汇川 AM400 系列 PLC 组态森特奈 Ethernet/IP 协议



10-LINK 主站模块使用教程

1、设定森特奈 Ethernet/IP 协议 IO-LINK 主站模块的 IP 地址。

可以通过第三方设置软件进行 IP 地址设置,本例中使用 AB 的"Bootp-DHCP Tool"软件, 设置之前,先将模块 IP 地址设置拨码拨到"0XFF",即 DHCP 模式,上电一直等待分配 IP。 打开该软件,选择本机相应网卡,点击"OK"

Select Network Interface	×
Please select a network interface:	
Description	IP Address
Realtek PCIe GbE Family Controller	192.168.0.15
Bluetooth Device (Personal Area Network)	Unknown
I AP-Windows Adapter V9	Unknown
Intel(R) Dual Band Wireless-AC 8265	192.168.1.253
Microsoft Wi-Fi Direct Virtual Adapter #4	Unknown
The osoft with Direct virtual Adapter #4	OIIKIIOWII
ОК	

2、双击扫描出的模块,输入要设置的 IP 地址(IP 地址与本机 IP 地址要在同一网段),点击 "OK",设置完毕后,可以将模块 IP 地址设置拨码拨到"0X00",即按照上次的 DHCP 分配的 IP 地址运行。

BootP DHCP EtherNet/IP Commissioning Tool –		
Add Relation	Clear History	
Discovery History		
Ethernet Address (MAC) Type (hr:min:sec) # IP Address Hostname		
U2:98:89:44:55:89 DHCP 11:22:08 4		
, Entered Relations		
Ethernet Address (MAC) Type IP Address Hostname Description		
Errors and warnings	Relations	
Unable to service DHCP request from 02:98:89:44:55:89.	0 of 256	

Add Relation	Discovery History	
Ethernet Address (MAC	Type (hr:min:sec) # IP Address Hostname	
02:98:89:44:55:89	New Entry	×
	Server IP Address: 192.168.0.15	
	Client Address (MAC): 02:98:89:44:55:89	
	Client IP Address: 0 . 0 . 0 . 0	
Ethernet Address (MAC	Hostname:	
	Description:	
	OK Cancel	
New Entry	×	
Server IP Address	192.168.0.15	
Client Address (MAC)	02:98:89:44:55:89	
Client IP Address:	192 . 168 . 0 . 10	
Hostname		
Description		
ОК	Cancel	



BootP DHCP EtherNet/IP Commissioning Tool –	
Add Relation Discovery History	Clear History
Ethernet Address (MAC) Type (hr:min:sec) # IP Address Hostname 02:98:89:44:55:89 DHCP 11:38:06 5 192.168.0.10	
, Entered Relations	
Ethernet Address (MAC) Type IP Address Hostname Description	
02:98:89:44:55:89 DHCP 192.168.0.10	
Errors and warnings Sent 192.168.0.10 to Ethernet address 02:98:89:44:55:89	Relations 1 of 256

3、打开 InoProShop 软件 (本例中版本为 V1.8.1.1),新建一个标准工程,选择相应的 PLC, 自定义一个"名称"。点击"OK"。

管 New Project		×
Categories: Libraries StandardPr	Device AC702 AC703 AC703 AC703B AC703B AC703B AC712 AC801-0221-U0R0 AC811-0031-U0R0 AC811-0031-U0R0 AC811-0031-U0R0 AC812-01808TN AM401-CPU1608TN-C AM402-CPU1608TN-C AM402-CPU1608TP/TN AM4523-0808TN AM523-0808TN AM565 AM766 AM766 AM766 AM780-N AB201_0021_JIDD AM523-0808TN AB201_0021_JIDD AM523-0808TN AB201_0021_JIDD AM523-0808TN AB201_0021_JIDD AM523-0808TN AB201_0021_JIDD AM523-0808TN AB201_0021_JIDD AM523-0808TN AB201_0021_JIDD AM56 AM56 AB201_0021_JIDD AM523-0808TN AB201_0021_JIDD AM50-0	Language Ladder Logic Diagram (LD) Device Image: Compare the compared of
<u>N</u> ame: Ethe Location: F:\∑	rnet/P [J]]/program	OK Cancel



