TIA 环境下 Profinet 通讯控制 CPX-AP-I-PN



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关键词:

TIA Portal, Siemens, Profinet, CPX-AP-I-PN

摘要:

本文介绍了使用西门子 PLC 控制 CPX-AP-I-PN 的实例,通讯协议为 Profinet, PLC 编程软件为 TIA Portal。文档主要内 容包括软硬件安装,TIA Portal 中的调试,相关诊断功能。

目标群体:

本文仅针对有一定自动化设备调试基础的工程师,需要对 Festo API 系统以及西门子 TIA Poral 有一定了解。

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 软件环境

软件/固件	版本
TIA Portal	V15.1
CPX-AP-I-PN FW	FESTO CPX-AP RO
GSDML	GSDML-V2.34-Festo-CPX-AP-I-20190620

2 硬件安装

2.1 硬件接口说明



电源接口[XD1](可选择 NEBL-M8G4-E-...-N-LE4 连接): │Connection for power supply [XD1]

Plug M8, 4-pin, A-coded		Signal
Plug M8, 4-pin, A-cos 2 1 + + + + 3	1	+24 V DC logic supply PS
	2	0 V DC load supply PL
	3	0 V DC logic supply PS
	4	+24 V DC load supply PL

电源接口[XD2](此接口为电源路由口,可以使用标准电缆 NEBL-M8G4-E-...-N-M8G4 来连接下一个 AP 模块的 XD1 口): **Connection for voltage forwarding [XD2]**

Socket M8, 4-pin, A-coded		Signal		
4 0 0 2 $3 0 0 1$	1	+24 V DC logic supply PS		
	2	0 V DC load supply PL		
	3	0 V DC logic supply PS		
	4	+24 V DC load supply PL		

电源连接示意图:



AP 系统通讯接口[XF20],[XF21](必须选用 FESTO 专用 AP 通讯电缆 NEBC-D8G4-ES-...-N-S-D8G4-ET):

connection for syste					
Socket M8, 4-pin, D-coded		Signal			
1	1	RX-	Received data –		
Socket M8, 4-pin, D-c	2	TX+	Transmitted data +		
	3	RX+	Received data +		
	4	TX-	Transmitted data –		

PROFINET 通讯接口[XF1],[XF2]: Connection PROFINET network [XF1], [XF2]

	•		•			
Socket M12, 4-pin, D-coded		Signal				
2	1	TD+ Transmitted data +				
Socket M12, 4-pin, [2 1 0 0 3 4	2	RD+	Received data +			
	3	TD-	Transmitted data –			
4	4	RD-	Received data –			
	Thread	Shield	Functional earth			



3 AP 系统地址映射说明

每次启动 CPX-AP 系统时,模块的地址会自动分配。总线接口(CPX-AP-I-PN)的分配地址为 "1",所有其它模块,从总 线接口开始从左往右升序分配。第一分支 (XF20)的模块先分配,随后再分配第二分支 (XF21)的模块。如下图所示:



4 TIA Portal 中通讯调试

4.1 下载并安装 GSDML 文件

从 FESTO 官网下载相应的 GSDML 文件,连接如下: https://www.festo.com.cn/cn/zh/search/?text=CPX-AP-I-PN&tab=DOWNLOADS

+ https://www.festo.com.cn/	- ≙ ⊄	搜索	
搜索 CPX-AP-I-PN Festo × 🗋			
👔 🔁 DWG-DXF 转换为 G-Cod			
主页 自动化 教	这学与培训 案例 关于费斯托 职业发展	▲登录 ↓ 異购物车	China ZH
	✓ CPX-AP-I-PN		×
	产品1 支持/下载8 主题64		
产品信息 [1]			٥
技术文档 [2]			0
Certificates [1]			٥
Software [3]			0
PROFINET GSDM GSDML-File for 设备描述文件	IL IPX-AP-I-PN-M12 valid from firmware v.1.0.31		
PROFINET GSDM 设备描述文件			

如下图所示,在 TIA Portal 中安装 GSDML 文件。

ls Window Help	
	e 🚀 Go offline 🏭
ckages	
neral station description f ation License Manager	iles (GSD)
ence text	
ries	•
	×
	<u>^</u>
isierung\CPX_AP_I_PN_TE	ST\AdditionalFiles\GSD
sion Language	Status I
.34 English, Ger	Already installed
	>
Dele	te Install Cancel
	s window help kages heral station description f ation License Manager nce text ries sierung\CPX_AP_I_PN_TE sion Language 34 English, Ger Delet

4.2 硬件组态

4.2.1 硬件检测(自动上载硬件组态)

将 CPX-AP-I-PN 模块与 PLC 以及各个 AP 从站模块正确连接并供电,在 TIA Portal 中按照下图操作即可将所有 AP 主从站模 块全部上载上来。(注:该功能仅 TIA Portal V15.1 及以上支持)



进入 Device configuration-Network view,将 AP-I-PN 分配给 PLC 相应的端口。如下图所示:



4.2.2 手动配置组态

进入 Device configuration-Network view-Hardware catalog,在如图目录中找到 CPX-AP-I V1,并拖拽到网络视图中。将其分配给 PLC 相应端口。



4.2.3 分配设备名称

右击 AP-I-PN, 选择 Assign device name.

CPX_AP_I_PN_TEST ► Devices & networks	PM_TEST > Devices & networks				
			📲 Topology view 🛛 🛔 N	etwork view 🛛 👔	Device view
Network Connections HMI connection		🤱 🛨 📑	Network overview Co	onnections	• •
	₽ IO system: PLC_	1.PROFINET IO-System (100) 🛕	Pevice	Туре	Addr
PLC_1 CPU 1516-3 PN/		 S71500/ET200MP stat 	ion_1 S71500/ET200	MP station	
PLC_1	AP-I-PN		Image: System (100) Image: System (100)		
CPU 1516-3 PN/	CPX-AP-I V1		 GSD device_1 	GSD device	
	PLC_1	III Device configuration		CPX-AP-I V1	
		Change device			
		Start device tool	ro Memory Card		
PLC_1.PROFI	NETIO-Syste				
		Cut	Ctrl+X		
		E Paste	Ctrl+C		
			Culty		
		× Delete	Del		
		Rename	F2		
		Assign to new DP master / IC) controller		
		Disconnect from DP master	system / IO system		
		Highlight DP master system	/ IO system		
		🚽 Go to topology view			
		Compile	•		
		Download to device	•		
		💋 Go online	Ctrl+K		
		Go offline	Ctrl+M		
		V. Online & diagnostics	Ctrl+D		
	Process of neurons Image: State				
I		I Receive alatitis			

分配 Profinet 设备名称。

	-				
ssign PROFINET devic	e name.				
		Configured PRO	FINET device		
		PROFINET devic	e name: ap-	i-pn	-
		Dev	vice type: CPX	-AP-I V1	
		Online access			
		Type of the PG/PC i	nterface: 📃	PN/IE	•
		PG/PC i	nterface: 🔝	ntel(R) PRO/1000 MT Deskt	top Adapter 💌 💎 🔍
		Device filter			
		🛃 Only show	devices of the sa	me type	
		Only show	devices with bad	l parameter settings	
		Only show	devices without	names	
	Accessible devi	res in the network:			
	IP address	MAC address	Device	PROFINET device name	Status
_	192.168.0.2	00-0E-F0-60-C3-44	Festo CPX-AP-I	-	🚹 No device name assigned
Flash LED					
-	<			1111	>
				Updat	e list Assign name
Online status information	n:				
Search completer	d. 1 of 2 devices we	re found.			
<			1111		
エコー ひァ1.					Close
能成切。					

	IP address	MAC address	Device	PROFINET device name		Status		
	192.168.0.2	00-0E-F0-60-C3-44	Festo CPX	ap-i-pn	Ø	ок		
Hash LED								
	<							>
				U	pda	te list	Assign name	

4.2.4 设备视图组态

在网络视图中双击 AP-I-PN 图标,进入其设备视图。 接下来有两种方式配置 AP 模块,一种是根据第 3 章节的地址映射规则,另外一种是通过 CPX-AP-I-PN 节点 Webserver 功 能(前提是 CPX-AP-I-PN 已设置好 IP 地址,可通过 PRONETA 软件或者 TIA Portal 在线访问设置),在浏览器中输入其 IP 地址查看模块映射顺序。针对于大型 AP 网络系统,推荐第二种方式,会更加方便和准确。如下图所示:



