Addresses of EtherCAT Safety Terminals

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Addresses of safety terminals have to be unique across the whole system. The address can contain up to 16 bits or 65535 addresses. The address 0 is invalid. Some of the Beckhoff EtherCAT devices (EL6900 and EL2904) only have 10 bits available to select an address which leads to 1023 addresses. The input terminals have 16 bots available and can therefore use the full address range. We are using bits 9 and 10 to select the interferometer. We can use bit 8 to distinguish test systems at LHO and LLO.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Address bit 10** | **Address bit 9** | **Address bit 8** | **Decimal offset** | **Usage** |
| 0 | 0 | 0 | 0 | LHO test systems |
| 0 | 0 | 1 | 128 | LLO test systems |
| 0 | 1 | X | 256 | H1 interferometer |
| 1 | 0 | X | 512 | H2 interferometer |
| 1 | 1 | X | 768 | L1 interferometer |

A list of addresses is presented below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Address bits 8..1** | **Module** | **Location** | **Rail/Slot** | **Full address**  **decimal** | **Full address**  **hex** |
| 0 | EL6900 | H1 corner remote access | L2 | 256 | 0x0100 |
| H2 corner remote access | L2 | 512 | 0x0200 |
| L1 corner remote access | L2 | 768 | 0x0300 |
| 1 | EL1904 | H1 corner remote access | L3 | 257 | 0x0101 |
| H2 corner remote access | L3 | 513 | 0x0201 |
| L1 corner remote access | L3 | 769 | 0x0301 |
| 2 | EL2904 | H1 corner remote access | L4 | 258 | 0x0102 |
| H2 corner remote access | L4 | 514 | 0x0202 |
| L1 corner remote access | L4 | 770 | 0x0302 |
| 3 | EL1904 | H1 EX remote access | R1 | 259 | 0x0103 |
| H2 EX remote access | R1 | 515 | 0x0203 |
| L1 EX remote access | R1 | 771 | 0x0303 |
| 4 | EL2904 | H1 EX remote access | R2 | 260 | 0x0104 |
| H2 EX remote access | R2 | 516 | 0x0204 |
| L1 EX remote access | R2 | 772 | 0x0304 |
| 5 | EL1904 | H1 EY remote access | R1 | 261 | 0x0105 |
| H2 EY remote access | R1 | 517 | 0x0205 |
| L1 EY remote access | R1 | 773 | 0x0305 |
| 6 | EL2904 | H1 EY remote access | R2 | 262 | 0x0106 |
| H2 EY remote access | R2 | 518 | 0x0206 |
| L1 EY remote access | R2 | 774 | 0x0306 |
| 96 | EL6900 | LHO EtherCAT tester | 1 | 96 | 0x0060 |
| LLO EtherCAT tester | 1 | 224 | 0x00E0 |
| 97 | EL2904 | LHO EtherCAT tester | 2 | 97 | 0x0061 |
| LLO EtherCAT tester | 2 | 225 | 0x00E1 |
| 98 | EL1904 | LHO EtherCAT tester | 12 | 98 | 0x0062 |
| LLO EtherCAT tester | 12 | 226 | 0x00E2 |
| 99 | EL1904 | LHO EtherCAT tester | 17 | 99 | 0x0063 |
| LLO EtherCAT tester | 17 | 227 | 0x00E3 |
| 100 | EL1904 | LHO EtherCAT tester | 22 | 100 | 0x0064 |
| LLO EtherCAT tester | 22 | 228 | 0x00E4 |