在倍福 TwinCAT3 环境下组态森特奈 Ethernet/IP



协议 10-L1NK 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 |
| TAP-Windows Adapter V9 | Unknown |
| Intel(R) Dual Band Wireless-AC 8265 | 192.168.1.253 |
| Microsoft Wi-Fi Direct Virtual Adapter #3 | Unknown |
| Microsoft Wi-Fi Direct Virtual Adapter #4 | Unknown |
| | |
| | |
| | |
| | |
| 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 – 🗌 🗙 | | | | |
|--|---------------|--|--|--|
| File Tools Help | | | | |
| Add Relation Discovery History | Clear History | | | |
| Ethernet Address (MAC) Type (hr:min:sec) # IP Address Hostname | | | | |
| 02:98:89:44:55:89 DHCP 11:22:08 4 | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Entered Relations | | | | |
| Ethernet Address (MAC) Type IR Address Hestname Description | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | Doletiona | | | |
| Lipphie to comings | Relations | | | |
| | 0 01 266 | | | |
| | | | | |
| | | | | |

| Add Relation | Discovery History | |
|--|---|-----|
| Ethernet Address (MAC | Type (hr:min:sec) # IP Address Hostname | |
| V2.50.05.44.JJ.05 | 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 | X | |
| - Server IP Address: 192 | 2.168.0.15 | |
| Client Address (MAC): 02: | 98:89:44:55:89 | |
| Client IP Address: | 92 . 168 . 0 . 10 | |
| Hostname: | | |
| Description: | | |
| ОК | Cancel | |
| | | |
| | | |
| BootP DHCP EtherNet/IP C | Commissioning Tool – | × |
| Add Relation | Discovery History Clear Histor | у |
| Ethernet Address (MAC) Typ 02:98:89:44:55:89 DH | e [fhr:min:sec] # IP Address Hostname CP 11:38:06 5 192.168.0.10 | |
| | | |
| | | |
| | Entered Deletions | |
| Ethernet Address (MAC) Typ | e IP Address Hostname Description | |
| UZ:98:89:44:55:89 DH | CP 192.168.0.10 | |
| | | |
| | | |
| Errors and warnings Sent 192 168 0 10 to Ethernet add | ress 02 98 89 44 55 89 | ins |
| | 10/20 | |

3、打开 TwinCAT XAE (VS 2013)软件,新建一个标准工程,自定义一个"名称"。点击"OK"。



4、根据 TwinCAT 软件安装路径, 按如图路径, 将森特奈 Ethernet/IP 协议 IO-LINK 主站的 EDS 文件复制进去。

| | 组织 | 新建 | 打开 | 选择 |
|-----------|--------------------------|-----------------|-----------------|------------------|
| 软件 (E:) > | TwinCAT > 3.1 > Config > | Io > EtherNetIP | v ت | 在 EtherNetIP 中搜索 |
| ^ | 名称 人 | | 修改日期 | 类型 |
| | BK9055.eds | | 2016/1/19 20:05 | 5 EDS 文件 |
| | BK9105.eds | | 2016/1/19 20:05 | 5 EDS 文件 |
| | EL6652-0010.EDS | | 2016/1/19 20:05 | 5 EDS 文件 |
| | ELIP-8IOL-XXXX.ico | | 2024/7/29 17:18 | 3 图标 |
| | ILB905.eds | | 2016/1/19 20:05 | 5 EDS 文件 |
| | Sentinel_ELIP_8IOL v5.6. | eds | 2024/7/29 16:43 | B EDS 文件 |
| | TF6280.eds | | 2016/1/19 20:05 | 5 EDS 文件 |
| | TS6280.eds | | 2016/1/19 20:05 | 5 EDS 文件 |

5、右键"Devices", 点击"Add New Item[…].",在弹出的对话框中选择"Ethernet/IP Scanner", 点击"OK"



6、双击"Device 1",点击右侧菜单"Adapter",点击下方"Search",在弹出的对话框中选择相 应的网卡

| on Explorer 🚽 🗸 🗸 | Ethernet-IP + × | | | |
|---|-----------------------|----------------------|--------------------|-----------------------------|
| С Io- II <i>У</i> - | General Adapter Ether | Net/IP Sync Task Set | tings Explicit Msg | Diag History DPRAM (Online) |
| n Solution Explorer (Ctrl+;) | | | | , |
| olution 'Ethernet-IP' (1 project) | Network Adapte | er 👘 | | |
| Ethernet-IP | | OS (NDIS) | ⊖ PCI | ODPRAM |
| | Description: | | | |
| | Description | | | |
| SAFETY | Device Name: | | <u> </u> | |
| 6 C++ | PCI Bus/Slot: | | | Search |
| I/O ↓ [™] Davisor | r er basyster. | | | Scuren |
| Devices Device 1 (TC3 EIP Scanner) | MAC Address: | 00 00 00 00 00 00 00 | | Compatible Devices |
| | ID Addroce | 00000000 | | |