4.3 下载程序并控制测试

下载程序并在线确认配置正确。

F	Project tree 🔲 🖣	CPX_AP_I_PN_	TEST → De	evices & networks									- 0	iX
ſ	Devices								🚆 Topolo	gy view 🔐	Network vie	w 📑 De	vice view	
	1 I I I I I I I I I I I I I I I I I I I	Network	Connections	HMI connection			🛛 🔍 🛓	3	Network	overview	Connections		4	•
l ¥ [耳 lOsys	tem: PLC_1.P	ROFIN	IET IO-Syst	em (100) 🔼	Device		Typ	•	Ad	dr
1	🖌 🔄 CPX_AP_I_PN_TEST 🛛 🗹 🔍 🔼									- 1500/FT200MP	station 1 S7	500/FT200MP	station	
Ĕ	🂕 Add new device					_				PLC 1	CPL	1516-3 PN/DF	P	_
°	品 Devices & networks	PLC_1	,	AP-I-	PN NPU V1		FESTO		🗸 👻 GS	D device 1	GSI) device		
<u> </u>	👻 🚰 PLC_1 [CPU 1516-3 PN/DP]	CFU ISIO-S FN	"	CFX-7	4F-IVI				V	AP-I-PN	CP)	-AP-I V1		
6	I Device configuration			ruc_	<u> </u>		1		_					
	😧 Online & diagnostics						-							
	Program blocks			PLC 1.PROFINET IO-	Svste									
	Technology objects													
	External source files													
	La PLC tags													
	Log PLC data types							_						
	Watch and force tables	1												
	Contine backups													
	Iraces													
	Program info			100%			-	🎽						
	PLC supervisions & alarms			100%				Y 🖼						-
	PLC alarm text lists								Q Pro	perties 1	Info 🔡 D	iagnostics		
	Online card data	General	Cross-refe	rences Compile										
	🕨 🧊 Local modules 🛛 🗹	🔁 🔥 🕕 Sho	ow all messag	es 💌										
	Distributed I/O													
CD	A D L DN TEST & Lingrouped device			D I V/1]										\sim
CF	X_AF_1_FN_TEST # Ofigrouped device	5 P AF-I-FI		r-i v i j										
							📇 Top	ology vie	ew 🚠	Network	view	Y Device	e view	
*	AP-I-PN [CPX-AP-I V1]		Dev	vice overview										
-														
				Module		Fa	Rack	Slot	I address	Q address	Туре		Artic	-
		=		 AP-I-PN 			0	0			CPX-AP-I V		CPX	^
				PN-IO Interfac	e		0	0 X1			AP-I-PN			_
	at the			CPX-AP-I-PN-M12	1		0	1			CPX-AP-I-PI	I-M12	808	
	8			CPX-AP-I-4DI4DO-	M8-3P		0	2	0	0	CPX-AP-I-4	014DO	808	
				VAEM-L1-S-12-AP	1		0	3		13	VAEM-L1-S	-12-AP	808	
		_			-		0	4						
- 11			-				č	-						
							U	5						
			<u> </u>				0	6						
							0	7						
							0	8						
							0	9						
							0	10						
							0	11						
							0							
							0	12						
		~		1			0	13						\sim
<	Ⅲ > 100%	-V 📃	<				1						>	

新建变量表进行测试:

Project tree		CPX_AP_	I_PN_TEST > PLC_	1 [CPU 1516-3 F	N/DP] 🕨 Watch and	force tables 🔸	Watch table_1	
Devices								
	🔲 🖻	🥩 🕐 .	n 🖉 🌆 💅 🐔	🖉 📴 😋				
		i	Name	Address	Display format	Monitor value	Modify value	- 7
CPX_AP_I_PN_TEST	v 🖉 🖉	1		%QB0	Hex	16#0F	16#0F	🗹 🖌
💕 Add new device		2		%QB1	Hex	16#FF	16#FF	🛛 🗹
Devices & networks		3		%QB2	Hex	16#FF	16#FF	🔜 🖂 🔺
PLC_1 [CPU 1516-3 PN/DP]	V •	4		%QB3	Hex	16#FF	16#FF	🗾 🗹 🔺
Device configuration		5						
🖳 Online & diagnostics	=	6						
🕨 🔙 Program blocks		7						
Technology objects		8						
External source files		9						
🕨 🌄 PLC tags		10						
PLC data types		11						
 Watch and force tables 		12						
📫 Add new watch table		13						
Force table		14						
🚜 Watch table_1		15						
Watch table_2		<						

确认控制结果:



4.4 快速启动(FSU)功能设置(可选配置)

如果不需要 Profinet 快速启动(FSU)功能,请跳过 4.4 章节!!!

4.4.1 在拓扑视图下,根据实际物理连接情况,将 AP-I-PN 相应网口和 PLC 相应网口连接



X_AP_I_PN_TEST → PLC_2 [CPU 1516-3 PN/DP] 📲 Topology view 🛔 Network view 🛛 🕅 Device view 🔐 PLC_2 [CPU 1516-3 PN/DP] 🔽 🕎 🕎 🛃 🛄 🔍 🛨 -Device overview 🖞 ... Module Rack 0 ^ 0 0 2 3 4 5 6 = 100 1 PLC_2 0 Rail 0 PROFINET interface_1 0 PROFINET interface_2 0 DP interface_1 0 0 0 0 n < . -> 100% < > 🔍 Properties 🔄 Info 3 Diagnostics General IO tags System constants Texts General Monitoring of partner port is executed ~ Ethernet addresses Alternative partners Time synchronization Partner port: AP-I-PN\PN-IO Interface [X1]\Port 1 [X1 P1 R] Operating mode Medium: Copper Advanced options Cable length: Interface options Media redundancy <100 m - Real time settings O Signal delay: IO communication Synchronization μs Real time options Port options Port [X1 P1 R] General Activate Port interconnection ≣ Port options Activate this port for use Port [X1 P2 R] General Connection Port interconnection Port options Transmission rate / duplex: TP 100 Mbps full duplex -Web server access Monitor Enable autonegotiation CPX_AP_I_PN_TEST > Ungrouped devices > AP-I-PN [CPX-AP-I V1] . 🖬 🖬 🗙 🚆 Topology view 🛔 Network view 📑 Device view 토 🖽 🚾 🖌 🖽 💷 🔍 t dt | AP-I-PN [CPX-AP-I V1] -Device overview ^ 🍟 Module ... Rack = AP-I-PN 0 . ^ PN-IO Interface 0 CPX-AP-I-PN-M12_1 0 CPX-AP-I-4DI4DO-M8-3P_1 0 VAEM-L1-S-12-AP_1 0 0 0 0 0 n < . > 100% **F** E. < > Ш 🗟 Properties 🛄 Info 3 Diagnostics IO tags System constants General Texts Monitoring of partner port is executed ▼ General . Catalog information Alternative partners PROFINET interface [X1] Partner port: PLC_2\PROFINET interface_1 [X1]\Port_1 [X1 P1 R] General Medium: Copper Ethernet addresses Cable length: Advanced options Interface options <100 m -Media redundancy Signal delay: Isochronous mode Real time settings μs IO cycle > Port options Synchronization ort 1 [X1 P1 R] Activate General Port interconnection Activate this port for use Port options Port 2 [X1 P2 R] Connection General Port interconnection Transmission rate / duplex: TP 100 Mbps full duplex Port options Monitor Identification & Maintenance Module parameters Enable autonegotiation

4.4.2 在设备视图下,将相应的 PLC 网口和 AP-I-PN 网口连接设置为 100Mbps 全双工并禁用 autonegotiation

4.4.3 激活 AP-I-PN 的优先启动功能

CPX_AP_I_PN_TEST > Ungrouped devices > AP-I-PN [CPX-AP	મV1] _ ∎≣X
	Topology view 🚮 Network view 🛐 Device view
🔐 🗛 PN [CPX-AP-I V1] 💌 📖 🔛 🛄 🔍 ±	Device overview
	Module Rack .
5 APR	AP-I-PN 0 . 🔨
w.	PN-IO Interface 0 . ≡
	CPX-AP-I-PN-M12_1 0 .
	CPX-AP-I-4DI4DO-M8-3P_1 0 .
	VAEM-L1-S-12-AP_1 0 .
	- 0.
	0.
	0.
	0
۲ الم	
AP-I-PN [CPX-AP-I V1]	Properties
General IO tags System constants Texts	
▼ General	
Catalog information	
General Prioritized startup	
Ethernet addresses	
✓ Advanced options	
Interface options	

4.5 负载电压监控参数设置

关于负载电压监控激活及其诊断信息开关设置:



load voltage monitoring inactive:

负载电压监控功能关闭

load voltage monitoring active, with suppression of diagnostics at switch off (factory setting): 负载电压监控功能激活,但会抑制负载电源切断报错(information 等级),只监控负载电源欠压。 load voltage monitoring active:

负载电压监控功能激活,监控负载电源欠压及关断,都作为欠压报错处理。

诊断功能 5

LED 诊断 5.1

模块诊断[MD]		
LED (红,绿)	故障原因	处理办法
	逻辑电源 PS 不可用	检查电源接口 XD1 的 Pin1 和 Pin3 之间的供电电压
绿色常亮	模块无故障信息	
→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→	模块诊断激活 故障等级:通知 例如,切断负载电源 PL	
	模块诊断激活 故障等级:警告 例如,参数错误	采取适当修正措施 例如,检查参数设置
(100) (100)	模块诊断激活 故障等级:错误 例如,负载电源欠电压	采取适当修正措施 例如,检查负载电源
(10) (10) (10) (10) (10) (10) (10) (10)	模块启动尚未完成。 系统通讯尚未初始化。	
绿色快速闪烁	模块识别(服务功能)	

系统诊断[SD]		
LED (红,绿)	故障原因	处理办法
不亮	逻辑电源 PS 不可用	检查电源接口 XD1 的 Pin1 和 Pin3 之 间的供电电压
绿色常亮	系统无故障信息	
→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→	系统诊断激活 故障等级:通知 例如,系统中某个模块负载电压不可 用,或者正在升级固件。	
一 近天 红色闪烁	系统诊断激活 故障等级:警告 例如,某个模块参数错误。	采取适当修正措施 例如,检查相应模块参数设置
小 红色常亮	系统诊断激活 故障等级:错误 例如,某个模块的传感器电源短路。	采取适当修正措施 例如,检查相应输入模块的诊断信息

	模块识别(服务功能)	
一 绿色快速闪烁		

负载电源[PL]		
LED (红,绿)	故障原因	处理办法
绿色常亮	负载电源 PL 正常	
→ → → → → → → → → → → → → →	负载电源 PL 不可用	检查负载电源 PL 电压
(10) (10) (10) (10) (10) (10) (10) (10)	负载电源电压超出额定公差范围	检查负载电源 PL 电压

维护[MT]		
LED(黄)	故障原因	处理办法
不亮	无需维护。	
	CPX-AP系统中至少有一个模块需要维护。	实施必要的措施: 详见各模块上的说明

PROFINET 网络故障

LED (红)	故障原因	处理办法
不亮	没有故障 (如果系统诊断[SD]显示为绿色常 亮)。	
	网络配置错误。	检查网络配置
	网络连接中断、短路或被干扰。	检查网络连接
在 在 回 板	设备名称/设备号不正确。	检查设备名称/设备号
1 红巴闪烁	IO 控制器(PN 主站)有缺陷。	对 IO 控制器进行维护

