Device locations are described facing towards the side with devices on. 24V and GND come directly from output of 24V supplies unless otherwise stated.

**Sick V300 extended ws**

|  |  |  |  |
| --- | --- | --- | --- |
| Pin | Colour | Device-RHS | Device-LHS |
| Restart | White | 24V | 24V |
| +24VDC | Brown | 24V | 24V |
| Teach/Sync | Green | NC | NC |
| EDM | Yellow | GND | GND |
| OSSD1 | Grey | EL1002-1 | EL1002-5 |
| OSSD2 | Pink | NC | NC |
| GND | Blue | GND | GND |
| Functional Earth | Loose Wire | NC | NC |

In this configuration:

External device monitoring is disabled; Really unsure what this mode does. Seems to detect if the device it turned off turns back on after a restart occurs? Seems like something specific to SICK safety circuits?

Internal restart interlock is disabled; I believe this means that the output changes while there is an obstruction. It immediately deassert’s when the obstruction is removed.

Internal teach-in key is functional; the calibration functionality can be triggered by pressing the button on the device.

Recommendations:

OSSD2 should be connected in both devices. A faulty connection will not be detected in the current configuration.

**WAGO EtherCAT Fieldbus coupler**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| EtherCAT Fieldbus Coupler  750-354 | | 4 channel digital input 750-402 | | | | Stepper Controller  750-671 | | | | Stepper Controller  750-671 | | | | Stepper Controller  750-671 | | | | 4 Channel Digital Output  750-504 | | | | End Module  750-600 | |
| ---- | ---- | Left | | Right | | Left | | Right | | Left | | Right | | Left | | Right | | Left | | Right | | Left | Right |
| 24V | Red | NC | Black-From grey cable | NC | Black-From grey cable | 24V Through e-stop | Yellow | NC | ---- | 24V  Through e-stop | Yellow | BLK2(GND) | Black | 24V  Through e-stop | Yellow | BLK1(GND) | Black | Goes to circuit described in LEDcircuit.asc | Black | NC | ---- | NC | NC |
| GND | Black | 24V | Red | 24V | Red | Stepper Electromagnet | Green | BLK2(GND) | Black | Stepper Electromagnet | Green | BLK1(GND) | Black | Stepper Electromagnet | Green | BLK3(GND) | Black | NC | Brown-From grey cable | NC | Brown-From grey cable | NC | NC |
| Simatic Microbox – ETH180 | Yellow | GND | Black | GND | Black | M1C1-1 | Black | M1C1-2 | Black | M2C1-1 | Black | M2C1-2 | Black | M3C1-1 | Black | M3C1-2 | Black | GND | Black | BLK3(GND) | Black | NC | NC |
| NC | ---- | NC | ---- | NC | ---- | M1C2-1 | Black | M1C2-2 | Black | M2C2-1 | Black | M2C2-2 | Black | M3C2-1 | Black | M3C2-2 | Black | NC | ---- | NC | ---- | NC | NC |

Mx=motor number  
Cx=coil number  
-x=coil connection