Technical Information

Integration FL+ into FL Peripherals
(not applicable to THS+Basic, THS+M and LSG+65)

Art.-No.: 9009865
## Contents

1 Preface .................................................................................................................................................... 4

2 Introduction ............................................................................................................................................ 5  
2.1 Notes ........................................................................................................................................................ 5

3 Instructions............................................................................................................................................. 6  
3.1 FL-PCI...................................................................................................................................................... 6  
3.2 FL-TCP..................................................................................................................................................... 6  
3.3 E-Stop wiring for FL+ ............................................................................................................................... 6

4 Pinout CON 4 - E-Stop Circuit ............................................................................................................... 7  
4.1 Pinout FL E-Stop – CON4 ........................................................................................................................ 7  
4.2 Pinout FL+ E-Stop – CON4 ...................................................................................................................... 8

5 Example Wiring FL+ E-Stop .................................................................................................................. 9  
5.1 E-Stop and Interlock with Feedback Contact ........................................................................................ 9  
5.2 E-Stop and Interlock without Feedback Contact .................................................................................. 10

6 Enclosures ............................................................................................................................................ 11  
6.1 Section of Data Sheet Safety Relais (Dold Co.) ...................................................................................... 11

7 Reference Documents ......................................................................................................................... 12
Preface

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2.1 Notes

Important information and instructions are designated as follows:

**Danger!**
Draws attention to an exceptionally great, imminent danger to your health or life due to hazardous voltages.

**Danger!**
Draws attention to a danger with high risk which, if not avoided, may result in death or serious injury.

**Warning!**
Draws attention to a danger with medium risk which, if not avoided, may result in death or serious injury.

**Caution!**
Draws attention to a danger with low risk which, if not avoided, may result in minor or moderate injury.

**Attention!**
Draws attention to potential risks of property damage or loss of quality.

**Note!**
Advises to make work routine easier or on important steps to be carried out.

**Environment!**
Advises on protecting the environment.

- Handling instructions
- Reference to chapter, position, picture number or document.
- Option (accessories, peripherals, extras).

**Time**
Viewed in the display / monitor.
Instructions to exchange the FL marking laser by the FL+ marking laser within an existing peripherical system.
I/O- and Remote cable need to be exchanged and E-Stop / Interlock wiring (refer to chapter 5) have to be adapted.

3.1 **FL-PCI:**
5527478 Adapter cable set FL-PCI/FL+, consisting of:
- Adapter cable User I/O CON2 FL-PCI/FL+ 0.3 meter
- Adapter cable Remote CON3 FL/FL+ 0.3 meter

3.2 **FL-TCP:**
5527479 Adapter cable set FL-TCP/FL+, consisting of:
- Adapter cable User I/O CON2 FL-TCP/FL+ 0.3 meter
- Adapter cable Remote CON3 FL/FL+ 0.3 meter

3.3 **E-Stop Wiring for FL+**
Two versions are possible:
- Integration E-Stop and Interlock with feedback contact (chapter 5.1)
- Integration E-Stop and Interlock without feedback contact (chapter 5.2)

**Note!**
The FL+ has no E-Stop at the front panel. Wiring may, as described in Chapter 5, be realized. Alternatively, it is sufficient to integrate the FL+ marking laser into an existing E-Stop circuit.
4.1 Pinout FL E-Stop – CON4

Figure 1: FL Interface Interlock / E-Stop (Sub-D socket 9 pole)