PROFlenergy [PE]

LED (绿)	故障原因	处理办法
不亮	PROFlenergy 未激活。	
	PROFlenergy已激活。	

连接状态[XF1][XF2]

LED (绿) _ _ _ _ _ _ _ _ _ _ _	

I

I

不亮	无网络连接	检查网络连接
→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→→	如果两个 LED(XF1 和 XF2)以相同节奏 闪烁,则是用于模块定位,例如用于 故障排查或配置时。	
绿色常亮	网络连接正常。	

5.2 Web 诊断

通过浏览器输入相应的 CPX-AP-I-PN 的 IP 地址,进入 Diagnosis 页面,可以获取当前的故障信息以及历史故障记录。

Attp://192.168.0.2/di	agnose.htm									- 0	搜索		₽ - 偷☆
🥖 ap-i-pn 🛛 🗙 📑													
CPX-AP web server	ap-i-pn	/ 192.168.	0.2										FESTO
Home Diagnosis PROFINET / I&M	Diagnos	sis state		当前故障	章信息								
Report	Device	Origin	Severity	Diagnos	sis								
	1			-									
	2	module	info	D02 01	00262 L	oad suppl	y (PL) 24 \	/ DC swit	ched off				
	3			1-									
	Diagnos	sis trace –		历史故降	章信息		距最近	一次启动	近,设备的	运行时长			
发生故障的时间戳	Time elap	sed si AP	莫块地址	tart:0 Day	vs, 04:30:3	31		i	故障源头				_
	Entry	Time		Device	Origin	Event	Severity	Diagno	sis		具体诊断	信息	
	1	0 Days, 03	:36:17	2	module	resolve	error	D01 0	100267 St	nort circuit / C	overload :	sensor supply]
	2	0 Days, 03	:35:03	2	module	raise	error	01 01	1 00267 \$	故障等级	ad	sensor supply	ļ
	3	0 Days, 00	:01:40	2	module	raise	info	Du.	100262 L	au suppry (r	L) Z4 V [C switched off	<u>]</u>
	4	0 Days, 00	:01:40	1	module	resolve	info		=====	₩ <u>₩</u> ,	+=	C switched off	
	5	0 Days, 00	:00:49	1	module	raise	info		「中国ンレスション			C switched off	
	6	0 Days, 00	:00:07	3	module	resolve	info	C	 故障	[伏 蚁 阦 复		C switched off	
	7	0 Days, 00	:00:07	2	module	resolve	info	D02 01	1 00262 Lo	oad supply (P	L) 24 V L	C switched off	
	8	0 Days, 00	:00:07	1	module	resolve	info	D02 01	1 00262 Lo	oad supply (P	L) 24 V [C switched off	
	9	0 Days, 00	:00:00	3	module	raise	info	D02 01	1 00262 Lo	oad supply (P	L) 24 V [C switched off	
	10	0 Days, 00	:00:00	1	module	raise	info	D02 01	1 00262 Lo	ad supply (P	L) 24 V C	C switched off	
	11	1155 us		2	module	raise	info	D02 01	1 00262 Lo	oad supply (P	L) 24 V C	C switched off]
	12	0 Days, 00	:00:00	1	system	inform	info	D11 00	0 00320 Sy	/stemstart]

5.3 通过 RALRM 功能块诊断

CPX-AP-I-PN 系统支持依据 IEC 61158 通过 PROFINET IO 的诊断方式,例如:模块和通道相关的状态信息以及控制软件在 线模式和 PLC 用户程序中的故障识别功能。这里我们将使用 RALRM:接收中断指令,该指令将从 PROFINET IO 设备的模块 中接收带有所有相关信息的中断,并在输出参数中输出该信息。

5.3.1 添加诊断中断 OB(OB82)



5.3.2 在 OB82 中添加 RALRM 功能块并自动生成背景数据块



5.3.3 添加一个新的全局 DB 块 RALRM_GBDB,用于存储 RALRM 的接口变量

Devices 0 행 행 값 잘 한 특 분 급 당 원 * 원 * 법 * 법 * 법 * 법 * 법 * 법 * 법 * 법 *	Options RALRM Havorites Basic instructions Jame
Image: Imag	RALEM MI MI So To Texture Sources
Block interface	Favorites Basic instructions
	Basic instructions
	Jame Version
Add new device Add new	×
Block title: Add new block	
[m] PLC_1 [CPU 1516-3 PN/DP] Comment	
✓ [j] PLC_2 [CPU 1516-3 PN/DP]	
Device configuration	
😨 Online & diagnostics 🔤 Comment	
Program blocks	
Add new block	
* Diagnostic error interrupt [OB82] *RALRM_DB*	
Main [OB1] RALRM Organization Number: 2	
EN ENO block	
Technology objects	
Add new object 0 F_ID STATUS 0 Automatic	
Table External source files 0 MLEN ID 0 Description	
Add new external file	
PLC tags AINFO Function block Uata blocks (UBS) save program data.	
Cig PLC data types	
[3] Watch and force tables	
🕨 🙀 Online backups	
Traces Network 2:	
Device proxy data	
Program info Function	
PLC supervisions & alarms	
E PLC alarm text lists	
Incal modules	
→ 😓 Ungrouped devices	
Details view	
Additional information	
Name State Name	4 OK Cancel

5.3.4 在 DB 块 RALRM_GBDB 中添加如下变量

Project tree	Œ		CPX_/		PN_TEST → PLC_2 [C	PU 1516-3 PN/DP]	Program bl		LRM_GBDB [[)B2]		-	. 🗆 🗆 🗙
Devices													
		7	i i) B.	Keep ac	tual values 🔒 S	napshot 🖦 🖷	, Copy snap	shots to start vi	alues 🛛	. <u>B.</u> •		
		_	RA	LRM	GBDB			· · · ·					
CPX AP I PN TEST			1	Nam	e	Data type	Start value	Retain	Accessible f.	. Writa	Visible in	Setpoint	Sup
Add new device			1 🕣	▼ 5	tatic								^
Devices & networks			2 🕣	•	alarmMode	Int	0						
PLC_1 [CPU 1516-3 PN/DP]			3 🕣	•	alarmCheckID	HW_IO	0						
PLC_2 [CPU 1516-3 PN/DP]			4 🕣	•	alarmStatus	DWord	16#0						
Device configuration			5 🕣	•	alarmFromID	HW_IO	0						
🗓 Online & diagnostics		=	6 🕣	•	alarmReceived	Bool	false						
🔻 🔙 Program blocks			7 🕣	•	alarmMaxLength	UInt	0						
💕 Add new block			8 🕣	•	alarmLength	UInt	0			\sim			
📲 Diagnostic error interrupt	OB82]		9 🕣	• •	 TI_Diagnostic_Interrupt 	TI_DiagnosticInterr.				$\mathbf{\sim}$			≡
📲 Main [OB1]			10 🕣		SI_Format	USInt	0		V	\checkmark	\checkmark		
🧧 RALRM_GBDB [DB2] 🥖			11 🕣		OB_Class	USInt	82		V	\checkmark	\checkmark		
System blocks			12 🕣		OB_Nr	UInt	0		V	\checkmark	\checkmark		
🔻 🙀 Technology objects			13 🕣		LADDR	HW_ANY	0		V	\checkmark	\checkmark		
📑 Add new object			14 🕣		IO_State	Word	16#0		V	\checkmark	\checkmark		
 External source files 			15 📶		Channel	UInt	0		V	\checkmark	✓		
📑 Add new external file			16 📶		MultiError	Bool	false		V	V	✓		
PLC tags			17 🕣		address	Word	16#0		V	\checkmark	V		
PLC data types			18 🕣		slv_prfl	Byte	16#0		V	\checkmark	✓		
Watch and force tables			19 🕣		intr_type	Byte	16#0			V			
Online backups			20 🕣		flags 1	Byte	16#0						
Traces			21 🕣		flags 2	Byte	16#0			\checkmark			
Device proxy data			22 🕣		id	UInt	0			\checkmark			
Program info			23 📶		manufacturer	UInt	0						
PLC supervisions & alarms			24 🕣		instance	UInt	0						
PLC alarm text lists			25 🕣		 Additional_Diag 	Struct							
Local modules			26 🕣		 header 	Struct							
Lingrouped devices Logical a view		-	27 🕣		 BlockType 	Word	16#0						
• Details view		_	28 🕣		 BlockLength 	UInt	0						
			29 🕣		 Version 	Word	16#0						
		_ 1	30 🕣		 InterruptType 	UInt	0						
Name Offset	Data type		31 🕣		 API 	DWord	16#0						
alarm Mode	Int 🔳	~	32 🕣		 SlotNumber 	UInt	0						
alarmCheckID	HW IO		33 📶		 SubSlotNumber 	UInt	0						
alarmStatus	DWord		34 🕣		 ModulSpecInfo 	DWord	16#0						
	101/10	-1	35 🕣		 SubmodulSpec 	DWord	16#0						~
		- 1	36 📶		 InterruptSpecifi 	Word	16#0						
		- 1	37 📶		 addinto 	Struct							
		- 1	58 €⊡		 Formatidentifier 	word	16#0						
			59 -		ChannelNumber	word	16#0						
			40 📶		 ChannelErrorTy 	Byte	16#0						
			41 📶		 DataFormat 	Byte	16#0						
			42 📶		 ErrorCode ErrorCode 	Word	16#0						
			43 📶		 ErrorSubcode 	word	16#0						
		- 1	44		<add new=""></add>								

