NT 151-RE-RE 网关操作指南 (Profinet 从站转 EtherCAT 主站)



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# 1. 产品介绍

本文介绍基于德国赫优讯网关 NT 151-RE-RE/+ML 实现 Profinet 从站到 EtherCAT 主站的协议转换。 NT 151-RE-RE/+ML 是 netTAP 网关系列的成员之 一,能够简便有效实现两种工业实时以太网通讯协议的透明转换,协议转换的功 能可以通过下载相应的固件来实现。NT 151-RE-RE/+ML 网关采用 DIN 导轨安 装的外形,如下图 1.1 所示:



图 1.1 NT 151-RE-RE/+ML 外形图

NT 151-RE-RE/+ML 通过下载不同协议固件,实现不同协议转换,参考如下框图:

	协议矩阵			网络A						
	NT 151-RE-RE		EtherCAT	EtherNet/IP	POWERLINK	PROFINET	Sercos			
			从站	从站	从站	从站	从站			
	54 OFT	从站	/ECS/ECS	/EIS/ECS	/PLS/ECS	/ECS/PNS	/S3S/ECS			
	EtherCAI	主站	/ECS/ECM	/EIS/ECM	/PLS/ECM	/PNS/ECM	/S3S/ECM			
		从站	/EIS/ECS	/EIS/EIS	/PLS/EIS	/EIS/PNS	/EIS/S3S			
	Ethernet/IP	主站	/ECS/EIM	/EIS/EIM	/PLS/EIM	/PNS/EIM	/S3S/EIM			
	DOWEDLINK	从站	/PLS/ECS	/HLS/EIS	IPLSIPLS	/PLS/PNS	/PLSIS3S			
器	POWERLINK	主站		-	-		-			
R	POORNET	从站	/ECS/PNS	/EIS/PNS	/PLS/PNS	/PNS/PNS	/\$3\$/PNS			
	PROFINET	主站	/ECS/PNM	/EIS/PNM	/PLS/PNM	/PNS/PNM	/S3S/PNM			
	S	从站	/933/EC9	/EIS/539	/PLS/S3S	/S3S/PNS	/\$35/535			
	Sercos	主站	/ECS/S3M	/EIS/S3M	/PLS/S3M	/PNS/S3M	/\$3\$/\$3M			







## 2. 实验准备

1.	实验器材准备:
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	设备	数量	说明	制造商	
1	NT 151-RE-RE/+ML	1台	协议转换网关	Hilscher	
2	西门子 S7-1200、S7-1500	14	Drofingt + ++	Siamons	
2	+ 博途软件	1 🗆	FIOIIIlet 土如	Siemens	
3	伺服	1台	EtherCAT 从站	外购	
4	电源设备	1个	24V 直流	外购	
5	网线	3 根	带两个 RJ45 水晶头	外购	
6	SYCON.net	1套	网络配置工具(光盘中)	Hilscher	
7	РС	1台	Windows XP/7/8/10	外购	

2. 所需软件光盘:

可直接登录官网 www.hilscher.com/downloads 下

载"Gateway Solution" 光盘。

### 3. 硬件连接

首先需要给 NT 151-RE-RE/+ML 网关供 24V 电源。参考下图:

Supply voltage	Pin	Signal	Description
12345	1	-	Reserved for future use
	2	=	Reserved for future use
	3	-	Reserved for future use
	4	0 V / GND	Ground of supply voltage
00000	5	24 V	+24 V supply voltage
Mini Combicon			

图 3.1 NT 151-RE-RE/+ML 电源接线图

其次需要按照上述图 1.2 的接线示意图完成接线,其中 X2 接口的 CH0 作为 Profinet 从站连接到西门子 PLC,X3 接口的 IN 作为 EtherCAT 主站连接到伺服, 电脑通过 USB 线直接连接到 NT 151-RE-RE/+ML 进行相关参数的设定。

### 4. 软件安装

SYCON.net:用于网关的参数配置与诊断,在产品光盘中,双击
✓ Gateway\_Solutions.exe 文件,打开安装界面,单击
Install Configuration and Diagnostic Software ,可按照提示安装 SYCON.net 配置软件。

Ethernet Device Setup: 设置网关 IP 地址及站名。一般 SYCON.net 配置软件安装完毕之后, Ethernet Device Setup 软件也安装好。

USB 驱动:用于连接 NT 151-RE-RE/+ML 产品,一般 SYCON.net 配置软件 安装完毕之后,USB 驱动软件也安装好。如果在设备管理器中发现没有安装,可以再单独安装。

## 5. 实验过程

#### 网关参数配置

(1)打开 SYCON.net 配置软件, 在软件右侧的 Fieldbus 栏, 选择 Profinet IO
 → Gateway/Stand-Alone Slave → NT 151-RE-RE, 将图标拖放至界面中间的灰线
 处, 如图 5.1 所示:

00000000000	200				
netProject	* *	netDevice			
Project: Untilled ↓ ff [netTAP(NT 151-RE:RE]<>(#1))		netTAP(NT 151-RE-	Æ]<>(#1)		
Trying to add key 'd3384303-a114-f47-80     Trying to add key '460d188a-04c2-41ae-b     Trying to add key '3638da9-f6bf-4638-80     Trying to add key 'a943fa84-e6fe-495e-96     Toowribad succeeded to device netTAP[VI]	9d-bbb75708dded", object ce9-aab50cd5ecde", object Vdc-0cdbfd0909ca', object '8 89-0b8376ce8fcd', object '8 151-RE-RE/PNS/ECM] <>(I	Basenet, Module, 432833-a114-437-8994-bbb7370 Basenet, Module, 460d188a-0dc2-41ae-bce9-aab50c2 isaenet, Module, 9358448-9614-6438-80dc-0celbd309 asenet, Module, a943fa84-e6fe-495e-9689-0b8376ce8 1).	8dded', 'Basenet, Mi 85ecde', 'Basenet, Mo 90ca', 'Basenet, Mod fcd', 'Basenet, Modul	idule, d33e3S03-a1 idule, 460d188a-0d ile, 9358dda9-f6bf- e, a943fa84-e6fe-4f	111-4fa7-809d-bbb75708dded" already exists ur dc2-41ae-bce9-aab50cd5ecde" already exists ur dc38-80dc-0cdbbf0990ca" already exists under 195e-9689-0b8376ce8fcd" already exists under t



(2)双击产品图标,弹出配置对话框,选择"Driver"栏,确保"netX Driver"

已经勾选。

IO Device: NT 151-RE-RE Vendor: Hilscher GmbH	
Navigation area	
Driver	Driver
netX Driver Device Assignment	netX Driver
🔁 Configuration	
Settings	
Signal Mapping	
Memory Card Management	
Licensing	
Licensing	

图 5.2 确认驱动已经勾选

(3)选择"Device Assignment"栏,单击 Scan 按钮,扫描到网关硬件,如图 5.3 所示。勾选该网关并单击 Apply 按钮保存。

U Device: NT 151-4 Vendor: Hischer C	E 4.E 2004						Device ID: Vendor ID:	1	
Revigation area					Device A	ssignment			
Settings Driver netX Driver		Scan progress: 5/5 Dr	nices (Current device: -)						
Gettings Settings Signal Mapping Memory Card Manage Ucensing		Device	Reduce Parts Q(1/2/3	Sist nu	Seral rum	Driver DetC Driver	Channel Pr		Acces path