4、下面要进行控制器联机,双击"Device (AM401-CPU1608TP/TN),最右侧可以看到 PLC 图标位置是黑色小点,说明未联机。点击中间"Scan Network…",并在弹出的对话框中选择 "AM401-CPU1608TN【0003.89AA.B058】",然后点击'OK'。此时可以看到 PLC 位置黑色小 点变成绿色,代表联机正常。

evices 🗸 🗸 🤿	🗙 📝 Network Configuration 🛛 🚺 Hardwar	e Configuration		
demo Device (AM401-CPU1608TP/TN)	Communication Settings Scan Netwo	ork Gateway • Device •		
Device Diagnosis Metwork Configuration	Applications		-	
EtherCAT Config	Backup and Restore			
EccalBus Config	Files			•
Application	PLC Settings	Gateway	DESKTOP-80V4TE	
PLC_PRG (PRG)	PLC Shell	IP-Address:		
Task Configuration	Users and Groups	Port:		
ETHERCAT.E ETHERCAT	100	1217		

ect Device	×
lect the network path to the controller:	
🗄 🖓 🖕 Gateway-1	Device Name: Scan network
AM401-CPU1608TN [0003.89AA.B058]	AM401-CPU1608TN Wink
	Device Address:
	0003.89AA.B058
	Black driven
	UDP
	Number of
	4
	Target ID:
	Target Name:
	Inovance-ARM-
	<u>OK</u> <u>C</u> ancel
Hardware Configuration	<u>OK</u> <u>C</u> ancel .::
Hardware Configuration Device X Scan Network Gateway Device	QK <u>C</u> ancel
Hardware Configuration Device X Scan Network Gateway Device	
Hardware Configuration Device X Scan Network Gateway V Device V Gateway	
Hardware Configuration Device X Scan Network Gateway • Device • Gateway Gateway-1	<u>QK</u> <u>Cancel</u>
Hardware Configuration Device X Scan Network Gateway • Device • Gateway Gateway IP-Address:	QK Cancel
Hardware Configuration Device X Scan Network Gateway V Device V Gateway Gateway Gateway IP-Address: Iocalhost	QK Cancel
Hardware Configuration Device X Scan Network Gateway Device Gateway Gateway Gateway IP-Address: Iocalhost Port:	QK Cancel

注:如果扫描不到网络路径,应该检查一下菜单右下角的网关和控制器是否启动,请确保网 关和控制器处于启动状态(启动后为红色,未启动为灰色)



5 安装 EDS 文件,点击"Tools"---"Device Repository…,在弹出对话框中点击"Install",然后选择 EDS 文件安装路径,点击"打开"。

F:\;[]||\program\EthernetIP\EthernetIP.project* - InoProShop(V1.8.1.1)





Name		Vendor	Vers
🖨 👄 Et	herNet/IP Remote Adapter		
	AC700 Series PLC EIP Adapter	Inovance	Major
🖬	AC800 Series PLC EIP Adapter	Inovance	Major
(AI800 Series PLC EIP Adapter	Inovance	Major
	AM300 Series PLC EIP Adapter	Inovance	Major
	AM400 Series PLC EIP Adapter	Inovance	Major
	AM500 Series PLC EIP Adapter	Inovance	Major
	AM600 Series PLC EIP Adapter	Inovance	Major
	AM700 Series PLC EIP Adapter	Inovance	Major
	Easy	Inovance	Major
	ELIP-8IOL-xxx v5.6	Sentinel	Major
	EtherNetTP Adapter	35 - Smart Software Solutions GmbH	Maior

C:\Users\\zh_n\Desktop\EthernetIP\Sentinel_ELIP_8IOL v5.6\Sentinel_ELIP_8IOL v5.6.eds
 Device "ELIP-8IOL-xxx v5.6" installed to device repository.

6、双击左侧"Network Configuration",在右侧 PLC 图标处,点击网口,在弹出的对话框中勾选"Ethernet /IP Master"



🔗 Network Configuration 🗙	
\Rightarrow Refresh 🛛 🖆 Copy 👘 Paste	🖞 Delete 📩 Undo 💣 Redo 🛛 🙆 Import EDS File
	ĴCOM 0 □ Modbus Master □ Modbus Slav
Ŭ,	CANO CANopen Master CANlink Ma:
₿ E	Vethernet NodbusTCP Master ModbusTCP :
	JEtherCAT □EtherCAT Master
	FtherNet/IP EtherNet/IP ■aster EtherNet/I

