



AI-EtherCAT32 转换器说明书

V1.5



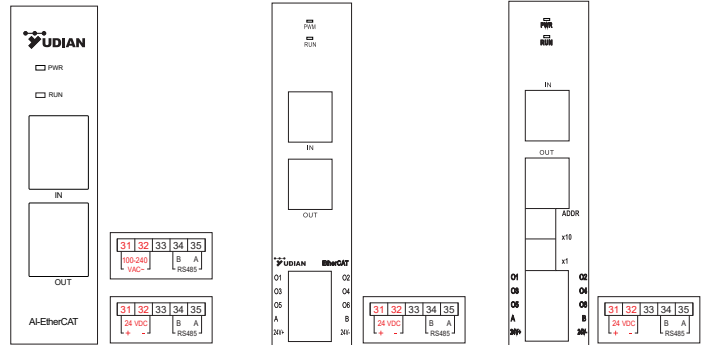
一. 版本历史

| 版本 | 修改内容 | 日期 |
|--------|---------------------------------|------------|
| V0.1 | 首次发行测试版本 | 2023-1-9 |
| V0.2 | 修改状态，00- 停止，01- 运行 | 2023-2-10 |
| V0.3 | 增加手动 / 自动模式（v9.21） | 2023-3-3 |
| V0.4 | 1. 增加主机掉线保护 2. 调整手动和 AT 取消位号 | 2023-4-3 |
| V0.5 | 手自动状态改为 bit5 | 2023-4-10 |
| V1.0 | 修改为发行版本的 ID 号 | 2023-5-18 |
| V1.1.3 | 新增 SCB、HIAL 参数 | 2024-8-28 |
| V1.2 | 新增支持 8 路表 | 2024-12-31 |
| V1.3 | 新增支持 6016、6032 | 2025-1-8 |
| V1.4 | 新增部分参数 | 2025-1-15 |
| V1.5 | 新增支持 8848 | 2025-6-20 |

二. 型号说明

| | | | | | |
|------|------------|-----|-----|-----------|--------------|
| AI - | □ - | □ - | □ - | □ | 说明 |
| 型号 | EtherCAT32 | | | | 32 通道协议转换器 |
| 外形 | | D71 | | | |
| | | D92 | | | |
| 物理地址 | | | D | | 拨码地址（默认不选用） |
| 供电方式 | | | | 100-240AC | 默认为 24VDC 供电 |
| | | | | 24VDC | |

三. 外观及接线



D71 外形及接线图

指示灯：

PWR: 电源指示灯

RUN: 总线指示灯

旋转编码器：

x10: EtherCAT 地址十位（十进制）

x1: EtherCAT 址址个位（十进制）

接线说明：

| 端口 | 说明 |
|-------|--------------|
| IN | EtherCAT 输入口 |
| OUT | EtherCAT 输出口 |
| A | RS485-A（外接） |
| B | RS485-B（外接） |
| 24V+ | 24VDC 电源正极 |
| 24V- | 24VDC 电源负极 |
| O1-O6 | 预留 |

其他注意事项：

- 背板电源 24VDC 与面板电源 24VDC 任接一组即可；
- 背板 RS485 与面板 RS485 相通。

四. 概述

AI-EtherCAT 转换器 V1.5 适配 宇电 AI 系列温控仪表的 V9 版本支持 MODBUS RTU 协议的 7048/7248/7648 等四路控制仪表、8388/8588 等八路控制仪表、6016 及 6032 仪表。

上述温控仪表与 AI-EtherCAT 转换器连接时，需要将仪表设置为标准 MODBUS RTU 模式，即 AF 参数（v9.05 以上版本）的 H 位设置为 1(十进制 128)，或有 AFC 的版本（v9.21 及以上）将 AFC 设 0 切换至 MODBUS；Baud 参数设为 19200。

7X48、8848 等 4 路仪表 Addr 设置为 1、5、9、13、17、21、25、29。

8X88 等 8 路仪表 Addr 设置为 1、9、17、25。

6016 仪表 Addr 设置为 1、17。

6032 仪表 Addr 设置为 1。

仪表标志位未进行设置时，默认为 000，此时转换器自动识别仪表特征字（仅识别 7x48 系列仪表，其余仪表必须设置仪表标志位）：仪表标志位设置为 111 时表示八路表，100 时表示四路表（8848 除外，需设置为 101），011 时表示 16 路仪表 6616，010 时表示 32 路仪表 6032。