| | | | | × |
|---|--|--|---|---|
| none) 쳞牙网络连接 (Blu 以太网 3 (TAP-Wind 本地连接* 3 (Micros 以 <mark>太网 (Realtek PC</mark> 本地连接* 4 (Micros VLAN (Intel(R) Dual | uetooth Device (Per dows Adapter V9) soft Wi-Fi Direct Virt le GbE Family Con soft Wi-Fi Direct Virt Band Wireless-AC i | sonal Area Netwol tual Adapter #3) troller) tual Adapter #4) 8265) | k)) | OK Cancel O Unused All |
| | | | | Help |
| ernet-IP 😐 🗙 | | | | |
| <mark>ernet-IP + ×</mark> ieneral Adapter Ethe | erNet/IP Sync Task | Settings Explicit N | Asg Diag Histor | ry DPRAM (Online |
| eernet-IP + × jeneral Adapter Ethe ● Network Adapt | erNet/IP Sync Task ter • OS (NDIS) | Settings Explicit N | Asg Diag Histor | ry DPRAM (Online |
| ernet-IP + × eeneral Adapter Ethe | erNet/IP Sync Task ter ④ OS (NDIS) 以太网 (Realtek | Settings Explicit N O PCI PCIe GbE Family Co | Asg Diag Histor | ry DPRAM (Online |
| ernet-IP + × General Adapter Ethe • Network Adapt Description: Device Name: | erNet/IP Sync Task ter ④ OS (NDIS) 以太网 (Realtek \DEVICE\{CE854 | Settings Explicit M O PCI PCIe GbE Family Co 1759-8797-4EFD-A | Asg Diag Histor O DPRA ontroller) A28-61A498A8 | ry DPRAM (Online AM i0CE7} |
| ernet-IP + × General Adapter Ethe Network Adapt Description: Device Name: PCI Bus/Slot: | erNet/IP Sync Task ter ④ OS (NDIS) 以太网 (Realtek \DEVICE\(CE854 | Settings Explicit M PCI PCIe GbE Family Co 1759-8797-4EFD-A | Asg Diag Histor O DPRA ontroller) A28-61A498A8 | ry DPRAM (Online AM 00CE7} |
| ernet-IP + × General Adapter Ethe Network Adapt Description: Device Name: PCI Bus/Slot: MAC Address: | erNet/IP Sync Task ter ④ OS (NDIS) 以太网 (Realtek \DEVICE\{CE854 84 a9 3e 0a 61 | Settings Explicit N PCI PCIe GbE Family Co 1759-8797-4EFD-A b0 | Asg Diag Histor O DPR ontroller) A28-61A498A8 S Compa | ry DPRAM (Online AM DOCE7} Search tible Devices |
| ernet-IP + × General Adapter Ethe Network Adapt Description: Device Name: PCI Bus/Slot: MAC Address: IP Address: | erNet/IP Sync Task ter ④ OS (NDIS) 以太网 (Realtek \DEVICE\(CE854 84 a9 3e 0a 61 192.168.1.13 (2 | Settings Explicit N PCI PCIe GbE Family Co 1759-8797-4EFD-A b0 55.255.255.0) | Asg Diag Histor ODPR ontroller) A28-61A498A8 | ry DPRAM (Online AM 00CE7} Search tible Devices |
| ernet-IP + × General Adapter Ethe Network Adapt Description: Device Name: PCI Bus/Slot: MAC Address: IP Address: | erNet/IP Sync Task ter ④ OS (NDIS) 以太网 (Realtek \DEVICE\(CE854 84 a9 3e 0a 61 192.168.1.13 (2 □ Promiscuous | Settings Explicit N PCI PCIe GbE Family Co 1759-8797-4EFD-A b0 55.255.255.0) Mode (use with Wi | Asg Diag Histor DPRA ontroller) A28-61A498A8 Compa reshark only) | ry DPRAM (Online AM 00CE7} Search tible Devices |