<table>
<thead>
<tr>
<th>PIN</th>
<th>Description</th>
<th>Remark</th>
<th>Correlation</th>
<th>Current</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>E-Stop IN</td>
<td>E-Stop Circuit Input</td>
<td>●</td>
<td>potential free</td>
<td>NC</td>
</tr>
<tr>
<td>2</td>
<td>E-Stop OUT</td>
<td>E-Stop Circuit Output</td>
<td>●●</td>
<td>potential free</td>
<td>NC</td>
</tr>
<tr>
<td>3</td>
<td>Not Used</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Interlock 1</td>
<td>Safety Interlock 1</td>
<td>●●●</td>
<td>potential free</td>
<td>NO</td>
</tr>
<tr>
<td>5</td>
<td>Interlock 2</td>
<td>Safety Interlock 2</td>
<td>●●●●</td>
<td>potential free</td>
<td>NO</td>
</tr>
<tr>
<td>6</td>
<td>E-Stop IN</td>
<td>E-Stop Circuit Input</td>
<td>●</td>
<td>potential free</td>
<td>NC</td>
</tr>
<tr>
<td>7</td>
<td>E-Stop OUT</td>
<td>E-Stop Circuit Output</td>
<td>●●</td>
<td>potential free</td>
<td>NC</td>
</tr>
<tr>
<td>8</td>
<td>Interlock 1</td>
<td>Safety Interlock 1</td>
<td>●●●</td>
<td>potential free</td>
<td>NO</td>
</tr>
<tr>
<td>9</td>
<td>Interlock 2</td>
<td>Safety Interlock 2</td>
<td>●●●●</td>
<td>potential free</td>
<td>NO</td>
</tr>
</tbody>
</table>

Table 1: Pinout Interface FL Interlock / E-Stop
4.2 Pinout FL+ E-Stop – CON4

![Pinout CON 4 - E-Stop Circuit](image)

Figure 2: FL+ Interface Interlock / E-Stop (Sub-D socket 9 pole)

<table>
<thead>
<tr>
<th>Pin</th>
<th>Name</th>
<th>Description</th>
<th>Activation / active</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FP24V</td>
<td>Internal operating voltage +24 V, max. 500 mA</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>E-Stop signaling</td>
<td>Status of E-Stop relay’ Device ready for operation when signal active</td>
<td>Contact between Pin 2 and Pin 7 is open, if the E-Stop is not activated, i.e. the E-Stop relay is not current fed</td>
</tr>
<tr>
<td>3</td>
<td>Interlock Signaling</td>
<td>Status of Interlock-Relay’ Device ready for operation when signal active</td>
<td>Contact between Pin 3 and Pin 8 is open, if the safety circuit is closed, i.e. the Interlock relay is current fed</td>
</tr>
<tr>
<td>4</td>
<td>Interlock IN</td>
<td>Interlock relay Connection for safety switch Device ready for operation when signal active</td>
<td>Active, if connected to +24V between Pin 4 and Pin 9</td>
</tr>
<tr>
<td>5</td>
<td>GND INT</td>
<td>0 V intern</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>E-Stop IN</td>
<td>Emergency Stop relay Connection for E-Stop Device ready for operation when signal active</td>
<td>Active, if connected to +24V between Pin 6 and Pin 9</td>
</tr>
<tr>
<td>7</td>
<td>E-Stop signaling</td>
<td>Status of E-Stop relay’ (return circuit)</td>
<td>&gt; Pin 2</td>
</tr>
<tr>
<td>8</td>
<td>Interlock signaling</td>
<td>Status of Interlock relay’ (return circuit)</td>
<td>&gt; Pin 3</td>
</tr>
<tr>
<td>9</td>
<td>GND EXT</td>
<td>Common GND potential for Interlock IN and E-Stop IN</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Pinout Interface FL+ Interlock / E-Stop
5.1 E-Stop and Interlock with Feedback Contact

Single-channel E-STOP circuit. There is no redundancy in the E-Stop control circuit.

Figure 3: Wiring diagram E-Stop and Interlock with feedback contact
5.2  E-Stop and Interlock without Feedback Contact

Figure 4: Wiring diagram E-Stop and Interlock without feedback contact
6.1 Section of Data Sheet Safety Relais (Dold Co.)

Figure 5: Block diagram safety relais from Dold 5925
## Reference Documents

<table>
<thead>
<tr>
<th>Position</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Assembly Instructions Marking Laser FL</td>
</tr>
<tr>
<td>2</td>
<td>Assembly Instructions Marking Laser FL+</td>
</tr>
</tbody>
</table>