五. 输入数据（Input mapping）

5.1 输入数据总览

| 索引 | 子索引 | I/O 端品名称 | 数据类型 | 初始值 | 备注 |
|--------|-----|-----------------------|--------|-----|---|
| 0x6000 | 1 | Ch1 Operating Status | UINT16 | 0 | Ch1~32 运行状态，详情见 5.2 |
| | 2 | Ch2 Operating Status | UINT16 | 0 | |
| | 3 | Ch3 Operating Status | UINT16 | 0 | |
| | 4 | Ch4 Operating Status | UINT16 | 0 | |
| | 5 | Ch5 Operating Status | UINT16 | 0 | |
| | 6 | Ch6 Operating Status | UINT16 | 0 | |
| | 7 | Ch7 Operating Status | UINT16 | 0 | |
| | 8 | Ch8 Operating Status | UINT16 | 0 | |
| | 9 | Ch9 Operating Status | UINT16 | 0 | |
| | 10 | Ch10 Operating Status | UINT16 | 0 | |
| | 11 | Ch11 Operating Status | UINT16 | 0 | |
| | 12 | Ch12 Operating Status | UINT16 | 0 | |
| | 13 | Ch13 Operating Status | UINT16 | 0 | |
| | 14 | Ch14 Operating Status | UINT16 | 0 | |
| | 15 | Ch15 Operating Status | UINT16 | 0 | |
| | 16 | Ch16 Operating Status | UINT16 | 0 | |
| | 17 | Ch17 Operating Status | UINT16 | 0 | |
| | 18 | Ch18 Operating Status | UINT16 | 0 | |
| | 19 | Ch19 Operating Status | UINT16 | 0 | |
| | 20 | Ch20 Operating Status | UINT16 | 0 | |
| | 21 | Ch21 Operating Status | UINT16 | 0 | |
| | 22 | Ch22 Operating Status | UINT16 | 0 | |
| | 23 | Ch23 Operating Status | UINT16 | 0 | |
| | 24 | Ch24 Operating Status | UINT16 | 0 | |
| | 25 | Ch25 Operating Status | UINT16 | 0 | |
| | 26 | Ch26 Operating Status | UINT16 | 0 | |
| | 27 | Ch27 Operating Status | UINT16 | 0 | |
| | 28 | Ch28 Operating Status | UINT16 | 0 | |
| | 29 | Ch29 Operating Status | UINT16 | 0 | |
| | 30 | Ch30 Operating Status | UINT16 | 0 | |
| | 31 | Ch31 Operating Status | UINT16 | 0 | |
| | 32 | Ch32 Operating Status | UINT16 | 0 | |
| 0x6001 | 1 | Ch1 Process Data | INT16 | 0 | Ch1~32 测量值（PV），默认单位为 0.1℃。单位可在仪表上设置，具体参考说明书 |
| | 2 | Ch2 Process Data | INT16 | 0 | |
| | 3 | Ch3 Process Data | INT16 | 0 | |
| | 4 | Ch4 Process Data | INT16 | 0 | |
| | 5 | Ch5 Process Data | INT16 | 0 | |
| | 6 | Ch6 Process Data | INT16 | 0 | |
| | 7 | Ch7 Process Data | INT16 | 0 | |
| | 8 | Ch8 Process Data | INT16 | 0 | |
| | 9 | Ch9 Process Data | INT16 | 0 | |
| | 10 | Ch10 Process Data | INT16 | 0 | |
| | 11 | Ch11 Process Data | INT16 | 0 | |
| | 12 | Ch12 Process Data | INT16 | 0 | |
| | 13 | Ch13 Process Data | INT16 | 0 | |
| | 14 | Ch14 Process Data | INT16 | 0 | |
| | 15 | Ch15 Process Data | INT16 | 0 | |
| | 16 | Ch16 Process Data | INT16 | 0 | |
| | 17 | Ch17 Process Data | INT16 | 0 | |
| | 18 | Ch18 Process Data | INT16 | 0 | |
| | 19 | Ch19 Process Data | INT16 | 0 | |
| | 20 | Ch20 Process Data | INT16 | 0 | |
| | 21 | Ch21 Process Data | INT16 | 0 | |
| | 22 | Ch22 Process Data | INT16 | 0 | |
| | 23 | Ch23 Process Data | INT16 | 0 | |
| | 24 | Ch24 Process Data | INT16 | 0 | |
| | 25 | Ch25 Process Data | INT16 | 0 | |
| | 26 | Ch26 Process Data | INT16 | 0 | |
| | 27 | Ch27 Process Data | INT16 | 0 | |
| | 28 | Ch28 Process Data | INT16 | 0 | |
| | 29 | Ch29 Process Data | INT16 | 0 | |
| | 30 | Ch30 Process Data | INT16 | 0 | |
| | 31 | Ch31 Process Data | INT16 | 0 | |
| | 32 | Ch32 Process Data | INT16 | 0 | |