7、点击菜单"sync Task"同步任务设置, 查看 Twincat 使用说明, 推荐使用 Special Sync Task, 因为如果使用"Standard (via Mapping)", 而调试程序的时候又使用了断点的话, 整个 Ethernet/IP 通信就会停止。任务周期默认为 1ms, 根据实际需要可以适当延长, 尤其是站点 多的系统, 1ms 周期太短。

| eneral Adapter Et | herNet/IP | Sync Task | Settings | Explicit Me | ssaging List | Simple I | Messaging (b |
|------------------------------------|-----------|-------------------------------|------------|--------------|--------------|----------|--------------|
| Settings | | | | | | | |
| 🔾 Standard (via | Mapping) | | | | | | |
| Special Sync T | ask | | | | | | |
| Task 2 | | | \sim | | Create new | I/O Task | |
| | | | | | | | |
| Sync Task | Tasl | < 2 | | | | | |
| Sync Task Name: | Tasl | <2 | | 1.000 | | ms | |
| Sync Task Name: Cycle ticks: | Task 1 | < 2 .djustable l | by Protoco | 1.000 | | ms | |

8、点击菜单"settings",设置主站 IP 地址(注:这个不是 IO-LINK 主站模块的地址!要设置 为与从站【即 IO-LINK 主站】同一网段,可以与物理网卡不一致)和子网掩码(255.255.255.0), Gateway Address 设置为物理网卡的 IP 地址 192.168.1.13

| eneral Adapter EtherNet/IP Syn | c Task Se | ttings Exp | licit Msg | Diag Hist | ory DP |
|--------------------------------|-----------|------------|-----------|-----------|--------|
| | | | | | |
| Master Settings | | 1 | | | |
| Index Name | Flags | Value | | Unit | |
| | M RO | > 43 < | | | |
| F80 Number | M RO | 0x0001 (1 |) | | |
| F80 Product Name | M RW | Device 1 (| TC3 EIP | | |
| F80 Device Type | M RO | 0x000C (1 | 2) | | |
| F80 Vendor ID | M RO | 0x006C (1 | 08) | | |
| F80 Product Code | M RO | 0x1889 (6 | 281) | | |
| F80 Revision | M RO | 3.1 | | | |
| F80 Serial Number | M RO | 0x000000 | 00 (0) | | |
| F80 MAC Address | M RO | 86 A9 3E | 0A 61 B0 | | |
| F80 IP Address | M RW | 0.0.0.0 | | | |
| F80 Network Mask | M RW | 0.0.0.0 | | | |
| F80 Gateway Address | M RW | 0.0.0.0 | | | |
| F80 DHCP Max Retries | M RW | 0 | | | |
| | | | | | |
| | | | | | |

General Adapter EtherNet/IP Sync Task Settings Explicit Messaging I

| Master Set | tings | | |
|--------------|------------------|-------|-------------------|
| Index | Name | Flags | Value |
| − F80 | Master Settings | M RO | > 43 < |
| F | Number | M RO | 0x0001 (1) |
| F | Product Name | M RW | Device 1 (TC3 EIP |
| F | Device Type | M RO | 0x000C (12) |
| F | Vendor ID | M RO | 0x006C (108) |
| F | Product Code | M RO | 0x1889 (6281) |
| F | Revision | M RO | 3.1 |
| F | Serial Number | M RO | 0x00000000 (0) |
| F | MAC Address | M RO | 86 A9 3E 0A 61 B0 |
| F | IP Address | M RW | 192.168.1.10 |
| F | Network Mask | M RW | 255.255.255.0 |
| F | Gateway Address | M RW | 192.168.1.13 |
| F | DHCP Max Retries | M RW | 0 |

9、设置完成后,通过点击"Reload Devices"就可以把参数写入硬件,从 CoE 参数 0xF900 中就可以验证,如图

| Index | Name | Flags | Value |
|--------------|------------------|-------|-------------------|
| ∃ F80 | Master Settings | M RO | > 43 < |
| Ē F90 | Master Info | RO | > 43 < |
| F | Number | RO | 0x0001 (1) |
| F | Product Name | RO | Device 1 (TC3 EIP |
| F | Device Type | RO | 0x000C (12) |
| F | Vendor ID | RO | 0x006C (108) |
| F | Product Code | RO | 0x1889 (6281) |
| F | Revision | RO | 3.1 |
| F | Serial Number | RO | 0x0000000 (0) |
| F | MAC Address | RO | 02 00 00 00 00 00 |
| F | IP Address | RO | 192.168.1.10 |
| F | Network Mask | RO | 255.255.255.0 |
| F | Gateway Address | RO | 192.168.1.13 |
| F | DHCP Max Retries | RO | 0 |
| l : - | TOD #D TT | 2.2 | 100 |