图 5.3 网关硬件选择图

(4)选择"Settings"栏,在Port X2选择"Profinet IO Device"协议,Port X3选择"EtherCAT Master"协议,协议选择完毕之后在 Available Firmware 框中 会自动出现相应的固件(如果未出现,点击右侧 Browse,定位到光盘中选择相 应的固件),单击右侧的 Download 按钮,下载对应的固件,如图 5.4 所示:

IO Device: NT 151-RE-RE Vendor: Hilscher GmbH			Device Vendo	e ID: • w ID: •	
Wavigation area 📃			Settings		
<ul> <li>Settings</li> <li>Driver netX Driver</li> <li>Device Assignment</li> <li>Configuration</li> <li>Settings</li> <li>Signal Mapping</li> <li>Memory Card Management</li> <li>Licensing</li> </ul>	General Dgscription: Protocol Combinations Primary network (Port X2): Required gateway: Required license: Available Firmgare: Software class: Software version: Basic Settings Mapping Cycle time: Network Address Switch Enoble:	PROFINET IO Device	Secondary network (Po ter \Multi protocol (combinable) Bapping mode:	rt X3) EtherCAT Master	Pronse Qewrload

图 5.4 协议选择和固件下载

固件下载过程中,可确认目前产品中所使用的固件类型和版本,如果一样就不用 再下载了,一般固件下载一次就可以了,无需多次下载。

10 Device: NT 1514E4E     Vendor: Hischer GnbH			Device ID: • Vendor ID: •		
Eurigation area 🗖		Settings			
Settings	Ganaral Description: Protocol Combinations	netî AP			
Device Assignment Configuration Statings Signal Mapping Memory Card Management Licensing	Prenary network (Port X2): Required gateway: Required Icense: Available Prengare:	PROFENENT TO Device * Second INT 155-RE-RE/REGISTION * Yee (1)	dary retwork (Port X)) [EtherCAT House	(.prese)	
	Software dass Software version Basic Settiags	Question 5.2.6.0 Do you want to overwrite PNS/ECM*, Version 1.2.0.0?	e existing formware 'netTAP151 A1 with firmware 'T12000E0.NXF'.	Coordinat	
	Mapping Cycle Bress Bateurik Address Switch		重m 高加		

图 5.5 协议固件确认

注意: 下载过程中,虽然进度条已经走完,但协议固件可能还没下载完成,需要 等左下角的钟型图标消失才算彻底下完,此时可以点击 Apply,点击 OK 退出。

(5)导入EtherCAT从站的 xml 设备描述文件,在菜单栏上选择"Network"
→ "Import Device Descriptions" 如图 5.6 所示。 选择文件类型为 "EtherCAT DDF",选择需要导入的 xml 文件,单击"打开",实现导入,如图 5.7 所示。



图 5.6 导入 EtherCAT 设备描述文件

重视包围口:	STF-EtherC	AT	-	G 🗊 📂 🖽 -	
œ.	名称	^		修改日期	
	📕 AMA+Step	oper+EtherCAT+v1.4		26/11/2018 22:14	
NCT V9149H VILLIN	AMA Step	per EtherCAT v1.4		02/11/2017 20:11	
桌面					
200					
-					
<b>1</b> 15					
库					
篇 第 计算机					
篇 成 () () () () () () () () () () () () ()		m			
库 注 计算机 问语	< 文件名(0):	III AMA Stepper EtherCA	( v1.4	▼ 打开 ()	0)



(6) 配置网关 EtherCAT 侧的参数, 右击网关图标, 选择"Network Scan",

进行 EtherCAT 网络主站自动扫描连接从站设备的信息,请参考图 5.8。

netropicit       imitalization         imitalization       imitalizatin         imitalization <th></th> <th>E MARKANANA</th> <th></th> <th></th> <th></th>		E MARKANANA			
Comparison of the second second second to device netTAP(NT 151-RE-RE/PNS/ECM] <>(1).     Comparison of the second se	nefProject G Project Unitided ⊢ Jf [netTAP[NT 151-RE-RE/PNS/ECM]<>(#1)		P(NT 151-RE-RE/PHS/ECM)<> Connect Disconnect Download Upload Cut Copy Paste Network Scan_ Configuration Measured Value Simulation Prior of c	*) *	WL 51N-DPL           WN 9 31-RE/PNS V3.110 - V3.x           WN 9 31-RE/PNS V3.6.00 - V3.x           WN 9 32-RE/PNS V3.6.00 - V4.10           WN 9 32-RE/PNS V4.3.0.x           WN 100-RE-300/PROXY           WN 1100-XXXX           WN 151-RE-RE/PNS           J WT 151-RE-RE/PNS           J WT 151-RE-RE/PNS/CMS           J WT 151-RE-RE/PNS/ECM           J WT 151-RE-RE/PNS/ECS           J WT 151-RE-RE/PNS/FUS           J WT 151-RE-RE/PNS/FUS
(2) (4) (4) (4) (5) (5) (5) (5) (6) (6) (6) (6) (6) (6) (6) (6) (6) (6	Trying to add key 'd38a3503-a111-dfa7-809d-bbb7570 Trying to add key 'd60d188a-0dc2-d1ae-bce9-aab50cc Trying to add key '9358dda9-f66f-4838-80dc-0cd5f0f0f Trying to add key '9358dda9-f66f-4838-80dc-0cd5f0f0f Trying to add key 'a943fa84-66f-4958-9689-0b8376cc Obvious to add key 'a9368dda9-f66f-4838-80dc-0cd5f0f0f Toving to add key 'a9368dda9-f66f-4838-80dc-0cd5f0f0f Toving to add key 'a9368dda9-f66f-4838-80dc-0cd5f0f0f Trying to add key 'a9368dda9-f66f-4858-80dc-0cd5f0f0f Trying to add key 'a9368dda9-f66f-4858-80dc-4858-80dc-48588dda9-f66f-4858-80dc-48588dda9-f66f-4858-80dc-48588dda9-f66f-4858-80dc-48588dda9-f66f-4858-80dc-48588dda9-f66f	ldded', object 'Basenet, Module, d33e3503-a11f-dfa7 Secde', object 'Basenet, Module, 4604188a-04c2-41a 09ca', object 'Basenet, Module, 9358dda9-f6bf-4638- Bfcd', object 'Basenet, Module, a943fa84-e6fe-495e-9 NS/ECM]<-(#1).	Diagnosis Additional Functions Delete Symbolic Name	<ul> <li>odule, d33e3503-a11f</li> <li>odule, 460d188a-0dc2</li> <li>lule, 9358dda9-f6bf-44</li> <li>le, a943fa84-e6fe-495</li> </ul>	-4fa7-8094-bbb75708dded' already exists ur 2-41ae-bce9-aab50cdSecde' already exists ur 638-80dc-0cdbfd0909ca' already exists under e-9689-0b8376ce8fcd' already exists under t