7、再从视图右侧的"网络设备列表"中在"Ethernet/IP Port"目录下,找到森特奈模块型号 "ELIP-8IOL-xxx",双击将其添加到网络中。

🛿 💥 Network Configuration 🗙	 Network Devices List
👒 Refresh l 🖀 Copy 👘 Paste 🛱 Delete 为 Undo 🕜 Redo 🛛 🚳 Import EDS File	 Image: Serial Port Image: Image: Serial Port Image: Serial Port
CON 0	CANopen Port CANopen Port CANopen Port CANOPEN CAN PORT CAN
CANopen Master CANlink Master CAN	Inovance Inovance
	Generic EtherNet/IP device
VEtherCAT	ELIP-BIOL-XXX v5.6
StherNet/IP	
ELIP_8IO L_xxx_v5 6 192.168. 1.2	
8、此时,在界面左侧视图中将出现 Ethernet/IP 组态配置对应设备	树,如下
🖨 🍪 EIPMasterServiceTask_A	
EtherNetIPMaster_A.ServiceCycle	
🖃 🍪 MainTask	
PLC_PRG	
Resources List	

	ELIP_8IOL_xxx_v5_6 (ELIP-8IOL-xxx v5.6)
	EtherNetIPMaster A (EtherNet/IP Scanner)
÷	Ethernet_A (Ethernet)
[HIGH_SPEED_IO (High Speed IO Module)
2	SoftMotion General Axis Pool

9、双击"Ethernet_A(Ethernet)"选择 Interface 后【……】→选择 eth0 所对应的 IP:192.168.0.88(默认)→点击【OK】

s – 4 ×	Network Configuration = ELIP_8IOL_xxx_y5_6	
Device [connected] (AM401-CPU1608TP/TN) Fault Diagnose Ketwork Configuration Ketwork Configuration	General Interface eth0	
PLC Logic	Network Adapters	×
- 號, DifferentialMonitor - 📶 Library Manager - 팬 PLC_PRG (PRG) = 🥳 Task Configuration	Name Description IP address IV 127.0.0.1 127.0.0.1 stD 192.108.0.88 1	
EtPMasterIOTask_A	ethi 0.0.0.0	
- @ Emerneti/Master_A.ServiceCyde ⇒ ∰ MainTask - @ PLC_RRG - @ Resources List	IP address 192.188.0.88 Subnet mask 255.255.05 Default gateway 0.0.0.0 NMC objects 27.12.40 MP 05.40	
SoftMotion General Axis Pool Extenset, A (Ethernet) Ethernet, A (Ethernet) Ethernet/EtherNetIfVaster A (Ethernet/IP Scanner) EtherNetIfVaster A	OK Cancel	Li
ELIP_8IOL_xxx_v5_6 (ELIP-8IOL-xxx v5		

10、双击【EtherNetIPMaster_A】→确认"Auto-reestablish connection"【自动重新建立连接】 已勾选。

→ ₽	×	🛞 Network Configuration 📄 ELIP_8IOL_xxx_v5_6 🛛 🗃 Ethe
thernetIP.project	- ^	
Device (AM401-CPU1608TP/TN)		General
Sealt Diagnose		EtherNet/ID Scapper I/O Mapping
🛛 🛞 Network Configuration		Earch weight Scaliner 1/0 Mapping
LocalBus Config		EtherNet/IP Scanner IEC Objects
- 🗐 - PLC Logic		
Application		Status
DifferentialMonitor		Information
👘 Library Manager		
PLC_PRG (PRG)		
ask Configuration		
🖃 🍪 EIPMasterIOTask_A		
EtherNetIPMaster_A.IOCycle		
EIPMasterServiceTask_A		
EtherNetIPMaster_A.ServiceCycle		
🖃 🍪 MainTask		
PLC_PRG		
Resources List		
SoftMotion General Axis Pool		
HIGH_SPEED_IO (High Speed IO Module)		
- I Ethernet A (Ethernet)		
EtherNetIPMaster_A (EtherNet/IP Scanner)	v	

11、双击"ELIP_8IOL_xxx",在右侧"General"中,输入模块的 IP 地址,下方"Electrinic Keying" 为电子键控, "compatibility check"兼容性检查、"strict identity check"严格的身份检查,客户可以根据需要选择。