10、添加 Ethernet/IP 从站设备, 右键"Device 1", 点击"Scan"进行自动扫描 (也可以点击"Add New Item", 手动选择, 建议采用扫描方式)





11、点击扫描出的 IO-Link 主站模块"ELIP-8IOL-xxxx", 右侧"settings"下方已经把模块 IP 地址扫描出来。(如果手动添加的话,该处得手动填入 IP 地址)



11、设置从站的 I/O connecting 连接信息,右键主站模块"ELIP-8IOL-xxxx",选择"Load from EDS File",在弹出的对话框中找到之前安装的森特奈 EDS 文件"ELIP-8IOL-xxxx",点击"OK"





12、右键主站模块"ELIP-8IOL-xxxx",选择"Append IO Connection"----"Exlusive Owner",点击"是"



13、左侧在"Connection 1 (Input/Output) 目录下将增加 266 字节的"Inputs"以及 256 字节 的"Outputs"。



14、点击"Connection 1 (Input/Output),点击右侧菜单"Config instance"查看配置参数,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。

| stance Config Instance (hex) Name IO-LinkPort Config | Value 255 |
|--|-------------------------------|
| Name IO-LinkPort Config | Value |
| IO-LinkPort Config | 255 |
| Reserve | 0 |
| | Reserve Reserve Reserve |

15、以上步骤, Ethernet/IP 就配置完成, 下载启动前, 要有变量连接, 否则下载不了。右键 "PLC", 点击"Add New Item", 选择标准 PLC 程序, 点击"ADD"



| Add New Item - EthernetIP | | | ? × |
|---------------------------|------------------------------------|-------------------|-------------------------------------|
| ▲ Installed | Sort by: Default | | Search Installed Templates (Ctrl+E) |
| Plc Templates | Standard PLC Project | Plc Templates | Type: Plc Templates |
| | Empty PLC Project | Plc Templates | containing a task and a program. |
| | Click here to go online and | d find templates. | |
| Name: Untitled | 1 | | |
| Location: E:\TwinC | AT\Projects\EthernetIP\EthernetIP\ | • | Browse |

16、找到 PLC 目录下的"MAIN (PGR)",双击打开,同时定义两个变量,一个输入字节 x1, 一个输出字节 y1,如图所示



17、右键"Untitled1 Project",点击"Build"编译,编译完成后,在"Untitled1 instance"下,可以 看到两个之前定义的变量 x1、y1



18、点击"MAIN.X1",再点击右侧"Linked to",在弹出对话框中选择从站模块输入字节的第一个字节,然后点击 OK,对于"MAIN.y1"操作方式一样,与一个输出字节映射起来。



19、点击菜单"TWINCAT"----"Active Configuration"激活配置-----点击"OK"

| oft Visua | l Studio | | | | | | | | | | |
|-------------------------------|---------------------|-----------|-----|-------------------------------|-----------------|-----|-------|-------|--------|--|--|
| ROJECT | BUILD | DEBUG | TW | INCAT | TWINSAFE | PLC | SCOPE | TOOLS | WINDOW | | |
| 2 | ¥ 🌯 | 0 8 9 | | Windo | WS | | | | • - | | |
| - - 8 | > 🔤 🛛 | 🔹 🤹 🔍 I | нè. | Activa | te Configuratio | on | | | F | | |
| | | | * | Restar | t TwinCAT Sys | tem | | | | | |
| 6 _ | | | * | Restart TwinCAT (Config Mode) | | | | | | | |
| | 4 | | | Reload Devices | | | | | | | |
| (Ctrl+;) | | | 14 | Scan | | | | | | | |
| Activat | e Configu | uration | | | × | | | | | | |
| Project: | Et | thernetIP | | | | | | | | | |
| Target: | Target: <pre></pre> | | | | | | | | | | |
| Autostart PLC Boot Project(s) | | | | | | | | | | | |
| | | | OK | | Cancel | | | | | | |