图 5.8 EtherCAT 网络扫描从站

(7) 扫描出来的信息请参考图 5.9, 点击 "Create Devices" 进行从站设备的 创建。



图 5.9 扫描并接受从站信息

(8) EtherCAT 侧的参数配置好后,右击网关图标,选择"Disconnect"断 开连接,参考图 5.10。

此时可适当的检查 EtherCAT 从站的参数信息:双击从站设备,参考图 5.11。

检查 EtherCAT 主站的参数信息:右击 NT 151-RE-RE 图标,点击 "Configuration"→ "EtherCAT Master",参考图 5.12。

etProject: Untilled Project: Untilled UnerTAPRINT 151-RE.RE/PINS/ECM[<*(#1)) STF EtherCAT Drive V10[STF EtherCAT Drive V10]<25		Connect Disconnect Disconnect Download Upload Cut Copy Paste Network Scan Configuration Measured Value	V1.0(STF EtherCAT 1	Image: Start Start, S
<ul> <li>Trying to add key 'd33e3503-a11f-4fa7-809d-bbb75708ddee</li> <li>Trying to add key 'd60d188a-0dc2-41ae-bc9-aab50cd5ecd</li> <li>Trying to add key '9358dda9-f6bf-4638-80dc-0cdbfd9909ex</li> <li>Trying to add key 'a943fa84-e6fe-495e-9689-0b8376ce8fcd',</li> <li>Download succeeded to device netTAPINT 151-RE-RE/PNS/E</li> </ul>	object "Basenet, Module, d30a3503-a11F-dfa object "Basenet, Module, d30a3503-a11F-dfa object "Basenet, Module, a9435da9-f6bf-4638 ubject "Basenet, Module, a943fa84-e6fe-495e- MJ<>(#1).	Simulation Diagnosis Additional Functions Delete Symbolic Name	<ul> <li>Aodule, d33e3503-a11f-4fa</li> <li>Aodule, 460d188a-0dc2-41</li> <li>dule, 9358dda9-6bif-4638- ule, a943fa84-e6fe-495e-96</li> </ul>	7-809d-bbb75708dded" already exists ur ae-bce9-aab50cd5ecde' already exists ur docd-ocd6id60geca' already exists under 889-0b8376ce8fcd' already exists under ti

图 5.10 断开在线连接



图 5.11 EtherCAT 从站参数信息

									-
roject	* * netDevice								
Project: Untitled						- A	1.		
STF EtherCAT Drive V1.0(STF EtherCAT Dri	we V1.0]<256>					-	C NL 51	N-DPL	2110-1
						-	NRP 5	2-RE/PNS	V3.6.0.0 -
		netT	AP[NT 151-RE	RE/PNS/ECM]	(#1)		NRP 5	2-RE/PNS	V4.3.0.x
		Ê					- MT 10	0-RE-XX/PI	ROXY
		2	Connect				NT 10	0-XX-XX	
			Disconne	ct	/1.0[STF Et	herCAT I	- 17 NT 15	1-RE-RE	(PNA)
			Downloa	d			- ( NT 15	1-RE-RE/EG	S/PNS
			Upload				- [] NT 15	1-RE-RE/EI	S/PNS
			Cut				- [] NT 15	1-RE-RE/PI	S/PNS
			Сору				- U NT 15	1-RE-RE/PI	VS/ECM
			Paste				- IT NT 15	1-RE-RE/PI	VS/EIM
			Network	Scan			- I NT 15	1-RE-RE/PI	VS/EIS
						_	1 NT 15	1-RE-RE/PI	VS/OMB
			Configur	ation	Gatew	ay	7 NT 15	1-RE-RE/PI	VS/PLS
		letwork View /	Simulation	a value	PROFI	NET IO Devic	e dbus /\	rendor ), D	TM Class
To ino to add bay 1422-2502 a116 46-2 000-4 bbl	h75708ddad' abiast 'Barrent Ma	dula d22a2502.a111 46-7	Diamoni		Ether	CAT Master	Non all Trans	Eddard's day	adv acto
Trying to add key (460d188a-0dr2-41aa-bra0-aa	which a server and a server which a server the server t	dule 460d188a-0dc2-41a	charge 100		odule 460	d188a-0dc2-4	lae-bce9-aab50rd	Secde' alre	ady exist
Trying to add key '9358dda9-f6bf-4638-80dc-0cc	dbfd0909ca', object 'Basenet, Mod	ule, 9358dda9-f6bf-4638-	Addition	al Functions	Jule, 9358d	da9-f6bf-463	8-80dc-0cdbfd0909	ca' alread	exists u
Trying to add key 'a943fa84-e6fe-495e-9689-0b8	3376ce8fcd', object 'Basenet, Mod	ile, a943fa84-e6fe-495e-9	Delete		ile, a943fa8	4-e6fe-495e-	9689-0b8376ce8fcc	already e	nists und
	T DE CONCIECTURE (MEL			Name					
Download succeeded to device netTAP[NT 151-R	E-ME/PROJECTINJ <>(=1).		Symbolic	FAGITIPE Int					
Download succeeded to device netTAP[NT 151-R	te-ne/Pres/ec.mj < >(=1).	l.	Symbolic	reament					
Download succeeded to device netIAPINT 151-R	netDevice     In Device     NT 151,854		Symbolic	i anne		Desig			
Download succeeded to device netTAPINT ISL-R	netDevice     10 Device: NT 151-RE-     Vendor: Hischer Gel	ајлајасн н	Symbolic	l e l		Device Vendo	e ID: 0x6000 x ID: 0x6044	e	
Download succeeded to device netTAPINT ISL-R ( )= )=)\SYCON.net\ netDevice / ( )= )= ( )= ( )= ( )= ( )= ( )= ( )= (	netDevice     10 Device: NT 151-8E-     Vendor: Hister Ge      Barigation Area	адиа,аси н	Symbole	I tamen	Address Tab	Device Vendo	e ID: 0x0000 x ID: 0x0044	-	
Download succeeded to device netTAPINT ISL-R ( )= )=\\ SYCON.net\ netDevice /	ID Device     ID Device: NT 151-8E-     Vendor: Hisber Ge      Kerigation Area     Configuration	R/MG/ECM H	Symbolic	I Camera	Address Tab Display mod	Devior Vendo Ile e: Hexa	* 2D: 0x0000 * 2D: 0x0044		V Deport
Download succeeded to device net IAPINT ISL:K	netDevice     10 Device     10 Device     10 Device     NT 151 AE     Wender: Hister Ge     Configuration     General     Process Data Handshake	RE/PROJECH H	Symbolic	I t	Address Tab Display mod	Device Vendo Ile e: <u>Hexa</u>	t ID: 0x0000 x ID: 0x0004 sdecmal •	G	v Export
Download succeeded to device net IAP(NT ISL-K ()  ->  ->  ->  ->  ->  ->  ->  ->  ->  ->	netDevice     10 Device: NT 151-RE- Vendor: NT 151-RE- Vendor: NT 151-RE- Seringuration General Process Data Handshake Topology	REPROJECM HI	Symbolic Station add	PO0 index	Address Tab Display mod	Device Vendo Ile e: Hexa I PDD Entry I.	e ID: 0x0000 x ID: 0x0004 edecamal • PD0 Entry name	CG Type Add	V Export
Download succeeded to device net IAP(NT ISL-R ()   )  \ SYCONLeet\ netDevice / () () () () () () () () () () () () () (	netDevice     10 Device: NT 151-RE- Vendor: Hisber Gel     Serigation Area     General     Process Data Handshake     Topology     Tree View	REPROJECT	Symbolic Station adda 0x0100	P00 index 0x1400 0x1400	Address Tab Display mod PD0 name TaP00 1 TaP00 1	Device Vendo e: (Hess 0.6035-00 0.6041:00	s ID: 0x0000 x ID: 0x0044 adecimal • POQ Entry name   EnroCode Statu/Word	Type Add	V Export
Download succeeded to device net IAPINT ISL-K () > IN) SYCON.net), netDevice /	netDevice     10 Device: NT 1514E-     Vendor: Hisher Gel     Serigation Area     Configuration     General     Process Data Handshake     Topology     Tree View     Connection View     Micher	Pouls:	Symbolic Station add 0x0100 0x0100 0x0100	PDD index Dr1A00 Ox1A00 Ox1A00 Ox1A00	Address Tab Deplay mod POD name TxF00 1 TxF00 1 TxF00 1 TxF00 1 TxF00 1	Device Vendo e: Hexa 0.6037.00 0.6001.00 0.6001.00	EID: 0x0000 ID: 0x0044 ID: 0x0044 PD0Entry name ] Enoticate Statut/Void Statut/Void	Type Add	V Expert
Download succeeded to device net IAP(NT 151-K ()      SYCON.net), netDevice / ()         SYCON.net), netDevice / ()	retDevice     JO Device: NT 151-84     Venice: Nt 151-84	Inputs: Device STF EffectAI Deev Y10 STF EffectAI Deev Y10	Symbold Staton add Garloo Garloo Garloo Garloo Garloo	POD index 0x1400 0x1400 0x1400 0x1400 0x1400 0x1400 0x1400	Address Tab     Display mod     FOO name     TaFOO 1     TaFOO 1     TaFOO 1     TaFOO 1     TaFOO 2     TaFOO 2     TaFOO 3	Device Vendo e: Hexa 0.6037 00 0.6001 00 0.6001 00 0.6005 00 0.6005 00	e ID: 0x0000 # ID: 0x0044 PICE Fragment EnrolCode StatuWood Hoto operation display Position actual value	Figer Add UINT UINT UINT DINT DINT	V Expert
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图 5.12 EtherCAT 主站参数信息