Devices - 4 X	Network Configuration	ELIP_8IOL_xxx_v5_6 X		
Fault Diagnose	General	Address Settings		
S- X Network Configuration	Connections	IP address 192 . 168 . 0 . 5		
DIP FLC Logic Application	User-Defined Parameters	Clashrapia Kawing		
	EtherNet/IP I/O Mapping	Keying Options Compatibility check Strict identity check		
Ubrary Manager PLC_PRG (PRG)	EtherNet/IP IEC Objects			
=-129 Task Configuration =-129 EIPMasterIOTask_A	Status	Check device type 12		
EtherNetIPMaster_A.IOCyde EIPMasterServiceTask A	Information	Check vendor ID 2317		
EtherNetIPMaster_A.ServiceCycle		Check major revision 2		
		Check minor revision 3		
Resources List SoftMotion General Axis Pool		Restore Default Values		
HIGH_SPEED_IO (High Speed IO Module)				
EtherhattBMacter A /Etherhat/ID Scanner)				

12、点击"Connections",右侧显示模块占用配置数据 4 个字节,输入数据 266 字节,输出数据 256 字节,这是从 ESD 文件中加载的默认连接,无需更改。点击下方"Configuration Data",显示"IO-LinkPort Config"值默认为 255,这是配置 IO-Link 端口是否打开或者关闭,具体可参考模块说明书,本例中 255 即 2#11111111,表示 8 个端口都打开 IO-LINK 功能。用户可以根据实际连接子站情况设置该值。

seneral		0.01 (1 (D))			N
	Connection Name	RPI (ms)	O>T Size (Byt	es) T>O S	ize (Bytes)	Proxy Cont	ig Size (Byte	es) Target Co
onnections	····· Exlusive Owner	50	256	266				4
er-Defined Parameters								
erNet/IP I/O Mapping								
herNet/IP IEC Objects	<							
atus	Add Connection	Add Tag Co	nnection	Delete	E	dit		
formation	Assembly Configuration	Data						
	risseriery							
	Configuration Data							
	Configuration Data	Show Param	eter Groups					
	Configuration Data	Show Param	eter Groups alue Unit	Data Type	Minimum	Maximum	Default	Help String
	Configuration Data Raw data values Parameters Exlusive Owner	Show Param	eter Groups alue Unit	Data Type	Minimum	Maximum	Default	Help String
	Configuration Data Configuration Data Raw data values Parameters Exlusive Owner Target Config	Show Param	eter Groups alue Unit	Data Type	Minimum	Maximum	Default	Help String
	Configuration Data Configuration Data Raw data values Parameters Exclusive Owner Target Configuration To-LinkPort To-LinkPort	Show Param	eter Groups alue Unit 55	Data Type USINT	Minimum	Maximum 255	Default 255	Help String IO-Link ports-b
	Parameters Parameters Extusive Owner Caracters	Show Param V o data t Config 25	eter Groups alue Unit 55	Data Type USINT USINT	Minimum 0	Maximum 255	Default 255 0	Help String IO-Link ports-b Reserve
	Parameters Parameters Ekdusive Owner Target Configuration Data Parameters Ekdusive Owner Target Configuration Reserve Reserve Reserve	Show Param	eter Groups alue Unit 55	Data Type USINT USINT USINT	Minimum 0	Maximum 255	Default 255 0 0	Help String IO-Link ports-b Reserve Reserve

13、选择"EtherNet/IP I/O Mapping"界面→将更新变量设置为"Enabled2"【启动 2(总是在总 线任务周期中)】

General	Find	Filter Sho	w all		- A	dd FB f	for IO Channel	Go to Instance	Ŧ
Connections	Variable	Mapping Channel	Address	Туре	Default Value	Unit	Description		^
	8-19	Input Data	%IB2	BYTE					
User-Defined Parameters	B- 🎭	Input Data	%IB3	BYTE					
	8-*9	Input Data	%IB4	BYTE					
therNet/IP I/O Mapping	B- 🍫	Input Data	%IB5	BYTE					
therNet/IP IEC Objects	B-*9	Input Data	%IB6	BYTE					
	8-19	Input Data	%IB7	BYTE					
itatus	B- %	Input Data	%IB8	BYTE					
	8-19	Input Data	%IB9	BYTE					
nformation	8-49	Input Data	%IB10	BYTE					
	B- 🍫	Input Data	%IB11	BYTE					
		Input Data	%IB12	BYTE					
	B- 🍫	Input Data	%IB13	BYTE					
	B- %	Input Data	%IB14	BYTE					
	8-10	Input Data	%IB15	BYTE					
	B- %	Input Data	%IB16	BYTE					
	B- 🍫	Input Data	%IB17	BYTE					
	🕸 - 🏘	Input Data	%IB 18	BYTE		_	_		
			Reset All Mappin	ng Var Alv	vays update va lable	es En	abled 2 (always in bu	us cyde task)	~
	🌾 = Create new variable	🍖 = Map to existing	variable			Use Envi	e parent device setti abled 1 (use bus cycl abled 2 (always in bu	ing le task if not used in any is cyde task)	task)
C						ER	abied 2 (always in bu	us cyde task)	