5.3.5 将之前新建的变量链接到 RALRM 功能块管脚上



5.3.6 新建一个监控表,添加需要修改和监控的参数,下载到 PLC 并运行

K Siemens - C:\Users\Festo\Documents\Automatisierung\CP	X_AP_I_	CPX_AF	_I_PN_TEST → PLC_2 [CPU 1516-3 PN/DP] → Wate	h and force t	tables ► Watch t	able_1	_ 12 1
Project Edit View Insert Online Options Tools Wind	ow He	lt.					
📑 📑 🔒 Save project 📕 💥 🏥 🛍 🗙 🏷 🛨 (주 🛨 📲			14 1 4 4 4 4 m oor oor				
Project tree	< CP)			Address	Display format	Manitaryalua	Madificualua
Devices		1	"RALEM GBDB" alarmMode	Te uress	Display format		would value
Devices		2	"RALIRM_GBDB" alarmChackID			000 000	
	ð 🕌	2	"RALIRM CRDR" alarmStatur			00 00	
2 · · · · · · · · · · · · · · · · · · ·			"RALIRM CRDR" alarmErom/D			0000	
CPX AP I PN TEST	~	-	"RALIRM CRDR" alarmPacaived			000 000	
Add new device	_	6	"RAL RM_CRDR" alarmMaxLangth			00 00	
Devices & networks		7	"RAL RM_CRDR" alarmi ength				
■ PLC 2 [CPU 1516-3 PN/DP]		0	KAEKW_GBDB .alatiticength			0	
Contraction		0	"RALENA CEDR" T. Disconactic Interrupt SI. Format			00	
V. Online & diagnostics		10	"RALENA CRDR" TI Disgnostic Interrupt OR Class			0 00	
Program blocks	-	10	"RALIRM CRDR" TI Disgnostic Interrupt OR Nr.			0 00-	
Add new block	-	12	"RALIRM CRDR" TI Disenestic Interrupt ADDR				
Diagnostic error interrupt [OB82]		12	"RALINA CROP" TI Disensatia Interrupt IO State				
Main (OB1)		12	"RALINA CRDR" T. Disenestic Interrupt Chappel				
RALEM GEDB [DB2]		14	"RALRM_GBDB .II_Diagnostic_Interrupt.channel				
System blocks		10	"RAL RM_GBDBII_Diagnostic_Interrupt.wolderor				
Technology objects		10	"RALRM_GBDB .II_Diagnostic_Interrupt.address				
External source files		17	RALKM_GBDB .II_Diagnostic_Interrupt.siv_pri			0 00h	
PIC tags		18	RALKM_GBDB .II_Diagnostic_Interrupt.intr_type			0 00h	
PIC data types		19	RALRM_GBDB .II_Diagnostic_Interrupt.mags I			0 00h	
Watch and force tables		20	RALRM_GBDB .II_Diagnostic_Interrupt.mags2			0 00h	
Add new watch table		21	RALKM_GBDB .II_Diagnostic_Interrupt.id			0 00h	
Fill Force table		22	RALKM_GBDB".II_Diagnostic_Interrupt.manufacturer			0 00h	
Watch table 1		23	"RALRM_GBDB".TI_Diagnostic_Interrupt.instance			0	
Online backups		24				00	
Tracer		25	"RALRM_GBDB".Additional_Diag.header.BlockType			0	
Device providata		26	"RALRM_GBDB".Additional_Diag.header.BlockLength			0	
Rearam info		27	"RALRM_GBDB".Additional_Diag.header.Version			0	
PLC supervisions & alarms		28	"RALRM_GBDB".Additional_Diag.header.interrupt lype				
E PI Calarm taxt lists		29	"RALRM_GBDB".Additional_Diag.header.API				
Local modules		30	"RALRM_GBDB".Additional_Diag.header.SlotNumber			<u>0</u>	
Distributed I/O	~	31	"RALRM_GBDB".Additional_Diag.header.SubSlotNumber			<u></u>	
✓ Details view		32	"RALRM_GBDB".Additional_Diag.header.ModulSpecInfo			0	
		33	"RALRM_GBDB".Additional_Diag.header.SubmodulSpecInf	0		0	
		34	"RALRM_GBDB".Additional_Diag.header.InterruptSpecifier			0	
		35				-	
Name		36	"RALRM_GBDB".Additional_Diag.addInto.FormatIdentifier			0	
Add new device	^	37	"KALKM_GBDB".Additional_Diag.addInto.ChannelNumber				
Devices & networks		38	"RALKM_GBDB".Additional_Diag.addInto.ChannelErrorType			0	
PLC_2		39	"RALKM_GBDB".Additional_Diag.addInfo.DataFormat			0	
🖳 Ungrouped devices		40	"RALKM_GBDB".Additional_Diag.addInfo.ErrorCode			0	
Security settings		41	KALKM_GBDB [*] .Additional_Diag.addInto.ErrorSubcode			Ø	