(9) 配置网关 Profinet 从站侧的参数, 右击网关图标, 点击"Configuration"→ "Profinet IO Device", 参考图 5.13。





(10)选择左侧导航栏"Modules",点击"Add Module"添加输入和输出的 模块长度,具体长度需要根据用户在此项目中需要传输的总的数据长度来定,可 以添加多个输入或者输出模块,参考图 5.14。

Project	<u></u>				
🛄 Project: Untitled				*	
- I netTAP[NT 151-RE-RE/PNS/ECM]	c>(#1)			15 1 21	NL 51N-DPL
STF EtherCAT Drive V1.0[STF	netDevice - PROFINET IO Device: NT 151-6	rice netTAP[NT 151-RE-RE/PNS/ECM]<>(	(#1) Device ID: 0x0121		NRP 51-RE/PNS V3.11.0 - V3.3 NRP 52-RE/PNS V3.6.0.0 - V4
	Vendor: Hilscher	Sesellschaft für Systemautomation mbH	Vendor ID: 0x011E	FDT	VRP 52-RE/PNS V4.3.0.x VT 100-RE-XX/PROXY
	Navigation Area		Modules	-0	NT 151-CCIES-RE/PNS
	Configuration	Slot Sub 1	Medul e	- 6 1	VT 151-RE-RE
	General	* 0 * NT 151 RE R	EAPNS V1.0 - V1.x [1724.122]	-81	NT 151-RE-RE/ECS/PNS
	- modules	* 2 16 Sytex Outp	nut l	-81	NT 151-RE-RE/EIS/PNS
	Signal Configuration	L		-61	NT 151-RE-RE/PLS/PNS
	Address Table			-81	NT 151-RE-RE/PNS/ECM
	Sector Less			-81	NT 151-RE-RE/PNS/ECS
	Madule Info			- 8 1	VT 151-RE-RE/PNS/EIM
	GEDAR Visions			- 8 /	NT 151-RE-RE/PNS/EIS
	GSDIML VIEWET			-6,	VT 151-RE-RE/PNS/OMB
				-01	VT 151-RE-RE/PNS/PLS
		Add Module Add Submodule	Remove	Fieldb	as / Vendor \ DTM Class \
Trying to add key 'd33e3503-a11f-4 Trying to add key '460d188a-0dc2-4 Trying to add key '9358dda9-f6bf-4		Use of slots: 3/256 State of data length: Input 17/1024 Octets,	Output 0/1024 Octets, In-Output 17/2048 Octets	09d-bbb bce9-aal Jc-Ocdbfi	75708dded' already exists >50cdSecde' already exists d0909ca' already exists und
Trying to add key 'a943fa84-e6fe-45		Subecdule details		Ob83760	e8fcd' already exists under
Download succeeded to device net		Deceser: 1/0 cata *	Osplay mode:	eona -	
		Direction   Consistence	Data type   Text ID	Leagth	
( + > > SYCON.net ) netDevice /					
ty					NUM

图 5.14 添加 Profinet 输入输出模块

(11)选择左侧导航栏"General", 在"Name of station"中设定 NT 151-RE-RE 产品 Profinet 侧的名称, 例如"nt151", 注意此名称需要和西门子 PLC 在博途组 态中分配给 NT 151-RE-RE 的名称保持一致。(注意: 名称中的字母只能是小写 字母, 不可含大写字母), 参考图 5.15。设置完成后, 点击 Apply, 点击 OK 退 出。

10 Device: NT 1514 Vendor: Hilscher	E-RE/PNS/ECM Gesellschaft für Systemautonal	ion mbH	Device ID: Vendor ID:	0x0121 0x011E	FD
Navigation Area 🗖	-		General		
Configuration General Modules Signal Configuration Address Table	Name of station: nt151 Description: NT_1 IP settings	14E4E_PNS_V1.0V1.x	6		
Description Device Info Module Info GSDML Viewer	IP address: Network mask: Gateway address:		Note: T the con	hese values are set by troller of the network!	

图 5.15 设定 Profinet 名称

(12)设置好 EtherCAT 和 Profinet 两边的参数后,再次双击网关(或右击 网关,选择 "Configuration→Gateway"),弹出对话框,选择 "Signal Mapping" 项,进行数据映射,参考图 5.16。数据映射的一般规则如下。

- 单击左侧上面第一个框中的"16 Bytes Input"检查左侧第二框中显示为 "Send",单击右侧上面第一个框中的"TxPDO",检查右侧第二框中显 示为"Receive"。
- 在左侧第二个框中单击选择 "~Input Bytes\_0001",在右侧第二个框中单击选择第一条,然后拖动上下进度条到最后一条,按住 "shift"键,选中最后一条实现多选。
- 单击左下角的"Map signals"按钮,实现一个方向的数据映射,可以在 最下面的大框中检查映射关系和数据传输方向。
- 同样类似操作另一个方向数据的映射,注意:每次是第二个框中显示为 "Receive"的那端可以多选,另一端"Send"只要选中第一个数据即可。
   全部映射好后,点击"Apply"和"OK"退出。