| | | | | | |
|--------|----|---------------------|-------|---|--------------------|
| 0x6002 | 1 | Ch1 Set Value | INT16 | 0 | Ch1~32 SV 值，单位同测量值 |
| | 2 | Ch2 Set Value | INT16 | 0 | |
| | 3 | Ch3 Set Value | INT16 | 0 | |
| | 4 | Ch4 Set Value | INT16 | 0 | |
| | 5 | Ch5 Set Value | INT16 | 0 | |
| | 6 | Ch6 Set Value | INT16 | 0 | |
| | 7 | Ch7 Set Value | INT16 | 0 | |
| | 8 | Ch8 Set Value | INT16 | 0 | |
| | 9 | Ch9 Set Value | INT16 | 0 | |
| | 10 | Ch10 Set Value | INT16 | 0 | |
| | 11 | Ch11 Set Value | INT16 | 0 | |
| | 12 | Ch12 Set Value | INT16 | 0 | |
| | 13 | Ch13 Set Value | INT16 | 0 | |
| | 14 | Ch14 Set Value | INT16 | 0 | |
| | 15 | Ch15 Set Value | INT16 | 0 | |
| | 16 | Ch16 Set Value | INT16 | 0 | |
| | 17 | Ch17 Set Value | INT16 | 0 | |
| | 18 | Ch18 Set Value | INT16 | 0 | |
| | 19 | Ch19 Set Value | INT16 | 0 | |
| | 20 | Ch20 Set Value | INT16 | 0 | |
| | 21 | Ch21 Set Value | INT16 | 0 | |
| | 22 | Ch22 Set Value | INT16 | 0 | |
| | 23 | Ch23 Set Value | INT16 | 0 | |
| | 24 | Ch24 Set Value | INT16 | 0 | |
| | 25 | Ch25 Set Value | INT16 | 0 | |
| | 26 | Ch26 Set Value | INT16 | 0 | |
| | 27 | Ch27 Set Value | INT16 | 0 | |
| | 28 | Ch28 Set Value | INT16 | 0 | |
| | 29 | Ch29 Set Value | INT16 | 0 | |
| | 30 | Ch30 Set Value | INT16 | 0 | |
| | 31 | Ch31 Set Value | INT16 | 0 | |
| | 32 | Ch32 Set Value | INT16 | 0 | |
| 0x6003 | 1 | Ch1 PV Input Shift | INT16 | 0 | Ch1~32 测量平移修正（SCB） |
| | 2 | Ch2 PV Input Shift | INT16 | 0 | |
| | 3 | Ch3 PV Input Shift | INT16 | 0 | |
| | 4 | Ch4 PV Input Shift | INT16 | 0 | |
| | 5 | Ch5 PV Input Shift | INT16 | 0 | |
| | 6 | Ch6 PV Input Shift | INT16 | 0 | |
| | 7 | Ch7 PV Input Shift | INT16 | 0 | |
| | 8 | Ch8 PV Input Shift | INT16 | 0 | |
| | 9 | Ch9 PV Input Shift | INT16 | 0 | |
| | 10 | Ch10 PV Input Shift | INT16 | 0 | |
| | 11 | Ch11 PV Input Shift | INT16 | 0 | |
| | 12 | Ch12 PV Input Shift | INT16 | 0 | |
| | 13 | Ch13 PV Input Shift | INT16 | 0 | |
| | 14 | Ch14 PV Input Shift | INT16 | 0 | |
| | 15 | Ch15 PV Input Shift | INT16 | 0 | |
| | 16 | Ch16 PV Input Shift | INT16 | 0 | |
| | 17 | Ch17 PV Input Shift | INT16 | 0 | |
| | 18 | Ch18 PV Input Shift | INT16 | 0 | |
| | 19 | Ch19 PV Input Shift | INT16 | 0 | |
| | 20 | Ch20 PV Input Shift | INT16 | 0 | |
| | 21 | Ch21 PV Input Shift | INT16 | 0 | |
| | 22 | Ch22 PV Input Shift | INT16 | 0 | |
| | 23 | Ch23 PV Input Shift | INT16 | 0 | |
| | 24 | Ch24 PV Input Shift | INT16 | 0 | |
| | 25 | Ch25 PV Input Shift | INT16 | 0 | |
| | 26 | Ch26 PV Input Shift | INT16 | 0 | |
| | 27 | Ch27 PV Input Shift | INT16 | 0 | |
| | 28 | Ch28 PV Input Shift | INT16 | 0 | |
| | 29 | Ch29 PV Input Shift | INT16 | 0 | |
| | 30 | Ch30 PV Input Shift | INT16 | 0 | |
| | 31 | Ch31 PV Input Shift | INT16 | 0 | |
| | 32 | Ch32 PV Input Shift | INT16 | 0 | |
| 0x6004 | 1 | Ch1 MV Monitor | INT16 | 0 | Ch1~32 输出百分比（MV） |
| | 2 | Ch2 MV Monitor | INT16 | 0 | |
| | 3 | Ch3 MV Monitor | INT16 | 0 | |
| | 4 | Ch4 MV Monitor | INT16 | 0 | |
| | 5 | Ch5 MV Monitor | INT16 | 0 | |
| | 6 | Ch6 MV Monitor | INT16 | 0 | |
| | 7 | Ch7 MV Monitor | INT16 | 0 | |
| | 8 | Ch8 MV Monitor | INT16 | 0 | |
| | 9 | Ch9 MV Monitor | INT16 | 0 | |
| | 10 | Ch10 MV Monitor | INT16 | 0 | |
| | 11 | Ch11 MV Monitor | INT16 | 0 | |
| | 12 | Ch12 MV Monitor | INT16 | 0 | |
| | 13 | Ch13 MV Monitor | INT16 | 0 | |
| | 14 | Ch14 MV Monitor | INT16 | 0 | |
| | 15 | Ch15 MV Monitor | INT16 | 0 | |
| | 16 | Ch16 MV Monitor | INT16 | 0 | |
| | 17 | Ch17 MV Monitor | INT16 | 0 | |
| | 18 | Ch18 MV Monitor | INT16 | 0 | |
| | 19 | Ch19 MV Monitor | INT16 | 0 | |
| | 20 | Ch20 MV Monitor | INT16 | 0 | |
| | 21 | Ch21 MV Monitor | INT16 | 0 | |
| | 22 | Ch22 MV Monitor | INT16 | 0 | |
| | 23 | Ch23 MV Monitor | INT16 | 0 | |
| | 24 | Ch24 MV Monitor | INT16 | 0 | |
| | 25 | Ch25 MV Monitor | INT16 | 0 | |
| | 26 | Ch26 MV Monitor | INT16 | 0 | |
| | 27 | Ch27 MV Monitor | INT16 | 0 | |
| | 28 | Ch28 MV Monitor | INT16 | 0 | |
| | 29 | Ch29 MV Monitor | INT16 | 0 | |
| | 30 | Ch30 MV Monitor | INT16 | 0 | |
| | 31 | Ch31 MV Monitor | INT16 | 0 | |
| | 32 | Ch32 MV Monitor | INT16 | 0 | |