5.3.7 设置相关参数并测试

	CPX_AP_	I_PN_TEST → PLC_2 [CPU 1516-3 P 構	式设置为 1	tables → Watch	table_1	_ 12 1	×						
CPXAP_PPNetHype CPXAP_PPNetHy						1 17 17	14						
1 1	1	Name	CPX-AP-I-PN硕	更件标识	Monitor V	alue Modity value	7						
2 TANKE, CASP * Ministrator High Right Bit 3 TANKE, CASP * Ministrator High Right High Right 3 TANKE, CASP * Ministrator High Right High Right 3 TANKE, CASP * Ministrator High Right High Right 3 TANKE, CASP * Ministrator High Right High Right 3 TANKE, CASP * Ministrator High Right High Right 3 TANKE, CASP * Ministrator High Right High Right 3	1	RALKM_GBDB .alarmMode		DEC	1	201							
2 Weak date * meansure Httl kk.kt 3 Weak date * meansure Rtt kk.kt 4 Weak date * meansure Rtt kk.kt 5 * Weak date * meansure Rtt kk.kt 5 * Weak date * meansure Rtt kk.kt 6 * Weak date * meansure Rtt kk.kt 7 * Weak date * meansure Rtt kk.kt 10 * Weak date * meansure Rtt kk.kt 11 * Weak date * meansure Rtt kk.kt 12 * Weak date * meansure Rtt kk.kt 13 * Weak date * meansure Rtt kk.kt 14 * Weak date * meansure Rtt kk.kt 15 * Weak date * meansure Rtt kk.kt 16 * Weak date * meansure Rtt kk.kt 17 * Weak date * meansure Rtt kk.kt 18 * Weak date * meansure Rtt kk.kt 19 * Weak date * meansure Rtt kk.kt 10 * Weak date * meansure Rtt kk.kt	2	"RALENA_GBDB alarmCheckip			204	204							
Image: Image: </td <td>2</td> <td>"RALRM_GDDB .alarmStatus</td> <td>报错模块</td> <td>的</td> <td>76#00</td> <td>0000</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	2	"RALRM_GDDB .alarmStatus	报错模块	的	76#00	0000							
2 ***44.84_G80************************************	-	"PALENA GROP" alarmPacaived	一 元 山上 い	kk					Topology	view	📥 Netw	ork view	Device view
Product (2007) Prod	6	"PAI PM GBDB" alarmMaxl enoth	硬件标识	衍					1 33				
Control	7	"PAI PM GBDB" alarmi enoth		DEC	40			Device overview					
9 ************************************	0	KALKW_GDDD .alainitengti		DEC	40		<u> </u>	Y Module	Rack	Slot	I address	Q address	Туре
10 「PALAR_GODE T_Disposit_Interrupt001_Gass DEC 12 11 (PALAR_GODE T_Disposit_Interrupt01_N) DEC 12 0 1 APAHA 12 (PALAR_GODE T_Disposit_Interrupt0.DDR DEC 26 13 (PALAR_GODE T_Disposit_Interrupt0.DDR DEC 26 14 (PALAR_GODE T_Disposit_Interrupt0.DDR DEC 26 0 0 CFXAF440H0DA93*3 0 2 0 0 CFXAF440H0DA93*3 15 (PALAR_GODE T_Disposit_Interrupt0.State Her 166001 0 5 0 3 1.3 VEEM11512A# 16 (PALAR_GODE T_Disposit_Interrupt1Alger) Her 1666001 0 5 0 5 0 5 17 (PALAR_GODE T_Disposit_Interrupt1Alger) Her 166600 0 6 0 6 18 (PALAR_GODE T_Disposit_Interrupt1Alger) Her 166600 0 8 0 8 0 8 19 (PALAR_GODE T_Disposit_Interrupt1Alger) Her 166600 0 8 0 8 0 8 19 (PALAR_GODE T_Disposit_Interrupt1Alger) Her 166600 0 8 0 8 19 (PALAR_G	9	"RALRM GBDB".TI Diagnostic Intern	接受新的报警	警中断	254			▼ AP-I-PN	0	0			CPX-AP-I V1
1 TWL84_GBD2************************************	10	"RALRM GBDB".TI Diagnostic Interrupt.OB Class		DEC	82			PN-IO Interface	0	0 X1			AP-I-PN
1 **R4.84_GBD**.Disposit_interrupt.LADDR DEC 263 1 **R4.84_GBD**.Disposit_interrupt.Chernel DEC 263 C*XAR*4014D0-Xe8*2; 0 2 0 0 C*XAR*4014D0 13 **R4.84_GBD**.Disposit_interrupt.Chernel DEC 2276 D 2 0 0 C*XAR*4014D0 14 **R4.84_GBD**.Disposit_interrupt.Abulifter Bool D FA4.84 0 6 1.3 VERM1541242 15 **R4.84_GBD**.Disposit_interrupt.Mulifter Bool D FA4.84 0 6 0 0 7 0 1 3 7 7	11	"RALRM GBDB".TI Diagnostic Interrupt.OB Nr		DEC	82	.9'		CPX-AP-I-PN-M12_1	0	1			CPX-AP-I-PN-M12
19 **44.84, 608*7, Dagoosti, Interrupt 2, State Hex 1640001 V4EM115-12.4F, 1 0 3 1.3 V4EM115-12.4F 18 **44.84, 608*7, Dagoosti, Interrupt 2, Mittiror Bool DFALSE 0 4 18 **44.84, 608*7, Dagoosti, Interrupt 2, Mittiror Bool DFALSE 0 5 0 19 **44.84, 608*7, Dagoosti, Interrupt 2, Mittiror Bool DFALSE 0 5 0 19 **44.84, 608*7, Dagoosti, Interrupt 2, Mittiror Hex 166001 0 7 0 3 1.3 V4EM115-12.4F 19 **44.84, 608*7, Dagoosti, Interrupt 2, Mittiror Bool DFALSE 0 5 0 7 19 **44.84, 608*7, Dagoosti, Interrupt 1, Mittiror Hex 16600 0 7 0 3 1.3 V4EM115-12.4F 20 **44.84, 608*7, Dagoosti, Interrupt 1, Mittiror Hex 16600 0 7 0 3 1.3 V4EM115-12.4F 21 **44.84, 608*7, Diagoosti, Interrupt 1, Mittiror Hex 16600 0 7 0 3 1.3 V4EM115-12.4F 22 **44.84, 608*7, dialogosti, Interrupt 1, Mittiror Hex 16600 0 7 0 3	12	"RALRM_GBDB".TI_Diagnostic_Interrupt.LADDR		DEC	263	~		CPX-AP-I-4DI4DO-M8-3P_1	0	2	0	0	CPX-AP-I-4DI4DO
14 "FeLJa, GBB", Diagnostic_Interrupt Multitror DEC 32768 15 "FeLJak, GBB", Diagnostic_Interrupt Address Hex 1568001 16 "FeLJak, GBB", Diagnostic_Interrupt Address Hex 1568001 17 "FeLJak, GBB", Diagnostic_Interrupt Address Hex 1568001 18 "FeLJak, GBB", Diagnostic_Interrupt Address Hex 1568001 19 "FeLJak, GBB", Diagnostic_Interrupt Age 31 Hex 156800 10 "FeLJak, GBB", Diagnostic_Interrupt Age 32 Hex 156800 21 "FeLJak, GBB", Diagnostic_Interrupt Age 32 Hex 156800 22 "FeLJak, GBB", Diagnostic_Interrupt Age 32 Hex 156800 23 "FeLJak, GBB", Diagnostic_Interrupt Age 32 Hex 156800 24 "FeLJak, GBB", Diagnostic_Interrupt Age 32 Hex 156800 25 "FeLJak, GBB", Addisona, Diag header, BlockLargth DEC 26 26 "FeLJak, GBB", Addisona, Diag header, BlockLargth Hex 1568000 28 "FeLJak, GBBP", Addisona, Diag header, BlockLargth Hex 1568000 29 "FeLJak, GBBP", Addisona, Diag header, Mok Diagnostic, Herrupt	13	"RALRM GBDB".TI Diagnostic Interrupt.IO State		Hex	16#0001			VAEM-L1-S-12-AP_1	0	з		13	VAEM-L1-S-12-AP
16 "FALSE Bool FALSE 16 "FALSE.GBBS"T.Disgnostic_InterruptAddress Hex 1668001 17 "FALSM_GBBS"T.Disgnostic_InterruptAddress Hex 1668001 18 "FALSM_GBBS"T.Disgnostic_InterruptAddress Hex 1668001 19 "FALSM_GBBS"T.Disgnostic_InterruptAddress Hex 166800 19 "FALSM_GBBS"T.Disgnostic_InterruptAddress Hex 166800 19 "FALSM_GBBS"T.Disgnostic_InterruptAddress Hex 16600 19 "FALSM_GBBS"T.Disgnostic_InterruptAddress Hex 16600 20 "FALSM_GBBS"T.Disgnostic_InterruptAddress Hex 16600 21 "FALSM_GBBS".Disgnostic_InterruptAddress DEC 261 22 "FALSM_GBBS".Additional_Disg.header.Blockrept DEC 261 23 "FALSM_GBBS".Additional_Disg.header.Blockrept DEC 383 24 "FALSM_GBBS".Additional_Disg.header.Blockrept DEC 36 25 "FALSM_GBBS".Additional_Disg.header.Blockrept DEC 1600002 26 "FALSM_GBBS".Additional_Disg.header.Blockrept DEC 12 27 "FALSM_GBBS".Additional_Disg.header.Blockrept DEC 12 28 "FALSM_GBBS".Additional_Disg.header.Blockrept DEC	14	"RALRM GBDB".TI Diagnostic Interrupt.Channel		DEC	32768		-		0	4			
16 *PALRM.GBD*T.Disposite_Interruptable_pdf Hex 168001 17 *PALRM.GBD*T.Disposite_Interruptable_pdf Hex 168001 18 *PALRM.GBD*T.Disposite_Interruptable_pdf Hex 168001 19 *PALRM.GBD*T.Disposite_Interruptable_pdf Hex 168001 19 *PALRM.GBD*T.Disposite_Interruptable_pdf Hex 168001 19 *PALRM.GBD*T.Disposite_Interruptable_pdf Hex 168001 19 *PALRM.GBD*T.Disposite_Interruptable_pdf DEC 201 19 *PALRM.GBD*T.Disposite_Interruptable_pdf DEC 201 19 *PALRM.GBD*T.Disposite_Interruptable_pdf DEC 201 19 *PALRM.GBD*Additional_Dispheader.BlockType Hex 168000 21 *PALRM.GBD*Additional_Dispheader.BlockType Hex 1680000 22 *PALRM.GBD*Additional_Dispheader.SlockType Hex 1680000 1 23 *PALRM.GBD*Additional_Dispheader.SlockType Hex 1680000 1 24 *PALRM.GBD*Additional_Dispheader.SlockType DEC 1 1 24 *PALRM.GBD*Additional_Dispheader.SlockType DEC	15	"RALRM_GBDB".TI_Diagnostic_Interrupt.MultiError		Bool	FALSE				0	5			
12 TPALAM, GBDF. Th. Disgnostic, Interrupting type Hex 16600 13 TPALAM, GBDF. Th. Disgnostic, Interrupting type Hex 16600 14 TPALAM, GBDF. Th. Disgnostic, Interrupting type Hex 16600 15 TPALAM, GBDF. Th. Disgnostic, Interrupting type Hex 16600 16 TPALAM, GBDF. Th. Disgnostic, Interrupting type Hex 16600 17 TPALAM, GBDF. Th. Disgnostic, Interrupting type DC 261 17 TPALAM, GBDF. Th. Disgnostic, Interrupting type DC 261 17 TPALAM, GBDF. Th. Disgnostic, Interrupting type DC 263 17 TPALAM, GBDF. Additional_Disg. Pedef. BlockType Hex 156000 17 TPALAM, GBDF. Additional, Disg. Pedef. BlockType Hex 156000 17 TPALAM, GBDF. Additional, Disg. Pedef. BlockType DC 36 17 TPALAM, GBDF. Additional, Disg. Pedef. BlockType DC 36 17 TPALAM, GBDF. Additional, Disg. Pedef. BlockType DC 12 17 TPALAM, GBDF. Additional, Disg. Pedef. BlockType DC 12 17 TPALAM, GBDF. Additional, Disg. Pedef. BlockType DC 12 17 TPALAM, GBDF. Additional, Disg. Pedef. SlothUmber DC 12 17<	16	"RALRM_GBDB".TI_Diagnostic_Interrupt.address		Hex	16#8001				0	6			
18 *PALAM.GBD*.1_Disgnostic_Interruptint_type Hex 16600 >	17	"RALRM_GBDB".TI_Diagnostic_Interrupt.slv_prfl		Hex	16#08	•			0	7			
19 **ALRN_(GBD8**, Disgnostic_InterruptRegs1 Hex 16600 > ······· > ······ > ···· > ···· >	18	"RALRM_GBDB".TI_Diagnostic_Interrupt.intr_type		Hex	16#00		~		0	8			