Forigation area 🗖	Si	ignal Mapping
Settings	Available Signals	
Driver Driver	Int 151-RE-RE/PNS V1.0 - V1.x «Slot 0»	<ul> <li>STF EtherCAT Drive V1.0 &lt;256&gt;</li> </ul>
Desire Assignment	Carlo Bytes Input +Slot 1+	RxPDO 1 «RxPdo 0x1600»
Configuration	16 Bytes Input «Subslot 1»	<ul> <li>RxPDO 2 «RxPdo 0x1601»</li> </ul>
Settings	Port X2 Signals A Data type	Port X3 Signals A Data type
🛥 Signal Mapping	Kend Innuts EVIT AREAV	Harden Moder of operation of SIGNEDS
Memory Card Management	Send -Irouts BYTE 0001 BYTE	TyPDO 2 «TyP6e 0x1A
Licensing	Send -Inputs BYTE 0002 BYTE	Receive Position actual value SIGM D12
	2	and the second s
	Report Stants	
	Port X2 (PROFINET IO) «Addr nt151»	🔹 🗇 🚾 Port X3 (EtherCAT) <->
	Int 151-RE-RE/PNS V1.0 + V1.x <slot 0.x<="" p=""></slot>	B STF EtherCAT Drive V1.0 <256>
	🛞 🧮 16 Bytes Input «Slot 1»	- Status
	Fort 12 CROFINET 10)	Fort I3 (ItherCAI)
	Manual Mappings Map signals	Terrove Ink Auto Mapping: Off
10 Device: NT 151-RE-RE/PNS Vendor: Hilscher GebH	Manual Mappings Map signals	Terrove Ink Auto Mapping: Off •
IO Device: NT 151-RE-RE/RMS Vendor: Hilscher GebH vigation area	Manual Mappings Map signals Sig	Auto Mapping: Off    vencor so:
IO Device: NT 151-RE-RE/RMS Vendor: Hilscher GebH vigation: area Settings 3) Driver	Manual Mapping: Map signals Sig	Auto Mapping: Off    vencor so:
IO Device: NT 151-NE-REJPNS Vendor: Hilscher GebH vigation area Settings ⊇ Driver netX Driver	Hanval Mapping: Map signals	Innover Ink Auto Mapping: Off    vencor ID:  Tempor ID:  STF EtherCAT Drive VL0 <256>  RxPDO 1 <8XPDO 0.1600x
IO Device: NT 15148E-REJANS Vendor: Hilscher GebH vigation area Settings 3 Driver netX Driver Device Assignment	Manual Mapping: Map signals ECM Sig Available Signals ↓ 16 Bytes Input <slot 1=""> ↓ 16 Bytes Input <slot 1=""> ↓ 16 Bytes Input <slot 2=""></slot></slot></slot>	Auto Mapping: Off  Vencor ID:  Vencor ID:  STF EtherCAT Drive V1.0 <256> RuPDO 1 <rupdo 0x1600=""> RuPDO 2 <rupdo 0x1601=""></rupdo></rupdo>
IO Device: NT 15148-REJPHS Vendor: Hilscher GebH rigation area Settings ☐ Driver netX Driver Device Assignment Configuration	Hanval Mapping: Map signals ECM  FCM  FCM  FCM  FCM  FCM  FCM  FCM	Auto Mapping: Off    venoor ID:   STF EtherCAT Drive V1.0 +256>  RvPDO 1 +RvPdo 0x1600>  RvPDO 2 +RvPdo 0x1601>
IO Device: NT 151-RE-REJPNS Vendor: Hilscher GebH settings Driver netX Driver Device Assignment Configuration	Manual Mapping:     Map signals       (ECM)       Available Signals       If B Bytes Input <slot 1="">       If B Bytes Input <slot 1="">       If B Bytes Output <slot 2="">       Port X2     Signals A   Data type</slot></slot></slot>	Auto Mapping: Off    venoor ID:   STF EtherCAT Drive V1.0 <256>  RxPDO 1 <rxpdo 0x1600="">  Port X3 Signals A Data type</rxpdo>
10 Device: NT 151-RE-RE/PNS Vendor: Hilscher GmbH rigstion ares Driver netX Driver Device Assignment Configuration Settings Settings Settings Settings Settings Settings	Manual Mapping:     Map signals       #ECM     Signals       Avsilable Signals     16 Bytes Input <slot 1="">       16 Bytes Input <slot 1="">     16 Bytes Cutput <slot 2="">       Port X2     Signals     Data type       16 Sytes Output <slot 1="">     16 Sytes Cutput <slot 2=""></slot></slot></slot></slot></slot>	Auto Mapping: Off     vensor ID:    STF EtherCAT Drive V1.0 <256>   STF EtherCAT Drive V1.0 <256>  Port X3 Signals A Data type  Port X3 Signals A Data type Port X3 Signals
IO Device: NT 151-RE-RE/PNS Vendor: Hilscher GmbH rigstion ares Driver netX Driver Device Assignment Configuration Settings ⇒ Signal Mapping Memory Card Management Lisenting	Hanval Mapping: Map signals  EOM  EOM  EOM  EOM  EOM  EOM  EOM  EO	Auto Mapping: Off
IO Device: NT 151-RE-REJPNS Vendor: Hilscher GmbH rigstion. ares Driver netX Driver Device Assignment Configuration Settings ⇒ Signal Mapping Memory Card Management Licensing	Annual Mapping: Map signals 1 APON APON Available Signals Available Signals Available Signals Port X2 Signals A Data type 16 Bytes Output <slot 1=""> 16 Bytes Output <slot 2=""> Port X2 Signals A Data type Receive Outputs BYTE_0008 BYTE Receive Outputs BYTE_0008 BYTE</slot></slot>	Auto Mapping: Off    venoor ID:
IO Device: NT 151-RE-REJPNS Vendor: Hischer GebH rigstion. ares Settings Driver netX Driver Device Assignment Configuration Settings Settings Settings Memory Card Management Licensing	Manual Mapping: Map signals I Sig Available Signals Available Signals I b Bytes Input «Slot 1» I b Bytes Input «Slot 1» I b Bytes Input «Slot 1» I b Bytes Output «Slot 2» Port X2 Signals A Data type I b Sytes Output «Slot 2» Port X2 Signals A Data type I b Sytes Output «Slot 2» Port X2 Signals A Data type I b Sytes Output «Slot 2» Port X2 Signals A Data type I b Sytes Output «Slot 2» Receive Outputs BYTE 0008 BYTE I m source output I b Sytes Input «Slot 2»	Auto Mapping: Off    vencor ID:
IO Device: NT 151-RE-REJPNS Vendor: Hischer GebH	Manual Mapping: Map signals I VECM Available Signals Available Signals Signals Solution Port X2 Signals A Data type IG Bytes Output <slot 1=""> Ecceive Outputs SUbStot 1&gt; Receive Outputs SUBSTE Port X2 Signals A Data type IG Systes Output <slot 2=""> Port X2 Signals A Data type IG Systes Output = SUBSTE Receive - Outputs BYTE_0008 BYTE I III IIII IIIIIIIIIIIIIIIIIIIIIIIIII</slot></slot>	Auto Mapping Off
IO Device: NT 151-RE-REJPNS Vendor: Hilscher GebH vigation area Settings Driver Device Assignment Configuration Settings ⇒ Signal Mapping Memory Card Management Licensing	Hanval Mapping: Map signals	Auto Mapping: Off  venor ID:  venor ID:  Send Profile velocity Send Profile velocity UNSIGNED32  Port X3 (EtherCAT) <>>
IO Device: NT 151-RE-REJPNS Vendor: Hilscher GubH rigstion area Settings ☐ Driver Device Assignment Configuration Settings ☐ Settings ☐ Signal Mapping Memory Card Management Licensing	Harval Mapping: Map signals	Auto Mapping: Off  Venor ID:  Venor ID:  Send Profile velocity Send Profile velocity UNSIGNED32 Send Profile velocity Send Profile v
10 Device: NT 151-RE-REPAINS Vendor: Hilscher GmbH	Harval Mapping: Map signals	Auto Mapping: Off  Venor ID:  Venor ID:   Sand Mapping  Port X3 Signals A  Port X3 Signal
10 Device: NT 151-RE-RE/PNS Vendor: Hilscher GmbH rigstion area Settings ☐ Driver netX Driver Device Assignment Configuration Settings	Herval Mapping: Map signals  FCO  FCO  FCO  FCO  FCO  FCO  FCO  FC	Auto Mapping: Off
IO Device: NT 151-RE-RE/PNS Vendor: Hilscher GmbH	Harval Mapping Map signals  FCO  FCO  FCO  FCO  FCO  FCO  FCO  FC	Auto Mapping Off
IO Device: NT 151-RE-RE/PNS Vendor: Hischer GebH vigetion wrea Settings → Driver netX Driver Device Assignment Configuration Settings → Signal Mapping Memory Card Management Lizensing	Harval Mapping: Map signals  FEOM  Feom Feom	Auto Mapping: Off  Vencor ID:
IO Device: NT 151-RE-RE/PNS Vendor: Hischer GebH	Harval Mapping: Map signals  FEOM  Feom Feom	Auto Mapping: Off  Venoor ID:
IO Device: NT 151-RE-REJPNS Vendor: Hischer GebH	Harval Mapping: Map signals	Auto Mapping: Off
IO Device: NT 151-RE-RE/PNS Vendor: Hischer GebH	Manual Mapping:     Map signals       JECO     Sig       Available Signals     Sig       Available Signals     In Bytes Input <slot 1="">       Image: Signals     Image: Signals       Port X2     Port Signals       Port X2     Port Signals       Port X2     Port Signals       Port X2     Port Signals       Port Signals     Port Signals       Port Signals</slot>	Auto Mapping: Off  Versor ID:
IO Device: NT 151-RE-REJPNS Vendor: Hischer GebH	Hanval Mapping: Map signals  FEO  FEO  FEO  FEO  FEO  FEO  FEO  FE	Auto Mapping Off  Versor ID:  Versor ID:  Versor ID:   Post X3 Signals A Data type Send Profile velocity UNSIGNED32 Send Profile velocity UNSIGNED32 Send Profile acceleration UNSIGNED32
IO Device: NT 151-RE-REJPHS Vendor: Hischer GebH	Harval Mapping: Map signals  FEO  FEO  FEO  FEO  FEO  FEO  FEO  FE	Auto Mapping  Versor ID:  Versor ID:
IO Device: NT 151-RE-REJPNS Vendor: Hischer GebH	Hanval Mapping: Map signals  ECO  Sig  Available Signals  Available Signals  For X2 (PROFINET IO) «Adder nt151»  For X2 (PROFINET IO)  For X2 (PROFINET IO)	Auto Mapping  Vernor ID:  Vernor ID:  Vernor ID:  Vernor ID:   Port X3 Signals A  Port X
IO Device: NT 151-RE-REJPNS Vendor: Hischer GebH	Harval Mapping: Map signals  FEO  FEO  FEO  FEO  FEO  FEO  FEO  FE	Acto Mapping  Terror ID:  Terror ID: Terror ID: Terror ID: Terror ID: Terror ID: Terror ID: Terror ID: Terror ID: Terror ID: Terror ID: Terror ID: Terror ID: Ter