| | | | | | |
|--------|----|------------------------------|--------|---|--------------------------------|
| 0x6005 | 1 | Ch1 Output and Alarm Status | UINT16 | 0 | Ch1~32 输出和报警状态，详情见 5.3、5.4、5.5 |
| | 2 | Ch2 Output and Alarm Status | UINT16 | 0 | |
| | 3 | Ch3 Output and Alarm Status | UINT16 | 0 | |
| | 4 | Ch4 Output and Alarm Status | UINT16 | 0 | |
| | 5 | Ch5 Output and Alarm Status | UINT16 | 0 | |
| | 6 | Ch6 Output and Alarm Status | UINT16 | 0 | |
| | 7 | Ch7 Output and Alarm Status | UINT16 | 0 | |
| | 8 | Ch8 Output and Alarm Status | UINT16 | 0 | |
| | 9 | Ch9 Output and Alarm Status | UINT16 | 0 | |
| | 10 | Ch10 Output and Alarm Status | UINT16 | 0 | |
| | 11 | Ch11 Output and Alarm Status | UINT16 | 0 | |
| | 12 | Ch12 Output and Alarm Status | UINT16 | 0 | |
| | 13 | Ch13 Output and Alarm Status | UINT16 | 0 | |
| | 14 | Ch14 Output and Alarm Status | UINT16 | 0 | |
| | 15 | Ch15 Output and Alarm Status | UINT16 | 0 | |
| | 16 | Ch16 Output and Alarm Status | UINT16 | 0 | |
| | 17 | Ch17 Output and Alarm Status | UINT16 | 0 | |
| | 18 | Ch18 Output and Alarm Status | UINT16 | 0 | |
| | 19 | Ch19 Output and Alarm Status | UINT16 | 0 | |
| | 20 | Ch20 Output and Alarm Status | UINT16 | 0 | |
| | 21 | Ch21 Output and Alarm Status | UINT16 | 0 | |
| | 22 | Ch22 Output and Alarm Status | UINT16 | 0 | |
| | 23 | Ch23 Output and Alarm Status | UINT16 | 0 | |
| | 24 | Ch24 Output and Alarm Status | UINT16 | 0 | |
| | 25 | Ch25 Output and Alarm Status | UINT16 | 0 | |

| | | | | | |
|--------|----|------------------------------|--------|---|--------------------------|
| 0x6008 | 1 | Ch1 Derivative Time Monitor | INT16 | 0 | Ch1~32 微分时间监控, 单位为 0.1 秒 |
| | 2 | Ch2 Derivative Time Monitor | INT16 | 0 | |
| | 3 | Ch3 Derivative Time Monitor | INT16 | 0 | |
| | 4 | Ch4 Derivative Time Monitor | INT16 | 0 | |
| | 5 | Ch5 Derivative Time Monitor | INT16 | 0 | |
| | 6 | Ch6 Derivative Time Monitor | INT16 | 0 | |
| | 7 | Ch7 Derivative Time Monitor | INT16 | 0 | |
| | 8 | Ch8 Derivative Time Monitor | INT16 | 0 | |
| | 9 | Ch9 Derivative Time Monitor | INT16 | 0 | |
| | 10 | Ch10 Derivative Time Monitor | INT16 | 0 | |
| | 11 | Ch11 Derivative Time Monitor | INT16 | 0 | |
| | 12 | Ch12 Derivative Time Monitor | INT16 | 0 | |
| | 13 | Ch13 Derivative Time Monitor | INT16 | 0 | |
| | 14 | Ch14 Derivative Time Monitor | INT16 | 0 | |
| | 15 | Ch15 Derivative Time Monitor | INT16 | 0 | |
| | 16 | Ch16 Derivative Time Monitor | INT16 | 0 | |
| | 17 | Ch17 Derivative Time Monitor | INT16 | 0 | |
| | 18 | Ch18 Derivative Time Monitor | INT16 | 0 | |
| | 19 | Ch19 Derivative Time Monitor | INT16 | 0 | |
| | 20 | Ch20 Derivative Time Monitor | INT16 | 0 | |
| | 21 | Ch21 Derivative Time Monitor | INT16 | 0 | |
| | 22 | Ch22 Derivative Time Monitor | INT16 | 0 | |
| | 23 | Ch23 Derivative Time Monitor | INT16 | 0 | |
| | 24 | Ch24 Derivative Time Monitor | INT16 | 0 | |
| | 25 | Ch25 Derivative Time Monitor | INT16 | 0 | |
| | 26 | Ch26 Derivative Time Monitor | INT16 | 0 | |
| | 27 | Ch27 Derivative Time Monitor | INT16 | 0 | |
| | 28 | Ch28 Derivative Time Monitor | INT16 | 0 | |
| | 29 | Ch29 Derivative Time Monitor | INT16 | 0 | |
| | 30 | Ch30 Derivative Time Monitor | INT16 | 0 | |
| | 31 | Ch31 Derivative Time Monitor | INT16 | 0 | |
| | 32 | Ch32 Derivative Time Monitor | INT16 | 0 | |
| 0x6009 | 1 | HIAL | INT16 | 0 | Ch1~32 上限报警, 详情见 5.6 |
| | 2 | HIAL1_16DIF | UINT16 | 0 | |
| | 3 | HIAL17_32DIF | UINT16 | 0 | |
| 0x600A | 1 | LOAL | INT16 | 0 | Ch1~32 下限报警, 详情见 5.7 |
| | 2 | LOAL1_16DIF | UINT16 | 0 | |
| | 3 | LOAL17_32DIF | UINT16 | 0 | |