20、然后点击菜单"Login"登陆, ----点击"YES", 最后点击"Start"启动

| | | D | | Q uick Launch |
|------------------|---|-------------------|-------------------|------------------------|
| • | Release TwinC <local> +</local> | AT RT (x64) | • 🞜 • 1 | |
| MAIN Ether | netIP → × | | | Login |
| Variable Flags (| Online | | | Login |
| Name: | MAIN.y1 | | | |
| Type: | BYTE | | | |
| Group: | PlcTask Outputs | Size: | 1.0 | |
| Address: | 385009 (0x5DFF1) | User ID: | 0 | |
| Linked to | Output Data . Outputs . Conn | ection 1 (Input/O | utput) . ELIP-8IO | L-xxxx . Device 1 (TC3 |
| | _ | | | |
| | | | | |

| TwinCAT PI | _C Control | | | | × |
|------------------|--------------------------------------|--------------------------------|---------------------------------|-----------------------|------------------|
| ? A | pplication 'Port ou want to creat | _851' does no e it and proc | ot exist on de eed with down | vice 'Ethern load? | etIP'. Do |
| | | Yes | No | | Details |
| | | | | | |
| | | | Ŷ | Quick Launch (Ct | rl+Q) 🔎 🗕 |
| FE PLC SCOPE | TOOLS WINDOW | HELP | _ | | |
| . • | - Release - T | winCAT RT (x64) | - 🎜 | | - 🖓 🖌 🖾 🛍 🛍 |
| rnetIP · | <local></local> | | ■ | -∃ 🕨 = 🗲 🤇 | . 🤇 🕫 🖿 💍 🖆 🖆 |
| MAIN [Online] | EthernetlP 👍 🗙 | | | Start | |
| Variable Flags (| Dnline | | | | |
| Name: | MAIN.y1 | | | | |
| Туре: | BYTE | | | | |
| Group: | PlcTask Outputs | Size: | 1.0 | | |
| Address: | 385009 (0x5DFF1) | User ID: | 0 | | |
| | Output Data Outputs | C | | Device 1 (TC) FI | Courses) Devices |

21、启动后,在"Connection 1 (Input/Output)目录下监控"Inputs"(就是森特奈 Ethernet/IP 协议 IO-Link 主站模块的输入过程数据)以及"Outputs"(输出过程数据)。具体字节对应关系可以参考文末的附录。

| ition Explorer | • ¶ × | MAIN [Online] | EthernetIP - | ₽ X | |
|-----------------------------------|------------|----------------|--------------|---------|-------|
| ○ 🏠 To - 🗊 🔑 💻 | | Variable Flags | Online | | |
| rch Solution Explorer (Ctrl+;) | ب م | | | | |
| Inputs | | Value: | 0x19 | | |
| Outputs | | New Value: | Force | Write | |
| ELIP-8IOL-xxxx | | | Torce | Release | witte |
| Inputs | | Comment: | | | |
| ▷ I Outputs | | conniciti. | | | |
| Linput | | | | | |
| Input Data | | | | | |
| Input Data 1 | | | | | |
| 🔁 Input Data 2 | | | | | |
| 🐔 Input Data_3 | | | | | - |
| 🔁 Input Data_4 | | | | | |
| Input Data_5 | | | | | 25 |
| Input Data_6 | | | | | |
| P Input Data_7 | | | | | |
| The Input Data_o | | | | | |
| Input Data 10 | | | | | |
| ✓ Input Data 11 | | | | | |
| 🐔 Input Data_12 | | | | | |

附录:

| 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 | б | 5 | 4 | 3 | 2 | 1 | 0 |] |
| | 端口 | C8 | C7 | C6 | C5 | C4 | C3 | C2 | C1 |] |
| | | | | | | | | | | |
| Byte1 | 保留 | | | | | | | | | |
| Byte2 | 保留 | | | | | | | | | |
| Byte3 | | | | | | | | | | |

1、IO-LINK 配置数据(占用 4 Byte)

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 | |
| | 対ロレ | 00 | 01 | 00 | 05 | V4 | 05 | 02 | | |
| | 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 | | | (| 28端口[| 新线次数 | 牧 | | | | |
| Byte10 - Byte41 | | C | 1端口〕 | 过程输) | \数据(| 32Byte | e) | | | |
| Byte42 - Byte73 | | C | 2端口〕 | 过程输) | \数据(| 32Byte | e) | | | |
| Byte74 - Byte105 | | C | 3端口ì | 过程输入 | 、数据(| 32Byte | e) | | | |
| Byte106 - Byte137 | C4端口过程输入数据(32Byte) | | | | | | | | | |
| Byte138 - Byte169 | | C | /5端口〕 | 过程输) | \数据(| 32Byte | e) | | | |
| Byte170 - Byte201 | C6端口过程输入数据(32Byte) | | | | | | | | | |
| Byte202 - Byte233 | | C | 7端口ì | 过程输入 | 、数据(| 32Byte | e) | | | |
| Byte234 - Byte265 | | C | 8端口) | 过程输入 | 、数据(| 32Byte | e) | | | |

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) |