DI061 X Device EtherCAT_Master PCM61 Devices **д X**



5.5 控制器网关连接

在线扫描硬件设备 PCM6.1 建立控制器网关连接,双击"Device",选择

"Communication / Scan Network"。在 Select Device 对话框内将显示扫描出来的所有 与个人电脑同网段的硬件设备,根据设备名称和 IP 选择将要连接的 PCM6.1 硬件设备。

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选择网络适配器, 左键双击 "EtherCAT_Master", 选择 "Select network by name", 点击 "Browser"选择 "ecat0"。

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5.6 自动扫描设备

CODESYS 支持 AWP100 自动扫描添加设备功能,方法如下:

- ▶ 新建工程,选择 "Standard project"。
- ➤ 右键点击 "Device" 弹出对话框选择 "EtherCAT/EtherCAT Master"。
- > 双击 "EtherCAT_Master" 修改配置为 "Select network by name",并将 "Network Name" 修改为 "ecat0"。
- ▶ 双击"Device",点击"Scan Network"扫描在线控制器,建立 Gateway 连接。
- ▶ 点击"Login",但不要运行程序。
- ▶ 右键点击 "EtherCAT_Master" 选择 "Scan for Devices"。
- ▶ 在线设备自动被扫描出来后,点击 "Copy All Devices to Project"将自动扫描的设备导入到工程中。

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特别提示:

- 不是所有的硬件设备都可以被正确扫描并添加到工程项目中,因此建议核对已扫描添加的设备是否符合配置要求,推荐采用手动方式逐个添加硬件设备。
- > SIM6.2 位于 PCM6.1 下一层级。
- ▶ 子站扩展模块 SIM6.1/SIM6.3 位于 SIM6.2 下一层级。



5.7 控制器下载程序

点击 "Online / Login" 或者 "Login 按钮", 下载应用程序到控制器 PCM6.1 中。

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程序下载完成后控制器处于停止状态,没有运行。此时 Device、EtherCAT_Master、 PCM6.1、DIO6.1、AIO6.1 和 SIM6.2 设备图标左侧全部为灰色图标,表示设备没有运 行。下方显示栏红色"STOP"表示程序停止状态,没有运行。

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点击"Debug / Start"或者"Start 按钮"使控制器中程序开始运行。此时 Device、 EtherCAT_Master、PCM6.1、DIO6.1、AIO6.1和 SIM6.2设备图标左侧全部变为绿色常 亮循环图标。下方显示栏绿色"RUN"表示程序正在运行。

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5.8 创建启动应用

控制器程序在线运行状态下,点击 "Online / Create Boot Application"创建启动应用,将应用程序固化在控制器中。完成程序固化后控制器断电重启,应用程序不会丢失,可

以自动启动运行。

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