14、在确认组态软件已连接上 PLC 的情况下,将工程进行【编译】→【登录到】→【是,确 认下载】→【启动】,即可监控输入输出数据,具体字节对应,可以参考文末附录。

Enemetar project	General	Find Filter Show all - Add FB for IO Ch								
Fault Diagnose More Configuration	Connections	Variable	Mapping	Channel	Address	Туре	Default Value	Current Va		
LocalBus Config	User-Defined Parameters	÷ *		Input Data	%IB2	BYTE		132		
= III PLC Logic		-*>		Bit0	%IX2.0	BOOL		FALSE		
= 🔘 Application [run]	EtherNet/IP I/O Mapping	- **		Bit1	%IX2.1	BOOL		FALSE		
TifferentialMonitor	EtherNet/IP IEC Objects	- **		Bit2	%IX2.2	BOOL		TRUE		
Library Manager		-**		Bit3	%IX2.3	BOOL		FALSE		
PLC_PRG (PRG)	Status	- *		Bit4	%IX2.4	BOOL		FALSE		
ask Configuration	Information	-*		Bit5	%IX2.5	BOOL		FALSE		
😑 🍪 EIPMasterIOTask_A		- *		Bit6	%DX2.6	BOOL		FALSE		
EtherNetIPMaster_A		-*		Rit7	%TX2.7	BOOI		TRUE		
EIPMasterServiceTask_A (1) EtherNetIPMaster_A (2) MainTask (2) PIC_PRG		= Create new variable	~ ₩a	ap to existing va	Reset All Mappi ariable	ng Var Alv	vays update variable:	s Enabled 2 (alwa		

附录:

1、IO-LINK 配置数据(占用 4 Byte)

字节		描述								
	8位代表配置8个端口IO-LINK状态:0关闭,1打开									
Byte0	位	7	6	5	4	3	2	1	0]
	端口	C8	C7	C6	C5	C4	C3	C2	C1	
Derte 1		les for								
Бутет		保留								
Byte2		保留								
Byte3					保留					

2、IO-LINK 过程数据输入(占用 266 Byte)

字节	描述							
	8位代表8个端口当前IO-LINK状态:1正常通信,0未通信							
Byte0	位 7 6 5 4 3 2 1 0 端口 C8 C7 C6 C5 C4 C3 C2 C1							
	8位代表8个端口IO-LINK断线记录:1有过断线,0未有过断线							
Byte1	位 7 6 5 4 3 2 1 0 端口 C8 C7 C6 C5 C4 C3 C2 C1							
Byte2	C1端口断线次数							
Byte3	C2端口断线次数							
Byte4	C3端口断线次数							
Byte5	C4端口断线次数							
Byte6	C5端口断线次数							
Byte7	C6端口断线次数							
Byte8	C7端口断线次数							
Byte9	C8端口断线次数							
Byte10 - Byte41	C1端口过程输入数据(32Byte)							
Byte42 - Byte73	C2端口过程输入数据(32Byte)							
Byte74 - Byte105	C3端口过程输入数据(32Byte)							
Byte106 - Byte137	C4端口过程输入数据(32Byte)							
Byte138 - Byte169	C5端口过程输入数据(32Byte)							
Byte170 - Byte201	C6端口过程输入数据(32Byte)							
Byte202 - Byte233	C7端口过程输入数据(32Byte)							
Byte234 - Byte265	C8端口过程输入数据(32Byte)							

3、IO-LINK 过程数据输出(占用 256 Byte)

字节	描述
Byte0 - Byte31	C1端口过程输出数据(32Byte)
Byte32 - Byte63	C2端口过程输出数据(32Byte)
Byte64 - Byte95	C3端口过程输出数据(32Byte)
Byte96 - Byte127	C4端口过程输出数据(32Byte)
Byte128 - Byte159	C5端口过程输出数据(32Byte)
Byte160 - Byte191	C6端口过程输出数据(32Byte)
Byte192 - Byte223	C7端口过程输出数据(32Byte)
Byte224 - Byte255	C8端口过程输出数据(32Byte)