20 **RALRN_G8D8**.Diagnostic_Interrupt:flags2 Hex 16600 APLPN:M12.1 (DX:APL+PX:M12) ④ Properties 1 Info ① Diagnostic. 21 *RALRN_G8D8**.Diagnostic_Interrupt:d DEC 261 Pread Tex 23 *RALRN_G8D8**.Diagnostic_Interrupt:natance DEC 0 Variable contains Tex 23 *RALRN_G8D8**.Diagnostic_Interrupt:natance DEC 0 Variable contains Tex 24 *RALRN_G8D8**.dditional_Diagheader.Block.Type Hex 1660002 APLPN-CPX:APL+PX-M12.1 Hw.SubModule 25 *RALRN_G8D8**.dditional_Diagheader.Block.Type Hex 1660002 APLPN-CPX:APL+PX-M12.1 Hw.SubModule 26 *RALRN_G8D8**.dditional_Diagheader.Block.Type Hex 1660000 Info 27 *RALRN_G8D8**.dditional_Diagheader.Block.Type DEC 12 Info 28 *RALRN_G8D8**.dditional_Diagheader.Slott/number DEC 12 Info 29 *RALRN_G8D8**.dditional_Diagheader.Slott/number DEC 1 Info 29 *RALRN_G8D8**.dditional_Diagheader.Slott/number DEC 1 Info 29 *RALRN_G8D8**.dditional_Diagheader.Slott/number DEC 1 Info 29 *RALRN_G8D8**.dditional_Diagheader.Slott/number	19	"RALRM_GBDB".TI_Diagnostic_Interrupt.flags1		Hex	16#00			<					
21 **ALRMLGBD8*.1D/Bignostic_Interrupting manufacturer DEC 261 neral 10 tags System constants Text 22 **ALRMLGBD8*.1D/Bignostic_Interrupting manufacturer DEC 33 neral 10 tags System constants Text 24 **ALRMLGBD8*.1D/Bignostic_Interrupting manufacturer DEC 33 **ALRMLGBD8*.1D/Bignostic_Interrupting manufacturer DEC 33 25 **ALRM_GBD8*.4ditional_D/Big header.BlockLength DEC 36 1 1 26 **ALRM_GBD8*.4ditional_D/Big header.NerrupType DEC 12 1 1 27 **ALRM_GBD8*.4ditional_D/Big header.NerrupType DEC 12 1 28 **ALRM_GBD8*.4ditional_D/Big header.NerrupType DEC 12 29 **ALRM_GBD8*.4ditional_D/Big header.NerrupType DEC 12 20 **RALRM_GBD8*.4ditional_D/Big header.NotUSpectific Hex 1660000_200+ 1 21 *RALRM_GBD8*.4ditional_D/Big header.MotUSpectific Hex 1660000_200+ 1 23 *RALRM_GBD8*.4ditional_D/Big header.MotUSpectific Hex 1668000_2 1 24 *RALRM_GBD8*.4ditional_D/Big addinfo.ChannelYumber E 1 1 25 *RALRM_GBD8*.4ditional_D/Big addinfo.ChannelYumber	20	"RALRM_GBDB".TI_Diagnostic_Interrupt.flags2		Hex	16#00	AP-I-PN-M12_1 [CPX-A		12]	🖳 Prope	rties	🔄 Info	🛛 🖁 Diag	nostics 🛛 🗖 🗕
22 **RALRM_GBDB* Additional_Diag.header.SlockType DEC 333 method 10 dag/s optimized system constant 23 **RALRM_GBDB* Additional_Diag.header.SlockType DEC 0 whatware system constant 24 **RALRM_GBDB* Additional_Diag.header.SlockType Hex 1680002 IAPHTN-CPK.APHPN-MT2_1 Hw.SubModule 264 PLC_2 26 **RALRM_GBDB* Additional_Diag.header.SlockType DEC 36 IAPHTN-CPK.APHPN-MT2_1 Hw.SubModule 264 PLC_2 27 *RALRM_GBDB* Additional_Diag.header.NerruptType DEC 16 IAPHTN-CPK.APHPN-MT2_1 Hw.SubModule 264 PLC_2 28 *RALRM_GBDB* Additional_Diag.header.SlockLungth DEC 16 IAPHTN-CPK.APHPN-MT2_1 Hw.SubModule 264 PLC_2 29 *RALRM_GBDB* Additional_Diag.header.SlockLungth DEC 1 IAPHTN-CPK.APHPN-MT2_1 Hw.SubModule 264 PLC_2 29 *RALRM_GBDB* Additional_Diag.header.SlockLungth DEC 1 IAPHTN-CPK.APHPN-MT2_1 Hw.SubModule 264 PLC_2 20 *RALRM_GBDB* Additional_Diag.header.SlockLungth DEC 1 1 #L 1 29 *RALRM_GBDB* Additional_Diag.header.SlockLungth DEC 1 1 #L	21	"RALRM_GBDB".TI_Diagnostic_Interrupt.id		DEC	261	neral IO tags	System	onstants Tex	_	_			
23 "RALRM_GBD8".nt_Diagnostic_Interruptinistance DEC 0 Name Type Hardware identi. Used by Comment 24 Name Name Type Hardware identi. Used by Comment 25 "RALRM_GBD8".Additional_Diagheader.BlockKrype Hex 16#0002 APHPN-CPXAP+PN-M12_1 Hw.SubModule 264 PLC_2 26 "RALRM_GBD8".Additional_Diagheader.Interruptipe DEC 36 1 1 27 "RALRM_GBD8".Additional_Diagheader.Interruptipe DEC 12 1 28 "RALRM_GBD8".Additional_Diagheader.Interruptipe DEC 12 1 29 "RALRM_GBD8".Additional_Diagheader.Interruptipe DEC 1 30 "RALRM_GBD8".Additional_Diagheader.SlotNumber DEC 1 31 "RALRM_GBD8".Additional_Diagheader.SlotNumber DEC 1 32 "RALRM_GBD8".Additional_Diagheader.SlotNumber DEC 1 33 "RALRM_GBD8".Additional_Diagheader.SlotNumber DEC 1 34 "RALRM_GBD8".Additional_Diagheader.SlotNumber DEC 1 35 "RALRM_GBD8".Additional_Diagheader.SlotNumber 1 36 "RALRM_GBD8".Additional_Diagheader.SlotNumber 1 36 "RALRM_GBD8".Additional_Diagheader.InterruptSpec	22	"RALRM_GBDB".TI_Diagnostic_Interrupt.manufactu	rer	DEC	333	inclui io tugo	Julia						
24 **RALRM_GBDB* Additional_Diag.header.BlockType Hex 16#0002 Name Type Hardtware ident. Used by Comment 25 **RALRM_GBDB* Additional_Diag.header.BlockType Hex 16#0002 Ad-HPN-CPXAPI-PN-HH12_1 Hw. SubModule 264 PLC_2 26 **RALRM_GBDB* Additional_Diag.header.InterruptType DEC 36 27 **RALRM_GBDB* Additional_Diag.header.API Hex 16#0000_00- 28 **RALRM_GBDB* Additional_Diag.header.SubSlotNumber DEC 1 30 **RALRM_GBDB* Additional_Diag.header.SubSlotNumber DEC 1 31 **RALRM_GBDB* Additional_Diag.header.SubSlotNumber DEC 1 32 **RALRM_GBDB* Additional_Diag.header.SubSlotNumber DEC 1 33 **RALRM_GBDB* Additional_Diag.header.SubSlotNumber DEC 1 34 *RALRM_GBDB* Additional_Diag.header.SubSlotNumber DEC 1 35 **RALRM_GBDB* Additional_Diag.addInfo.ChannelNumber 16#8000 1 36 *RALRM_GBDB* Additional_Diag.addInfo.ChannelNumber 16#8000 1 37 **RALRM_GBDB* Additional_Diag.addInfo.ChannelNumber 16#8000 1 38 *RALRM_GBDB* Additional_Diag.addInfo.ChannelNumber 16#8000 1 39 *RAL	23	"RALRM_GBDB".TI_Diagnostic_Interrupt.instance		DEC	0	w hardware system consta	ing 🕶					-	
25 **RALRM_GBDB* Additional_Diag.header.BlockLength Hex 1660002 #AHPH-CPKAP4PH-MM121 Hw_SubModule 264 PLC2 26 **RALRM_GBDB* Additional_Diag.header.BlockLength DEC 36 26 27 **RALRM_GBDB* Additional_Diag.header.Version Hex 16610100 28 28 **RALRM_GBDB* Additional_Diag.header.NervipType DEC 12 29 **RALRM_GBDB* Additional_Diag.header.NervipType DEC 12 30 **RALRM_GBDB* Additional_Diag.header.SubSioNumber DEC 1 31 **RALRM_GBDB* Additional_Diag.header.SubSioNumber DEC 1 32 **RALRM_GBDB* Additional_Diag.header.SubSioNumber DEC 1 33 **RALRM_GBDB* Additional_Diag.header.SubmodulSpecinfo Hex 1660000_2004 1 34 **RALRM_GBDB* Additional_Diag.header.SubmodulSpecinfo Hex 16680000_01 1 35 **RALRM_GBDB* Additional_Diag.addinfo.ChannelNumber 16680000_01 1 35 **RALRM_GBDB* Additional_Diag.addinfo.ChannelNumber 1668000 1 36 **RALRM_GBDB* Additional_Diag.addinfo.ChannelNumber 1668000 1 37 **RALRM_GBDB* Additional_Diag.addinfo.ChannelNumber 1668000 1 38 *RALRM_GBDB* Additional_Diag.	24					Name		Туре	Hardware ide	enti. Use	d by	Commer	,t
26 *RALRM_GBDB*Additional_Diag_header.klocklength DEC 36 27 *RALRM_GBDB*Additional_Diag_header.kersion Hex 1680100 28 *RALRM_GBDB*Additional_Diag_header.hersion Hex 1680100 29 *RALRM_GBDB*Additional_Diag_header.NPIP DEC 1 29 *RALRM_GBDB*Additional_Diag_header.NPIP DEC 2 30 *RALRM_GBDB*Additional_Diag_header.SubStNumber DEC 2 31 *RALRM_GBDB*Additional_Diag_header.ModulSpecInfo Hex 16#0000_0001 32 *RALRM_GBDB*Additional_Diag_header.ModulSpecInfo Hex 16#0000_0001 34 *RALRM_GBDB*Additional_Diag_header.InterruptSpecifier Hex 16#0000_0001 35 *RALRM_GBDB*Additional_Diag_addInfo.FormatIdentifier 16#8002 36 *RALRM_GBDB*Additional_Diag_addInfo.ChannelKurnet 16#8002 37 *RALRM_GBDB*Additional_Diag_addInfo.ChannelKurnet 16#8002 38 *RALRM_GBDB*Additional_Diag_addInfo.ChannelKurnet 16#8002 39 *RALRM_GBDB*Additional_Diag_addInfo.ChannelKurnet 16#8002 39 *RALRM_GBDB*Additional_Diag_addInfo.ChannelKurnet 16#8002 39 *RALRM_GBDB*Additional_Diag_addInfo.ChannelKurnet 16#8002 39 *RALRM_GBDB*Additional_Diag_addInfo.ChannelKurnet <td< td=""><td>25</td><td>"RALRM_GBDB".Additional_Diag.header.BlockType</td><td></td><td>Hex</td><td>16#0002</td><td>AP-I-PN~CPX-AP-I-PN-M12</td><td>-1</td><td>Hw_SubModule</td><td>264</td><td>PLC</td><td>_2</td><td></td><td></td></td<>	25	"RALRM_GBDB".Additional_Diag.header.BlockType		Hex	16#0002	AP-I-PN~CPX-AP-I-PN-M12	-1	Hw_SubModule	264	PLC	_2		
27 *RALRM_GBDB* Additional_Diag_header/version Hex 1660100 28 *RALRM_GBDB* Additional_Diag_header/structurytype DEC 12 29 *RALRM_GBDB* Additional_Diag_header/API Hex 166000_00 30 *RALRM_GBDB* Additional_Diag_header/Stub/umber DEC 2 31 *RALRM_GBDB* Additional_Diag_header/SubJotNumber DEC 1 32 *RALRM_GBDB* Additional_Diag_header/SubJotNumber DEC 1 33 *RALRM_GBDB* Additional_Diag_header/SubJotNumber DEC 1 34 *RALRM_GBDB* Additional_Diag_header/SubJotNumber Hex 166000_0001 35 *RALRM_GBDB* Additional_Diag_header/InterruptSpecifier Hex 166000_0001 36 *RALRM_GBDB* Additional_Diag_header/InterruptSpecifier Hex 166000_0001 37 *RALRM_GBDB* Additional_Diag_addInfo ChannelNumber 168000_01 38 *RALRM_GBDB* Additional_Diag_addInfo ChannelNumber 16610 39 *RALRM_GBDB* Additional_Diag_addInfo ChannelNumber 16610 39 *RALRM_GBDB* Additional_Diag_addInfo ChannelNumber 16620 40 *RALRM_GBDB* Additional_Diag_addInfo ChannelNumber 16620 41 *RALRM_GBDB* Additional_Diag_addInfo ChannelNumber 16800 42 <td>26</td> <td>"RALRM_GBDB".Additional_Diag.header.BlockLeng</td> <td>th</td> <td>DEC</td> <td>36</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	26	"RALRM_GBDB".Additional_Diag.header.BlockLeng	th	DEC	36								