5.2 Ch □ Operating Status

| 名称 | 位 | 说明 |
|--------|----------|---|
| 启停状态 | bit0 | 0: 停止 1: 运行 |
| | bit1 | 预留 |
| AT 状态 | bit2 | 0-AT 停止状态, 1-AT 运行中 |
| 预留 | bit3 | 预留 |
| 通道状态 | bit4 | 0- 正常, 1- 掉线 |
| 手自动状态 | bit5 | 0- 自动, 1- 手动 |
| 主机掉线保护 | bit6 | 0- 关闭, 1- 开启, EtherCAT 连接失效时, 通道设备停止运行。默认开启 |
| 位 7~11 | bit7~11 | 预留 |
| 仪表标志 | bit12~14 | 000- 默认; 100-4 路仪表 (101-8848) ; 111-8 路仪表; 011-6016; 010-6032 |
| 通道轮询状态 | bit15 | 0- 正常, 1- 当前通道不轮询 |

注：仪表标志为未设置时，7x48 系列仪表可自动识别，此时仪表标志默认为 000。

5.3 7x48 系列 Ch □ Output and Alarm Status

| 名称 | 位 | 说明 | 功能 |
|--------|-----------|--------|---------------|
| HIAL | bit0 | 上限报警 | 0: 无报警; 1: 报警 |
| LOAL | bit1 | 下限报警 | 0: 无报警; 1: 报警 |
| 位 2~3 | bit2~bit3 | 预留 | |
| ORAL | bit4 | 超量程报警 | 0: 无报警; 1: 报警 |
| AL1*1 | bit5 | AL1 输出 | 0: OFF, 1: ON |
| AL2*1 | bit6 | AL2 输出 | 0: OFF, 1: ON |
| 位 7 | bit7 | 预留 | |
| OP1 | bit8 | OP1 输出 | 0: OFF, 1: ON |
| 位 9~15 | bit9~15 | 预留 | |

5.4 8848、8x88 系列 Ch □ Output and Alarm Status

| 名称 | 位 | 说明 | 功能 |
|--------|---------|--------|---------------|
| HIAL | bit0 | 上限报警 | 0: 无报警; 1: 报警 |
| LOAL | bit1 | 下限报警 | 0: 无报警; 1: 报警 |
| HDAL | bit2 | 上限偏差报警 | 0: 无报警; 1: 报警 |
| LDAL | bit3 | 下限偏差报警 | 0: 无报警; 1: 报警 |
| ORAL | bit4 | 超量程报警 | 0: 无报警; 1: 报警 |
| 位 5~15 | bit5~15 | 预留 | |

5.5 6016、6032 系列 Ch □ Output and Alarm Status

| 名称 | 位 | 说明 | 功能 |
|--------|---------|--------|---------------|
| HIAL | bit0 | 上限报警 | 0: 无报警; 1: 报警 |
| LOAL | bit1 | 下限报警 | 0: 无报警; 1: 报警 |
| HDAL | bit2 | 上限偏差报警 | 0: 无报警; 1: 报警 |
| LDAL | bit3 | 下限偏差报警 | 0: 无报警; 1: 报警 |
| ORAL | bit4 | 超量程报警 | 0: 无报警; 1: 报警 |
| 位 5~7 | bit5~7 | 预留 | |
| OP | bit8 | OP 输出 | 0: OFF, 1: ON |
| 位 9~15 | bit9~15 | 预留 | |

