6.7.9.9 Example case of damage

The axis should work in curve mode. The master should be stopped in the case of an axis error. After the elimination and acknowledgement of the error, the axis shall synchronize and normal operation shall be resumed.

**Corresponding files:**
- CamExampleHav.C3P (Compax3 Project on the Compax3 CD:\Examples\Examples_Haverie)
- CamExampleHav.pro (CoDeSys Project on the Compax3 CD:\Examples\Examples_Haverie)

**Control interface:**

<table>
<thead>
<tr>
<th>Input</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>I0</td>
<td>Energize axis</td>
</tr>
<tr>
<td>I1</td>
<td>Enable and start of the master position detection</td>
</tr>
<tr>
<td>I2</td>
<td>Start of the curve cycle</td>
</tr>
<tr>
<td>I3</td>
<td>Coupling / Decoupling</td>
</tr>
<tr>
<td>I4</td>
<td>Free</td>
</tr>
<tr>
<td>I5</td>
<td>Clear Error</td>
</tr>
<tr>
<td>I6</td>
<td>Homing</td>
</tr>
<tr>
<td>I7</td>
<td>Start of the virtual master</td>
</tr>
</tbody>
</table>
Solution:

[Diagram with nodes and connections labeled with variables and conditions related to motion control.]

- Solution starts with an input labeled C3_input.
- The diagram includes nodes for AND, Power, Home, Status, Enable, and more.
- Connections between nodes indicate flow and conditions for motion control.

The diagram is complex, with multiple paths and conditions that need to be understood for full execution of the motion control strategy.
Boundary conditions:

- The ReadStatus module helps detect, if the axis is in the error state. An error will trigger the stop of the virtual axis, the curve cycle will stop, the curve generator (C3_CamTableSelect) will continue.
- After the stop of the master, the axis will also be at a standstill.
- The error is acknowledged via input I5; the axis will be energized again (see also the "AND" module at the input of MC_Power).
- If the axis is energized again and input I5 is present, the axis is moved to the current position of the curve output (MC_moveAbsolute) and at the end of the movement it is coupled again with MC_CamIn.
- The output "InSync" of the MC_CamIn (camin2) will re-start the virtual master and the cycle is continued.

6.7.9.10 Application note: Drift

Correct scaling of the reference values helps prevent drift. For this, it is necessary to consider the conversions of the position signal:

Master / Slave / Load revolution: Master / Slave / Load revolutions:
Master / Slave units: Master / Slave - revolutions
Gear box: Gearbox

The rule for this is:

\[
\frac{Z1}{N1} = \text{Travel distance per revolution master axis}
\]
\[
\frac{N1}{\text{Travel distance per motor revolution master axis}}
\]

(configured in the Compax3 ServoManager under "signal source")

\[
\frac{Z2}{N2} = \text{Travel distance per revolution slave axis}
\]
\[
\frac{N2}{\text{Travel distance per revolution – Slave axis}}
\]

(configured in the Compax3 ServoManager under "configuration")

\[
\frac{Z3}{N3} = \text{transmission ratio}
\]
\[
\frac{\text{Motor}}{\text{Load}}
\]

MT: Master clock distance
\[
\frac{\text{"Position Reset" Distance - Master Axis (M_Units)}}{\text{"Position Reset" Distance - Master Axis (Denominator)}}
\]

MT is rounded to 3 decimal places.

ST: Slave clock distance