28 *RALRM_GBDB*Additional_Diag_header.Networkpype DEC 12 29 *RALRM_GBDB*Additional_Diag_header.SlotNumber DEC 2 31 *RALRM_GBDB*Additional_Diag_header.SlotNumber DEC 1 32 *RALRM_GBDB*Additional_Diag_header.SlotNumber DEC 1 33 *RALRM_GBDB*Additional_Diag_header.SlotNumber DEC 1 34 *RALRM_GBDB*Additional_Diag_header.SlotNumber Hex 1660000_2004 33 *RALRM_GBDB*Additional_Diag_header.SlotNumber Hex 1660000_2001 34 *RALRM_GBDB*Additional_Diag_header.SlotNumber Hex 1660000_2004 35 *RALRM_GBDB*Additional_Diag_addInfo.FormatIdentifier 168000 36 *RALRM_GBDB*Additional_Diag_addInfo.ChannelFtrorTyp KHX HK 4H CHW 37 *RALRM_GBDB*Additional_Diag_addInfo.DhannelFtrorTyp KHX HK 4H CHW 38 *RALRM_GBDB*Additional_Diag_addInfo.DhannelFtrorTyp Hex 168100 39 *RALRM_GBDB*Additional_Diag_addInfo.DhannelFtrorTyp Hex 166001 31 *RALRM_GBDB*Additional_Diag_addInfo.DhannelFtrorTyp Hex 166001 31 *RALRM_GBDB*Additional_Diag_addInfo.DhannelFtrorTyp Hex 166001 34 *RALRM_GBDB*Additional_Diag_addInfo.DhannelFtrorTyp Hex 166001 <t< td=""><td>27</td><td>"RALRM_GBDB".Additional_Diag.header.Version</td><td></td><td>Hex</td><td>16#0100</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	27	"RALRM_GBDB".Additional_Diag.header.Version		Hex	16#0100								
29 *RALRM_GBDB*Additional_Diag.header.API Hex 16#0000_00. 30 *RALRM_GBDB*Additional_Diag.header.SlubSloNumber DEC 2 31 *RALRM_GBDB*Additional_Diag.header.SlubSloNumber DEC 1 32 *RALRM_GBDB*Additional_Diag.header.SlubSloNumber DEC 1 32 *RALRM_GBDB*Additional_Diag.header.SlubSloNumber DEC 1 33 *RALRM_GBDB*Additional_Diag.header.SlubSloNumber DEC 1 34 *RALRM_GBDB*Additional_Diag.header.SlubSloNumber Hex 16#0000_0001 35 *RALRM_GBDB*Additional_Diag.header.InterruptSpecifier Hex 16#0002 36 *RALRM_GBDB*Additional_Diag.addInfo.Formatidentifier 16#8002 1 37 *RALRM_GBDB*Additional_Diag.addInfo.ChannelKrumber ガチル 指 代 砌 1 38 *RALRM_GBDB*Additional_Diag.addInfo.ChannelKrumber ガチル 指 代 砌 1 39 *RALRM_GBDB*Additional_Diag.addInfo.ChannelKrumber ガチル 指 代 砌 1 39 *RALRM_GBDB*Additional_Diag.addInfo.EtrorCode Hex 16#00 40 *RALRM_GBDB*Additional_Diag.addInfo.EtrorCode Hex 16#010 41 *RALRM_GBDB*Additional_Diag.addInfo.EtrorCode Hex 16#010 42 *AddItional_Diag.addInfo.EtrorCode Hex 16#010	28	"RALRM_GBDB".Additional_Diag.header.InterruptTy	/pe	DEC	12								
30 *RALRM_GBDB*Additional_Diag.header.SubSlotNumber DEC 2 31 *RALRM_GBDB*Additional_Diag.header.SubSlotNumber DEC 1 32 *RALRM_GBDB*Additional_Diag.header.SubSlotNumber DEC 1 33 *RALRM_GBDB*Additional_Diag.header.ModulSpecinfo Hex 16#0000_0001 12表示诊断中断离去(已恢复) 34 *RALRM_GBDB*Additional_Diag.header.InterruptSpecifier Hex 16#0003 12表示诊断中断离去(已恢复) 36 *RALRM_GBDB*Additional_Diag.addInfo.FormatIdentifier 16#8002 1 37 *RALRM_GBDB*Additional_Diag.addInfo.ChannelKronFyp #K 16#8002 39 *RALRM_GBDB*Additional_Diag.addInfo.ChannelKronFyp #K 16#8000 39 *RALRM_GBDB*Additional_Diag.addInfo.ChannelKronFyp Hex 16#00 39 *RALRM_GBDB*Additional_Diag.addInfo.ErrorSubcode Hex 16#00 41 *RALRM_GBDB*Additional_Diag.addInfo.ErrorSubcode Hex 16#00 42	29	"RALRM_GBDB".Additional_Diag.header.API		Hex	16#0000	000							
31 **ALLM_GBD8* Additional_Diag.header.SubSlotNumber DEC 1 32 **ALLM_GBD8* Additional_Diag.header.SubSlotNumber DEC 1 33 **RALM_GBD8* Additional_Diag.header.SubmodulSpecinfo Hex 16#0000_2004 34 **ALLM_GBD8* Additional_Diag.header.SubmodulSpecinfo Hex 16#0003 35 **RALM_GBD8* Additional_Diag.addinfo.Formatidentifier 16#8002 36 *RALM_GBD8* Additional_Diag.addinfo.Formatidentifier 16#8002 37 **RALM_GBD8* Additional_Diag.addinfo.ChannelNumber ### 38 *RALM_GBD8* Additional_Diag.addinfo.Data Format ### 40 **RALM_GBD8* Additional_Diag.addinfo.Data Format Hex 41 *RALM_GBD8* Additional_Diag.addinfo.ErrorSubcode Hex 42	30	"RALRM_GBDB".Additional_Diag.header.SlotNumbe	er	DEC	2								
32 *RALRM_GBDB*Additional_Diag.header.ModulSpecinfo Hex 16#0000_2004 1支尔诊断中断图位 (已发生) 33 *RALRM_GBDB*Additional_Diag.header.SubmodulSpecinfo Hex 16#0000_2004 12表示诊断中断离去 (已恢复) 34 *RALRM_GBDB*Additional_Diag.addInfo.FormatIdentifier Hex 16#0000_2004 12表示诊断中断离去 (已恢复) 35 *RALRM_GBDB*Additional_Diag.addInfo.ChannelKumber 16#8000 16#8000 16#8000 38 *RALRM_GBDB*Additional_Diag.addInfo.ChannelKumber 16#8000 16#10 39 *RALRM_GBDB*Additional_Diag.addInfo.ErrorSubcode Hex 16#8000 40 *RALRM_GBDB*Additional_Diag.addInfo.ErrorSubcode Hex 16#8000 41 *RALRM_GBDB*Additional_Diag.addInfo.ErrorSubcode Hex 16#010 42 6#0108	31	"RALRM_GBDB".Additional_Diag.header.SubSlotNu	mber	DEC	1								
33 *RALRM_GBDB*Additional_Diag.header.SubmodulSpecinfo Hex 16#0000_0001 12表示诊断中断离去(已恢复) 34 *RALRM_GBDB*Additional_Diag.addinfo.Formatidentifier Hex 16#0002 35 *RALRM_GBDB*Additional_Diag.addinfo.ChannelKurnet 16#8002 36 *RALRM_GBDB*Additional_Diag.addinfo.ChannelKurnet 16#8002 37 *RALRM_GBDB*Additional_Diag.addinfo.ChannelKurnet 16#8002 38 *RALRM_GBDB*Additional_Diag.addinfo.ChannelKurnet 16#8000 39 *RALRM_GBDB*Additional_Diag.addinfo.ChannelKurnet 16#8000 40 *RALRM_GBDB*Additional_Diag.addinfo.ErrorGode Hex 41 *RALRM_GBDB*Additional_Diag.addinfo.ErrorGode Hex 42 Kational 43 *RALRM_GBDB*Additional_Diag.addinfo.ErrorGode Hex 44 *RALRM_GBDB*Additional_Diag.addinfo.ErrorGode Hex	32	"RALRM_GBDB".Additional_Diag.header.ModulSpec	cInfo	Hex	16#0000	_2004	1衣小	诊断中断到达 (口友主)					
34 *RALRM_GBDB*Additional_Diag.header.InterruptSpecifier Hex 16#8002 36 *RALRM_GBDB*Additional_Diag.addinfo.Formatidentifier 16#8002 37 *RALRM_GBDB*Additional_Diag.addinfo.ChannelNumber 16#8000 38 *RALRM_GBDB*Additional_Diag.addinfo.ChannelNumber 16#8000 39 *RALRM_GBDB*Additional_Diag.addinfo.DataFormat Hex 16#00 39 *RALRM_GBDB*Additional_Diag.addinfo.ErrorCode Hex 16#00 40 *RALRM_GBDB*Additional_Diag.addinfo.ErrorCode Hex 16#00 41 *RALRM_GBDB*Additional_Diag.addinfo.ErrorSubcode Hex 16#010 42	33	"RALRM_GBDB".Additional_Diag.header.Submodul	SpecInfo	Hex	16#0000	_0001	12表元	诊断中断离去 (已恢复)					
35 「RALRM_GBDB" Additional_Diag.addInfo.Formatidentifier 36 「RALRM_GBDB" Additional_Diag.addInfo.ChannelNumber 37 「RALRM_GBDB" Additional_Diag.addInfo.ChannelErrorTyp 39 「RALRM_GBDB" Additional_Diag.addInfo.ErrorSubcode 40 「RALRM_GBDB" Additional_Diag.addInfo.ErrorSubcode 41 「RALRM_GBDB" Additional_Diag.addInfo.ErrorSubcode 42 <add new=""></add>	34	"RALRM_GBDB".Additional_Diag.header.InterruptS	pecifier	Hex	16#0003								
36 「RALRM_GBDB" Additional_Diag.addinfo.ChannelErrorTyp 37 「RALRM_GBDB" Additional_Diag.addinfo.ChannelErrorTyp 39 「RALRM_GBDB" Additional_Diag.addinfo.ErrorCode 40 「RALRM_GBDB" Additional_Diag.addinfo.ErrorCode 41 「RALRM_GBDB" Additional_Diag.addinfo.ErrorCode 42 〈Add new> 	35									, i i i i i i i i i i i i i i i i i i i			
a/ WLHAN_GBDB Additional_Diag.addinfo.thannelivUmber 38 "RALRM_GBDB"Additional_Diag.addinfo.thanelivUmber 39 "RALRM_GBDB"Additional_Diag.addinfo.thanelivUmber 40 "RALRM_GBDB"Additional_Diag.addinfo.trorSubcode 41 "RALRM_GBDB"Additional_Diag.addinfo.trorSubcode 42	36	KALKM_GBDB".Additional_Diag.addinfo.Formatide	Intifier		16#8002								
38 "RALRM_GBDB".Additional_Diag.addinto.DataFormat 16810 39 "RALRM_GBDB".Additional_Diag.addinto.DataFormat 16800 40 "RALRM_GBDB".Additional_Diag.addinto.ErrorSubcode Hex 1660701 41 "RALRM_GBDB".Additional_Diag.addinto.ErrorSubcode Hex 1680108 42 «Add new» 1680108	37	"RALRM_GBDB".Additional_Diag.addInfo.ChannelN	umber 植块 i	报错代码	16#8000								
39 No.LMA_Gebb/ Additional_Diag.additio.terrorSubcode Hex 16800 40 *RALRM_GBD8* Additional_Diag.additio.ErrorSubcode Hex 1680701 41 *RALRM_GBD8* Additional_Diag.additio.ErrorSubcode Hex 1680701 42 42	38	"KALKM_GBDB".Additional_Diag.addInfo.ChannelEi	rror lyp		16#10								
40 RALSM_CBDB Additional_Diag.additio.ErrorSubcode Hex 168/010 41 "RALSM_CBDB".Additional_Diag.additio.ErrorSubcode Hex 168/0108 42 42	39	RALKM_GBDBLAdditional_Diag.addinto.DataForm	at		16#00								
42 Add new> K III	40	RALKIN_GBDB" Additional_Diag.addinto.ErrorCode		Hex	16#0/01								
<pre></pre>	41	MERM_GBDB .Additional_Diag.addinfo.ErrorSubc	oue -	Hex	16#010B								
	42		<aud news<="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></aud>										
	<		Ш				>						