5.6 HIAL

| 名称 | 位 | 说明 |
|--------------|------------|---|
| HIAL | | 通道 1 的 HIAL 值 |
| HIAL1_16DIF | bit0~bit15 | 位从低到高依次表示通道 1~16, 当前通道 HIAL 值与通道 1 的 HIAL 值相同时为 1, 不同为 0 |
| HIAL17_32DIF | bit0~bit15 | 位从低到高依次表示通道 17~32, 当前通道 HIAL 值与通道 1 的 HIAL 值相同时为 1, 不同为 0 |

5.7 LOAL

| 名称 | 位 | 说明 |
|--------------|------------|---|
| LOAL | | 通道 1 的 LOAL 值 |
| LOAL1_16DIF | bit0~bit15 | 位从低到高依次表示通道 1~16, 当前通道 LOAL 值与通道 1 的 LOAL 值相同时为 1, 不同为 0 |
| LOAL17_32DIF | bit0~bit15 | 位从低到高依次表示通道 17~32, 当前通道 LOAL 值与通道 1 的 LOAL 值相同时为 1, 不同为 0 |

六、输出数据（Output mapping）

6.1 输出数据总览

| 索引 | 子索引 | I/O 端品名称 | 数据类型 | 初始值 | 备注 |
|--------|-----|------------------------|--------|-----|----------------------|
| 0x7000 | 1 | Ch1 Operation Command | UINT16 | 0 | Ch1~32 运行命令, 详情见 6.2 |
| | 2 | Ch2 Operation Command | UINT16 | 0 | |
| | 3 | Ch3 Operation Command | UINT16 | 0 | |
| | 4 | Ch4 Operation Command | UINT16 | 0 | |
| | 5 | Ch5 Operation Command | UINT16 | 0 | |
| | 6 | Ch6 Operation Command | UINT16 | 0 | |
| | 7 | Ch7 Operation Command | UINT16 | 0 | |
| | 8 | Ch8 Operation Command | UINT16 | 0 | |
| | 9 | Ch9 Operation Command | UINT16 | 0 | |
| | 10 | Ch10 Operation Command | UINT16 | 0 | |
| | 11 | Ch11 Operation Command | UINT16 | 0 | |
| | 12 | Ch12 Operation Command | UINT16 | 0 | |
| | 13 | Ch13 Operation Command | UINT16 | 0 | |
| | 14 | Ch14 Operation Command | UINT16 | 0 | |
| | 15 | Ch15 Operation Command | UINT16 | 0 | |
| | 16 | Ch16 Operation Command | UINT16 | 0 | |
| | 17 | Ch17 Operation Command | UINT16 | 0 | |
| | 18 | Ch18 Operation Command | UINT16 | 0 | |
| | 19 | Ch19 Operation Command | UINT16 | 0 | |
| | 20 | Ch20 Operation Command | UINT16 | 0 | |
| | 21 | Ch21 Operation Command | UINT16 | 0 | |
| | 22 | Ch22 Operation Command | UINT16 | 0 | |
| | 23 | Ch23 Operation Command | UINT16 | 0 | |
| | 24 | Ch24 Operation Command | UINT16 | 0 | |
| | 25 | Ch25 Operation Command | UINT16 | 0 | |
| | 26 | Ch26 Operation Command | UINT16 | 0 | |
| | 27 | Ch27 Operation Command | UINT16 | 0 | |
| | 28 | Ch28 Operation Command | UINT16 | 0 | |
| | 29 | Ch29 Operation Command | UINT16 | 0 | |
| | 30 | Ch30 Operation Command | UINT16 | 0 | |
| | 31 | Ch31 Operation Command | UINT16 | 0 | |
| | 32 | Ch32 Operation Command | UINT16 | 0 | |
| 0x7001 | 1 | Ch1 Set Value | INT16 | 0 | Ch1~32 SV 值, 单位同测量值 |
| | 2 | Ch2 Set Value | INT16 | 0 | |
| | 3 | Ch3 Set Value | INT16 | 0 | |
| | 4 | Ch4 Set Value | INT16 | 0 | |
| | 5 | Ch5 Set Value | INT16 | 0 | |