图 5.16 数据映射图

(13)到目前为止已经完成了网关的所有参数设置。最后右击网关,选择 "Download"将配置文件下载到网关中完全所有的配置工作,参考图 5.17。

注意:下载的时候,会出现很多进度条,需要等下载彻底完成才可以进行其 它操作,如果下载完成和成功后,会在最下面的诊断框中出现"Download succeeded"的字样。

and the second second			
× netDevice			
reetDevice      reetDeviceDev	AP[INT 151-RE-REIPHS/ECM] <> (# Connect Disconnect Download Upload Cut Copy Paste Network Scan Configuration Paste Network Scan Configuration Simulation Diagnosis Diagnosis Symbolic Name	I) VI.0[STF EtherCAT I Jule, 3266fbe8-25a7-49cc-86 dule, 8782e8db-088b-43ec- lodule, cca6beee-d273-4da5 dule, 8782e8db-088b-43ec- lodule, cca6beee-d273-4da5 pdule, d8d4e56a-0449-44f6-	<ul> <li>NI, SIN-DPI,</li> <li>NRP 51-RE/PNS V3.1.0 - V3.x.</li> <li>NRP 52-RE/PNS V3.6.00 - V4.1.0.</li> <li>NRP 52-RE/PNS V3.6.00 - V4.1.0.</li> <li>NRP 52-RE/PNS V3.6.00 - V4.1.0.</li> <li>NR 100-RE-XXV/PROXY</li> <li>NT 100-RE-XXV/PROXY</li> <li>NT 101-RE-RE/PLS/PNS</li> <li>NT 151-RE-RE/PLS/PNS</li> <li>NT 151-RE-RE/PNS/FEM</li> <li>NT 151-RE-RE/PNS/FEM</li></ul>
InstDevice      Inst Device      Inst CAPITAL ISLANDARY      STF E      STF      STF E      STF      STF      STF      STF	therCAT Drive V1.0[STF EtherCAT	Drive V1.0]<256>	-
		InetDevice      InetTableVice      InetTableVi	retDevice      retEvery     retEvery     ret_AP(int 151-RE-RE(PMS)ECM]<>(e1)         U1.0[STF EtherCAT I         Oremeat         U1.0[STF EtherCAT I         Oremeat         Oremeat         Oremeat         Oremeat         Oremeat         Oremeat         Oremeat         Oremeat         V1.0[STF EtherCAT I         Oremeat         Oremeat         Oremeat         Oremeat         Oremeat         Oremeat         Oremeat         Oremeat         V1.0[STF EtherCAT I         Oremeat         Orem

#### 图 5.17 配置文件下载

(14)最后,在产品上右击,点击"Disconnect"离线退出。另外,别忘了 对所配置的参数进行保存,注意保存的是:\*.spj 文件和一个同名的文件夹,两 者必须一起保存,以便以后打开,缺一不可!!!

### 6. PROFINET 网络配置

以西门子 S71200 PLC 为例,软件博途 V15。

(1) 导入光盘中 NT 151-RE-RE 产品的 GSDML 文件,在\Electronic DataSheets (e.g. EDS,GSD,GSDML)\PROFINET 文件夹下,参考图 6.1。

"GSDML-V2.31-HILSCHER-NT 151-RE-RE PNS-20151021.xml"

VA	Siemens - C:\Users\Administrator\	Desktop\Lingy	ue's File\Edg	e Gateway Passive\Pi	roject1\Project	1		
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3	Devices	Start Autom	ation License	e Manager				
ks		🛓 Show refere	ence text					
twor	▼ 🔄 Project1	🔲 Global libra	ries		•			
ne	Add new device							
8	📥 Devices & networks				PLC_1	-		
Ge	▼ 🛅 PLC_1 [CPU 1212C DC/DC				CPU 1212C			
evi	Device configuration							
0	Q. Online & diagnostics							
	Program blocks							
	Technology objects							
	External source files							
	PLC tags							
	PLC data types							
	Watch and force tables							
	Online backuns							
	Traces							
	Device providata							
	P Device proxy data							
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ices	Devices & networks     Tim PLC_1 [CPU 1212C DC/DC	CPU 1	212C					
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	Program blocks		Source path:	EllProduct DV/DiGateway Solutions DV/D	2016-07-1 1/1 400 160630	17149/Electron	,	
	External source files		Contract of :		2010 071_01_400_100050			
	Lags     LC tags     Lage PLC tags     Lage PLC data types		File	neu paul	Version Language	Status		
	Watch and force tables		GSDML-V2.2-H	LSCHER-NB 100-RE PNS-20120806-143	V2.2 English, Ger	r Not yet installed		1
	Comme backups		GSDML-V2.2-H	LSCHER-NT 50-EN PNS-20120806-143	V2.2 English, Ger	Not yet installed		
	Device proxy data     Program info		GSDML-V2.31+	HLSCHER-NT 151-RE-RE PNS-20151021.xm	V2.31 English, Ger	r Already installed		
	PLC alarm text lists							