如下图所示,将 MODE 设置为 1; F ID 设置为 264.

此时,将 CPX-AP-I-4DI4DO-M8-3P 模块的传感器电源短路。获得以下信息,如上图所示: "RALRM_GBDB".alarmReceived=true 已接受到新中断信息。

"RALRM_GBDB".alarmFromID=263 故障中断信息来自硬件标识符为 263 的模块:

	Project tree		CPX	_AP	_I_PN_TEST ▶ PLC_2 [CPU 151	6-3 PN/DP] 🕨 I	PLC tags 🕨 De	fault tag ta	able [59]	_∎∎>
	Devices						-	🗃 Tags	User constants	System constants
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1								-
2	,		1)efa	ult tag table					
Ē	▼ CPX_AP_I_PN_TEST	^			Name	Data type	Value		Comment	
E	🗳 Add new device		43	æ	Local~PROFINET_interface_1	Hw_Interface	64			•
5	Devices & networks		44	æ	Local~PROFINET_interface_1~Port_1	Hw_Interface	65			
L A	PLC_2 [CPU 1516-3 PN/DP]		45	Æ	Local~PROFINET_interface_1~Port_2	Hw_Interface	66			
Ĩ	Device configuration		46	Æ	Local~PROFINET_interface_2	Hw_Interface	72			
	🖳 Online & diagnostics		47	7	Local~PROFINET_interface_2~Port_1	Hw_Interface	73			
	🕨 🚘 Program blocks	≡	48	7	OB_Main	OB_PCYCLE	1			
	Technology objects		49	7	OB_Diagnostic error interrupt	OB_DIAG	82			
	External source files		50	2	Local~PROFINET_IO-System	Hw_loSystem	257			
	💌 🚂 PLC tags		51	F	AP-I-PN~Proxy	Hw_SubModule	258			
	👆 Show all tags		52	F	AP-I-PN~IODevice	Hw_Device	266			
	💣 Add new tag table		53	Æ	AP-I-PN~PN-IO_Interface	Hw_Interface	259			
	💥 Default tag table [59]		54	æ	AP-I-PN~PN-IO_Interface~Port_1	Hw_Interface	260			
	PLC data types		55	Į.	AP-I-PN~PN-IO_Interface~Port_2	Hw_Interface	261			
	💣 Add new data type		56	Į.	AP-I-PN~Head	Hw_SubModule	262			
	System data types		57	F	AP-I-PN~CPX-AP-I-4DI4DO-M8-3P_1	Hw_SubModule	263			
	 Watch and force tables 		58	Į.	AP-I-PN~VAEM-L1-S-12-AP_1	Hw_SubModule	265			
	Add new watch table		59		AP-I-PN~CPX-AP-I-PN-M12_1	Hw_SubModule	264			

"RALRM_GBDB".Additional_Diag.addInfo.ErrorSubcode=16#010B 故障代码为 16#010B. 通过查询 CPX-AP-I-4DI4DO-M8-3P 操作手册,可以得知该故障为传感器电源短路:

ID hex (dec)	Message	Description
01 01 <mark>010B</mark>	Short circuit/overload	A short-circuit/overload of the sensor supply was detec-
(16843019)	in sensor supply	ted.

● 为什么 AP 主站和从站不同时上电时,会出现通讯故障?

答: AP 主站模块识别到的 AP 从站配置与之前在 PLC 里组态的不一致。

原因: 当 AP 主站模块的 PS 电源和其他 AP 从站模块的 PS 电源不是同一个电源供电时,一定要注意上电时的顺序,由于 AP 主站模块在上电的瞬间就会对它下面连接的 AP 从站模块进行识别和地址分配,一旦识别分配完成后,就不会再次识别(除非再次重启电源或重连 PN 网络)。所以为了让所有 AP 从站模块能够被识别到,需要在 AP 主站模块的电源上电之前,其他 AP 从站模块已经上电完成。

● 为什么负载电源 PL 切断后,在 PLC 里没有任何提示?

答:这是由于负载电源诊断信息默认是不上传到 PLC 的(出厂设置),参照本文 <u>4.4 章节</u>,将相应模块的该选项设置为 load voltage monitoring active 即可。

● AP系统长距离供电需要注意什么?

答:由于 AP 模块之间可以长距离通讯和供电,所以要考虑到模块与模块之间的电缆会引起电压降,在项目中必须考虑 到这一点。

附:压降估算表(数据有效前提是使用 FESTO 官方标准电源电缆):

	Cable le	Cable length [m]1)												
	0.3	0.5	1.0	2.0	5.0	7.5	10.0	15.0						
Voltage drop at 1 A[V]	0.0	0.1	0.1	0.2	0.4	0.5	0.7	1.1						
Voltage drop at 2 A [V]	0.1	0.1	0.2	0.3	0.7	1.1	1.4	2.1						
Voltage drop at 3 A [V]	0.1	0.2	0.3	0.5	1.1	1.6	2.2	3.2						
Voltage drop at 4 A [V]	0.2	0.2	0.4	0.6	1.5	2.2	2.9	4.3						

1) The specified values are valid for permissible cables with a core cross-section of 0.5 mm² from the Festo catalogue.

压降和电流及线缆长度有关,如果需要精确计算,建议参照 CPX-AP-I 的系统手册第 8.1.2.1 章节,精确计算电流和长度,获取精确压降。

● AP 从站与 AP 主站通讯断开以后,再次连上通讯无法自动恢复,只能重启 CPX-AP-I-PN 模块才能恢复?

答: AP 从站与 AP 主站通讯断开以后,如果要恢复通讯,有两个办法:

1. 重启 CPX-AP-I-PN 模块电源

2. 如下图所示,使用 D_ACT_DP 功能块先禁用 CPX-AP-I-PN 节点的 Profinet 连接,然后再重新启用 CPX-AP-I-PN 节点 Profinet 连接。此时 AP 主站会重新扫描所有 AP 从站,建立 AP 通讯。