| | 6 | Ch6 Set Value | INT16 | 0 | |
| | 7 | Ch7 Set Value | INT16 | 0 | |
| | 8 | Ch8 Set Value | INT16 | 0 | |
| | 9 | Ch9 Set Value | INT16 | 0 | |
| | 10 | Ch10 Set Value | INT16 | 0 | |
| | 11 | Ch11 Set Value | INT16 | 0 | |
| | 12 | Ch12 Set Value | INT16 | 0 | |
| | 13 | Ch13 Set Value | INT16 | 0 | |
| | 14 | Ch14 Set Value | INT16 | 0 | |
| | 15 | Ch15 Set Value | INT16 | 0 | |
| | 16 | Ch16 Set Value | INT16 | 0 | |
| | 17 | Ch17 Set Value | INT16 | 0 | |
| | 18 | Ch18 Set Value | INT16 | 0 | |
| | 19 | Ch19 Set Value | INT16 | 0 | |
| | 20 | Ch20 Set Value | INT16 | 0 | |
| | 21 | Ch21 Set Value | INT16 | 0 | |
| | 22 | Ch22 Set Value | INT16 | 0 | |
| | 23 | Ch23 Set Value | INT16 | 0 | |
| | 24 | Ch24 Set Value | INT16 | 0 | |
| | 25 | Ch25 Set Value | INT16 | 0 | |
| | 26 | Ch26 Set Value | INT16 | 0 | |
| | 27 | Ch27 Set Value | INT16 | 0 | |
| | 28 | Ch28 Set Value | INT16 | 0 | |
| | 29 | Ch29 Set Value | INT16 | 0 | |
| | 30 | Ch30 Set Value | INT16 | 0 | |
| | 31 | Ch31 Set Value | INT16 | 0 | |
| | 32 | Ch32 Set Value | INT16 | 0 | |
| 0x7002 | 1 | Ch1 PV Input Shift | INT16 | 0 | Ch1~32 测量平移修正 (SCB) |
| | 2 | Ch2 PV Input Shift | INT16 | 0 | |
| | 3 | Ch3 PV Input Shift | INT16 | 0 | |
| | 4 | Ch4 PV Input Shift | INT16 | 0 | |
| | 5 | Ch5 PV Input Shift | INT16 | 0 | |
| | 6 | Ch6 PV Input Shift | INT16 | 0 | |
| | 7 | Ch7 PV Input Shift | INT16 | 0 | |
| | 8 | Ch8 PV Input Shift | INT16 | 0 | |
| | 9 | Ch9 PV Input Shift | INT16 | 0 | |
| | 10 | Ch10 PV Input Shift | INT16 | 0 | |
| | 11 | Ch11 PV Input Shift | INT16 | 0 | |
| | 12 | Ch12 PV Input Shift | INT16 | 0 | |
| | 13 | Ch13 PV Input Shift | INT16 | 0 | |
| | 14 | Ch14 PV Input Shift | INT16 | 0 | |
| | 15 | Ch15 PV Input Shift | INT16 | 0 | |
| | 16 | Ch16 PV Input Shift | INT16 | 0 | |
| | 17 | Ch17 PV Input Shift | INT16 | 0 | |
| | 18 | Ch18 PV Input Shift | INT16 | 0 | |
| | 19 | Ch19 PV Input Shift | INT16 | 0 | |
| | 20 | Ch20 PV Input Shift | INT16 | 0 | |
| | 21 | Ch21 PV Input Shift | INT16 | 0 | |
| | 22 | Ch22 PV Input Shift | INT16 | 0 | |
| | 23 | Ch23 PV Input Shift | INT16 | 0 | |
| | 24 | Ch24 PV Input Shift | INT16 | 0 | |
| | 25 | Ch25 PV Input Shift | INT16 | 0 | |
| | 26 | Ch26 PV Input Shift | INT16 | 0 | |
| | 27 | Ch27 PV Input Shift | INT16 | 0 | |
| | 28 | Ch28 PV Input Shift | INT16 | 0 | |
| | 29 | Ch29 PV Input Shift | INT16 | 0 | |
| | 30 | Ch30 PV Input Shift | INT16 | 0 | |
| | 31 | Ch31 PV Input Shift | INT16 | 0 | |
| | 32 | Ch32 PV Input Shift | INT16 | 0 | |