图 6.1 导入 NT 151-RE-RE 的 GSDML 文件

(2)博途中参数配置,添加好对应的 PLC 型号后,在右侧产品栏中的"Other field devices"→"PROFINET IO"→"Gateway"→"Hilscher"→"netTAP151"
→ "NT 151-RE-RE/PNS"找到 NT 151-RE-RE,拖到网络中,参考图 6.2。

	Project1 + Devices & networks			_ # # ×	Hardware catalog 👘 🗓
Devices	Z Topology vie	w da	Network view	V Device view	Options
	💦 Network 🔢 Connections Mild connection 🍬 과 Relations 🐷 職 🔛 🔢 🔛 🔍 ±	B	Network	overview 4 +	
	PR0E_1		-		× Catalog
Project1		- 1	T Devi	2.1.500	Courts 100
Add new device				PIC 1	Genero
devices & networks	PLC1		1		Filter Profile:
* _ PLC_1 [CPU 1212C DQDC	0012120	10			Controllers
Y Device configuration		- 1			> HM
😼 Online & diagnostics		- 1			PC systems
Program blocks	DNAE 2	_			Drives & starters
Technology objects	(Proc.)	- 1			Image: Interview Components
<ul> <li>External source files</li> </ul>		- 1			Detecting & Monitoring
PLC tags		-			Distributed I/O
PLC data types		- 1			Power supply & distribution
Watch and force tables		- 1			Field devices
<ul> <li>Coline backups</li> </ul>			7		Other field devices
Traces			-		Additional Ethernet devices
Device proxy data					- I PROFINETIO
Program info					• III Drives
PLC elerm text lists		_			throders
Local modules		_			Cateway
Distributed #0					· In Hischer Gesellschaft für syste
Le Ungrouped devices		-			• Interior 151
Security settings					NT IST COES 40 PHS
Common data		- 1			
Documentation settings					NI TOTAL ALTINGCOLD
Carling Languages & resources					NOTE JEST ENDE
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g card Readenuss memory					¢ 11
		141		· · · · · · · · · · · · · · · · · · ·	✓ Information
Details view	S Propertie	12	Info SD	agnostics	Device:
Decany new	General Cross-references Compile				- payment
Module	A D Draval mercent I				• bind
Name	Annual				
Device configuration	i nessage Ge to 7 Date time				NT 151-8F-8F/PNS V1.0 - V1 x
Online & diagnostics	8 C 1 Stream 11/26/2018 11/36 1/2 MM				
Program blocks	A Hardware confermine was loaded uscentrifile 11/20/2010 11/02/10/04				Articla pp : 1712 122
Technology objects	Buding configuration was loaded successfully 11/28/2018 11:05-24 AM				
External source files	B C 1 shared 11/2/2018 11/05-30 AM			=	Version: (GSDML-V2.31-HILSCHERNT1
PLC tags	Wein' was loaded successfuly. 11/28/2018 11:05:27 AM				Description
PLC data types	Loading completed (errors: 0: wernings: 0). 11(28/2018 11:05:30 AM				Description:
Watch and force tables	Connected to PLC 1, via address IP-192, 168.0.1. 11/28/2018 11:05:37 AM				supports reunine i ki communication.
Online backups	Connection to FLC 1 terminated.				
Online backups Traces	Connection to FLC_1 terminated. 11/28/2018 2:11:48 PM The meter Project Was saved successfully. 11/28/2018 2:12:22 PM				



图 6.2 选取 NT 151-RE-RE

(3) 连接 Profinet 网络,将 PLC 网口与 NT 151 的网口进行连接参考图 6.3。



(4) 配置 NT 151-RE-RE 的参数,首先需要双击 NT 151 的图标,在"Profinet Interface"的参数中设定产品名称为"nt151"和前面在 SYCON.net 中分配给网 关的名称一致,参考图 6.4。其次需要添加 NT 151-RE-RE 的输入输出模块,可 以和 SYCON.net 中设定的输入输出一致,同时可以在具体的输入输出模块后面 检查此模块在 PLC 内存中的起始地址,以便后面写程序或测试所用,参考图 6.5。

< III			> 100%	▼	1
nt151repns [NT 151-RE-RE/PNS	6 V1.0 - V1.x]				<b>Properties</b>
General IO tags Sys	stem constants Texts				
- General		Synchronize router settings with IO controlle	r		
Catalog information		Use router			
<ul> <li>PROFINET interface [X1]</li> </ul>	Paulas addeses				
∧ General	Router address:	0.0.0.0			
Ethernet addresses	PROFINET				
<ul> <li>Advanced options</li> </ul>	PROFINET				
Interface options	-	Conc	ally		
Media redundancy		Name of the PROFINET device	any		
Real time settings	PROFINET device name:	nt151			
Port 1 [X1 P1 R]	Converted name:	nt151			
Port 2 [X1 P2 R]	Device number:	1			
Identification & Maintenance					
Shared Device	Advanced options				
~					
view 💼 nt151repns 🔐 Wat	tch table_1				

图 6.4 设定 Profinet 名称

	Project1 > Ungrouped devices + nt151repns [NT 151-RE-RE/PNS V1.0 - V1.x]	_ # = ×	Hardware catalog
Aces	🖉 Topology view 📥 Network view 📑 Devi	ice view	Options
(III) (IIII) (III)	de m151repro [h1151ref-RE/MA 🔛 📰 💪 🖽 🧃 🚱 🛓		
		Let a L	× Catalon
Project1		305	1
Add new device	- ristinging 0	0.10	Genos
Devices & networks		0.41	Filter Profile: «All>
PLC_1 [CPU 1212C DC/DC_	To synes inpuc_1 0		128 Bytes Input
Device configuration		1	16 Bytes Input
😵 Online & diagnostics		-	2 Bytes Input
Program blocks			20 Bytes Input
Technology objects			256 Bytes Input
External source files	DP.NORM		3 Bytes Input
PLC tags			32 Bytes Input
Cig PLC data types			4 Bytes Input
Watch and force tables		10	64 Bytes Input
Online backups		10	🔳 8 Bytes Input
Traces			- 📺 Output Modules
🙀 Device proxy data	0	14	1 Byte Output
Program info		- 13	12 Bytes Output
FLC alarm text lists		- 14	128 Bytes Output
Local modules		19	16 Bytes Output
Distributed I/O	0	16	2 Byte Output
Unprouped devices		17	20 Bytes Output
Security settings	0	18	256 Bytes Output
Common data	0	19	3 Bytes Output
Documentation settings	0	20	32 Bytes Output
Languages & resources	0	21	4 Bytes Output
Online arress	0	22	64 Bytes Output
Card ReaderIUSB memory	× 0	23	8 Bytes Output
	K III > 100% W	24 >	te Information
п >	9 Properties 11 Info 31 Diamostics	2-5	· monadon
tails view	Constant State Sta		Device:
lule	General		DP-NORM
	No 'ornperties' available.		
and the second			
e e diagonation	no properties can be snown as me moment, mere is entier no object selected or me selected outpet dues not nave any inspirate properties.		16 Bytes Output
rie a ulegnosous			100
parti uno ta			Article no.:
mology objects			Marrine
there is a second of the secon			
data kanas			Description:
oata types			16 Bytes Output Module
ch and force tables			
ine backups			