| | | | | | |
|--------|----|------------------------|-------|---|----------------------|
| 0x7003 | 1 | Ch1 Manual MV | INT16 | 0 | Ch1~32 手动 MV, 单位同测量值 |
| | 2 | Ch2 Manual MV | INT16 | 0 | |
| | 3 | Ch3 Manual MV | INT16 | 0 | |
| | 4 | Ch4 Manual MV | INT16 | 0 | |
| | 5 | Ch5Manual MV | INT16 | 0 | |
| | 6 | Ch6 Manual MV | INT16 | 0 | |
| | 7 | Ch7 Manual MV | INT16 | 0 | |
| | 8 | Ch8 Manual MV | INT16 | 0 | |
| | 9 | Ch9 Manual MV | INT16 | 0 | |
| | 10 | Ch10 Manual MV | INT16 | 0 | |
| | 11 | Ch11 Manual MV | INT16 | 0 | |
| | 12 | Ch12 Manual MV | INT16 | 0 | |
| | 13 | Ch13 Manual MV | INT16 | 0 | |
| | 14 | Ch14 Manual MV | INT16 | 0 | |
| | 15 | Ch15 Manual MV | INT16 | 0 | |
| | 16 | Ch16 Manual MV | INT16 | 0 | |
| | 17 | Ch17 Manual MV | INT16 | 0 | |
| | 18 | Ch18 Manual MV | INT16 | 0 | |
| | 19 | Ch19 Manual MV | INT16 | 0 | |
| | 20 | Ch20 Manual MV | INT16 | 0 | |
| | 21 | Ch21Manual MV | INT16 | 0 | |
| | 22 | Ch22 Manual MV | INT16 | 0 | |
| | 23 | Ch23 Manual MV | INT16 | 0 | |
| | 24 | Ch24 Manual MV | INT16 | 0 | |
| | 25 | Ch25 Manual MV | INT16 | 0 | |
| | 26 | Ch26 Manual MV | INT16 | 0 | |
| | 27 | Ch27 Manual MV | INT16 | 0 | |
| | 28 | Ch28 Manual MV | INT16 | 0 | |
| | 29 | Ch29 Manual MV | INT16 | 0 | |
| | 30 | Ch30 Manual MV | INT16 | 0 | |
| | 31 | Ch31 Manual MV | INT16 | 0 | |
| | 32 | Ch32 Manual MV | INT16 | 0 | |
| 0x7004 | 1 | Ch1 Proportional Band | INT16 | 0 | Ch1~32 比例带, 单位同测量值 |
| | 2 | Ch2 Proportional Band | INT16 | 0 | |
| | 3 | Ch3 Proportional Band | INT16 | 0 | |
| | 4 | Ch4 Proportional Band | INT16 | 0 | |
| | 5 | Ch5 Proportional Band | INT16 | 0 | |
| | 6 | Ch6 Proportional Band | INT16 | 0 | |
| | 7 | Ch7 Proportional Band | INT16 | 0 | |
| | 8 | Ch8 Proportional Band | INT16 | 0 | |
| | 9 | Ch9 Proportional Band | INT16 | 0 | |
| | 10 | Ch10 Proportional Band | INT16 | 0 | |
| | 11 | Ch11 Proportional Band | INT16 | 0 | |
| | 12 | Ch12 Proportional Band | INT16 | 0 | |
| | 13 | Ch13 Proportional Band | INT16 | 0 | |
| | 14 | Ch14 Proportional Band | INT16 | 0 | |
| | 15 | Ch15 Proportional Band | INT16 | 0 | |
| | 16 | Ch16 Proportional Band | INT16 | 0 | |
| | 17 | Ch17 Proportional Band | INT16 | 0 | |
| | 18 | Ch18 Proportional Band | INT16 | 0 | |
| | 19 | Ch19 Proportional Band | INT16 | 0 | |
| | 20 | Ch20 Proportional Band | INT16 | 0 | |
| | 21 | Ch21 Proportional Band | INT16 | 0 | |
| | 22 | Ch22 Proportional Band | INT16 | 0 | |
| | 23 | Ch23 Proportional Band | INT16 | 0 | |
| | 24 | Ch24 Proportional Band | INT16 | 0 | |
| | 25 | Ch25 Proportional Band | INT16 | 0 | |
| | 26 | Ch26 Proportional Band | INT16 | 0 | |
| | 27 | Ch27 Proportional Band | INT16 | 0 | |
| | 28 | Ch28 Proportional Band | INT16 | 0 | |
| | 29 | Ch29 Proportional Band | INT16 | 0 | |
| | 30 | Ch30 Proportional Band | INT16 | 0 | |
| | 31 | Ch31 Proportional Band | INT16 | 0 | |
| | 32 | Ch32 Proportional Band | INT16 | 0 | |
| 0x7005 | 1 | Ch1 Integration Time | INT16 | 0 | Ch1~32 积分时间, 单位为秒 |
| | 2 | Ch2 Integration Time | INT16 | 0 | |
| | 3 | Ch3 Integration Time | INT16 | 0 | |
| | 4 | Ch4 Integration Time | INT16 | 0 | |
| | 5 | Ch5 Integration Time | INT16 | 0 | |
| | 6 | Ch6 Integration Time | INT16 | 0 | |
| | 7 | Ch7 Integration Time | INT16 | 0 | |
| | 8 | Ch8 Integration Time | INT16 | 0 | |
| | 9 | Ch9 Integration Time | INT16 | 0 | |
| | 10 | Ch10 Integration Time | INT16 | 0 | |
| | 11 | Ch11 Integration Time | INT16 | 0 | |
| | 12 | Ch12 Integration Time | INT16 | 0 | |
| | 13 | Ch13 Integration Time | INT16 | 0 | |
| | 14 | Ch14 Integration Time | INT16 | 0 | |
| | 15 | Ch15 Integration Time | INT16 | 0 | |
| | 16 | Ch16 Integration Time | INT16 | 0 | |
| | 17 | Ch17 Integration Time | INT16 | 0 | |
| | 18 | Ch18 Integration Time | INT16 | 0 | |
| | 19 | Ch19 Integration Time | INT16 | 0 | |
| | 20 | Ch20 Integration Time | INT16 | 0 | |
| | 21 | Ch21 Integration Time | INT16 | 0 | |
| | 22 | Ch22 Integration Time | INT16 | 0 | |
| | 23 | Ch23 Integration Time | INT16 | 0 | |
| | 24 | Ch24 Integration Time | INT16 | 0 | |
| | 25 | Ch25 Integration Time | INT16 | 0 | |
| | 26 | Ch26 Integration Time | INT16 | 0 | |
| | 27 | Ch27 Integration Time | INT16 | 0 | |
| | 28 | Ch28 Integration Time | INT16 | 0 | |
| | 29 | Ch29 Integration Time | INT16 | 0 | |
| | 30 | Ch30 Integration Time | INT16 | 0 | |
| | 31 | Ch31 Integration Time | INT16 | 0 | |
| | 32 | Ch32 Integration Time | INT16 | 0 | |