#### 图 6.5 添加输入输出模块

(5) 上述配置完成后,即可直接下载硬件组态配置文件到 PLC 中进行相应的测试了。

## 7. 数据测试和诊断

(1)可以在 SYCON.net 中监控两边的数据,打开 SYCON.net 的配置文件, 在产品图标上右击"Connect"进行产品在线连接。连接好之后,双击产品图标, 在左侧导航栏选择"Secondary Network (X3) Receive Data"来监控 EtherCAT 侧网关读取到的 EtherCAT 从站伺服的数据,同时也可通过"Primary Network(X2) Receive Data"来监控 Profinet PLC 发给 NT 151 的数据,参考图 7.1。

VCON.net - [Untitled.spj]	the support of the local division of the loc	
e View Device Network Extras Help		
# B 0   = = a 3 0 5 5 5 5 5		
voiect	× netDevice	
Project: Untitled		*
(f) netTAPINT 151-RE-RE/PNS/ECM] == (#1)     TetterCAT Drive VL0[<256>     TetterCAT Drive VL0[<51F EtherCAT Drive VL0]<256>	1	Instruction         Image: Stream of the
		- ] NT 151-RE-RE/EIS/PNS - ] NT 151-RE-RE/PLS/PNS - ] NT 151-RE-RE/PNS/PCCM - ] NT 151-RE-RE/PNS/PCCM - ] NT 151-RE-RE/PNS/PCCM - ] NT 151-RE-RE/PNS/PLS - ] NT 151-RE-RE/PNS/PLS
	RANNE Network View	E Fieldbus (Vendor) DTM Class
InetDevice - Gateway netTAP(NT 151-RE-RE/PNS/T     Device: NT 1514E-RE/P6/8CM     Vendor: Hischer GebH	(CM]<>(#1)	Device ID: - Vendor ID: -
Forigotion area		Secondary Network(CI) Receive Data
C Diagnosis	Task states	
General-Diagnosis	Name	Value
Firmware Diagnosis	Receive Data: Byte 031	0:0 1:117 2:8 3:2 4:0 5:0 6:0 7:0 8:0 9:0 10:0 11:0 12:0 13:0 14:0 15:0 16:0 17:0 18:0
Task Information	18 3	
Lua Status		
Acyclic Services		
Task Information		
Gateway Information Acyclic Diagnostics		
Primary Network(X2) Receive Data		
Secondary Network(X2) Transmit Data		
Secondary Network(X3) Transmit Data		
Task Information		
MARSHALLER		
LASK INFORMATION		
A PACKET BOUTER		
PACKET_ROUTER Task Information	-	
PACKET_ROUTER Task Information		
approximation		OK Cancel Acoly Heb

图 7.1 SYCON.net 数据监控

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🖬 (\$1686) 🖬		100		54837	无符号十进制	A			
A 1284F86		100		5438	用符号十进制 /	10			
* 1 PLC_1 [OV 1516-3 PMOP]	20	100		54039	无符号十进制 /				
1 4945		100		54840	天符号十进制	2			
5 01080245		102		5/841	关开号+进制	<ul> <li>• • • • • • • • • • • • • • • • • • •</li></ul>			
·	•	140		5/842	光印刷十进制	• /			
<ul> <li>181510</li> </ul>		100		5/843	天符号十进制	0/			
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- 10 2011/841A		187		50847	天符号十进制	8			
2 (2109(2/2.6		182		5,848	天谷号十进制	0			
20 2/2 A.1		122		%Q827	光符号十进制	0			
EU IBRIA		185		50828	关码电子进制	0			
<ul> <li>(a) (1)(0)(0)</li> </ul>		1981		50829	天符号十进制	0			
+ Tal Taces		241		9-0438	无符号十进制	8			
<ul> <li>is if a rule as</li> </ul>		201-		5-0851	光符号十进制				
23 (COLD 10		223		50632	风符号十进制				
ころれに当時物料等		190		50833	光符号十进制				
10 れに新聞文書列表		141		940634	无符号十进制				
· C= 010+810		263		9-Q835	风谷号十进制				
·		281		100536	光符号十进制				
·		227		9-0837	无符号十进制				
> > + + 9 = 0 = 0	-	283		50838	关持号十进制	8.0			
·		29	"resevedana"	5018	十六进制	1640000,0000			
· E 2464		56		50813	十六语教	18400			
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(2) 可以在博途软件的监控表中监控获取的 EtherCAT 伺服数据参考图 7.2。

图 7.2 博途数据监控

(3) 另外,还可通过 NT 151-RE-RE 模块上指示灯的显示状态来判断产品 连接状态,具体指示灯状态可参考光盘中:"\Documentation\english\2.Hardware\ netTAP 151, Model NT 151-RE-RE"目录下"netTAP NT 151-RE-RE UM 04EN.pdf" 针对此测试中 Profinet 侧两个指示灯必须是全灭才算通讯配置正常。

LED	Color	State	Meaning
SF (System Failure)	Duo LED red/green		
Position in the device drawing for protocol at X2: (1) Position in the device drawing for protocol at X3: (7)	• (off)	Off	No error
	🌞 (red)	Flashing (1 Hz, 3 s)	DCP signal service is initiated via the bus.
	• (red)	On	Watchdog timeout; channel, generic or extended diagnosis present; system error
<b>BF</b> (Bus Failure) Position in the device drawing for protocol at X2: (2) Position in the device drawing for protocol at X3: (8)	Duo LED red/green		
	• (off)	Off	No error
	🍀 (red)	Flashing (2 Hz)	No data exchange
	• (red)	On	No configuration; or low speed physical link; or no physical link

EtherCAT 侧 RUN 指示灯绿色常亮, ERR 指示灯灭才算通讯配置正常。

Color	State	Meaning		
Duo LED red/green				
• (off)	Off	INIT: The device is in INIT state.		
🌞 (green)	Blinking (2.5 Hz)	<b>PRE-OPERATIONAL:</b> The device is in PRE-OPERATIONAL state.		
🌞 (green)	Flickering (10 Hz)	The device is not configured.		
(green)	Single flash	SAFE-OPERATIONAL: The device is in SAFE-OPERATIONAL state.		
(green)	On	OPERATIONAL: The device is in the OPERATIONAL state.		
Duo LED red/green				
• (off)	Off	Master has no errors		
🌞 (red)	Single flash	Bus Sync error threshold		
	Color Duo LED r (off) (green) (green) (green) (green) Duo LED r (off) (coff) (red)	Color     State       Duo LED red/green       ● (off)     Off       ● (off)     Blinking (2.5 Hz)       ※ (green)     Flickering (10 Hz)       ※ (green)     Single flash       ● (green)     On       Duo LED red/green       ● (off)     Off       ※ (red)     Single flash		

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### 工业通讯事业部

事业部网站: <u>www.hongconsys.com</u> 微信公众号: 工业通讯 产品及方案:

- ≻ CAN 卡
- ▶ 通讯协议代码/网关/板卡(CO,ECAT,DP,PN,DN,EIP,Modbus,CC,IO-Link等)
- > TSN 时间敏感网络开发方案及应用方案
- ▶ INtime 实时操作系统(提升 windows 实时性)
- ➢ PLC/软 PLC 开发方案

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