Function

The I/O interface is designed to connect the printer to a superordinated control. The interface I/O 24V25-1 is intended for printers of the SQUIX series and already integrated in the peel versions of the printer. The basic versions can be upgraded with the I/O 24V25-1.

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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>8</td>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
</tbody>
</table>

Table 1  Technical Data
## Pin Assignment

The interface has a 25 pin SUB-D connector.

![Pin Assignment Diagram](image)

**Figure 1** I/O interface

**Note!**

The function of the outputs on the pins 4, 9, 10, and 21 can be re-defined temporarily by direct programming e.g. to control external devices with the user bits 0 to 3 → Programming Manual.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Name</th>
<th>Description</th>
<th>Activation / Active State</th>
</tr>
</thead>
</table>
| 1   | ☑ -   | FSTLBL | * with applicator for Cycle sequence = Apply-Print  
Print first label | +24 V between Pin 1 and Pin 25 |
| 2   | -      |       |             |                           |
| 3   | ☑ -   | ENDPOS | * with applicator  
Applicator is in the position of transferring the label onto the product. | +24 V on Pin 3 |
| 4   | ☑ -   | FEEDON | Media transport ON  
Labels are fed by the printer | +24 V on Pin 4 |
|     |        |      | Bit 0 User Bit 0 is set |                           |
| 5   | ☑ -   | HOMEPOS | * with applicator  
Applicator is in the position where the label can be taken  
from the printer. | +24 V on Pin 5 |
| 6   |       | GND_INT | Ground (0 V)  
for sensors or trigger switches |                           |
| 7   | -      |       |             |                           |
| 8   | -      |       |             |                           |
| 9   | ☑ -   | JOBRDY | Print job ready  
Print jobs are stored in the print module.  
Bit 1 User Bit 1 is set | +24 V on Pin 9 |
| 10  | ☑ -   | READY | Printer respectively printer and applicator are ready  
Bit 2 User Bit 2 is set | +24 V on Pin 10 |
| 11  | -      |       |             |                           |
| 12  | ☑ -   | REPRINT | The last printed label will be repeated. | +24 V between Pin 12 and Pin 25 |
| 13  | ☑ -   | START | * with applicator  
Print and labelling start signal  
* without applicator for Print on demand = On  
Print start signal | +24 V between Pin 13 and Pin 25 |
| 14  | ☑ -   | PAUSE | Pause ON/OFF | Pause ON when +24 V between Pin 14 and Pin 25 |
| 15  | ☑ -   | RIBWARN | Warning end of ribbon  
The ribbon supply roll diameter has undershot a predefined level | 0 V on Pin 15 |
| 16  | ☑ -   | LBLREM | * in peel-off mode without applicator  
Label removed  
For peel-off mode only.  
Confirmation of the superior control that the label has been taken from the peel-off position.  
Required for the validity of a new start signal. | Switch on +24 V between Pin 16 and Pin 25 |
| 17  | ☑ -   | JOBDEL | Cancel print job  
Depending on the setting of the parameter JOBDEL mode only the current print job is canceled and deleted from the print buffer or all jobs in buffer are canceled. | Switch on +24 V between Pin 17 and Pin 25 |
## Pin Assignment

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Name</th>
<th>Description</th>
<th>Activation / Active State</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>RSTERR</td>
<td>Reset</td>
<td>Error state of the printer will be reset.</td>
<td>Switch on +24 V between Pin 18 and Pin 25</td>
</tr>
<tr>
<td>19</td>
<td>P24_INT</td>
<td>Internal operating voltage +24 V, Si T 100mA for external consumers e.g. sensors, trigger switches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>P24_EXT</td>
<td>External operating voltage +24 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>PEELPOS</td>
<td>¾ in peel-off mode</td>
<td>+24 V on Pin 21</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>A label is in peel-off position.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bit 3 User Bit 3 is set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>ERROR</td>
<td>General error message</td>
<td>0 V on Pin 22</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The operation will be stopped and the error type will be displayed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>STOP</td>
<td>Stop signal to interrupt the operation</td>
<td>Switch on +24 V between Pin 23 and Pin 25</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>GND_EXT</td>
<td>Ground of the external 24 V</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2 Pin assignment of the I/O interface
## Configuration

Start menu.

Select Setup > Interfaces > I/O.

### Parameter | Meaning | Default
--- | --- | ---

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Configuration of the I/O signal START</th>
</tr>
</thead>
</table>
| **START mode** | **Edge**: A label will be printed by switching on 24V between START and GND_EXT.  
**Level**: In **Rewind mode** labels are printed as long as 24V are switched on between START and GND_EXT.  
In **Peel-off mode** a label will be printed after receiving the signal LBLREM as long as 24V are switched on between START and GND_EXT. | Edge |

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Configuration of the I/O signal REPRINT</th>
</tr>
</thead>
</table>
| **REPRINT mode** | **Edge**: A label will be repeated by switching on 24V between REPRINT and GND_EXT.  
**Level**: A label will be repeated as long as 24V are switched on between REPRINT and GND_EXT.  
**START/REPRINT select**: A label will be repeated when 24V are switched on between REPEAT and GND_EXT and the START signal will be activated additionally. | Edge |

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Configuration of the I/O signal JOBDEL</th>
</tr>
</thead>
</table>
| **JOBDEL mode** | **Cancel print job**: The current print job is canceled and deleted from the print buffer.  
**Cancel all**: All jobs in buffer are canceled. | Cancel print job |

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Delay (max. 2.5 s) between start signal and the start of a labelling cycle.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Start delay</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>All start signals coming in following the first start signal are ignored when they arrive within the lock time (max. 2.5 s).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lock time</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Simulation of the I/O signal LBLREM</th>
</tr>
</thead>
</table>
| **Automatic LBLREM** | **for peel-off mode without present sensor and START mode = Level**  
**Simulation of the I/O signal LBLREM**  
**On**: With the signal START the removing of the previous label also will be confirmed.  
**Off**: To confirm the label removing the signal LBLREM must be activated. | Off |

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Inversion of the position signals HOMEPOS (old: XSOE) and ENDPOS (old: XSUE) for using the applicator S1000 in systems, which were previously operated with an applicator A1000.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Legacy I/O</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Table 3 Parameters of the Setup > Interfaces > I/O menu
### Digital inputs
- Conform to IEC/EN 61131-2 (Type 3)
- Operating voltage: 24 V DC (9.6..35 V)
- Switching logic: PNP switching
- Logic level „0“: < 7 V DC
- Logic level „1“: > 11 V DC
- Input current per channel: 1.5..2.5 mA (at 24 V DC)
- Reverse polarity protection: yes
- ESD protection: conform to IEC/EN 6100-4-4

### Digital outputs
- Conform to IEC/EN 61131-2
- Operating voltage: 24 V DC (11..35 V)
- Switching logic: PNP switching
- Output current per channel: 625 mA (overload protection)
- Short-circuit protection: yes
- Reverse polarity protection: yes
- ESD protection: conform to IEC/EN 6100-4-4

#### Figure 2 Connecting inputs
- Pin 20: P24_EXT
- Pin 1: FSTLBL
- Pin 12: REPRINT
- Pin 13: START
- Pin 14: PAUSE
- Pin 16: LBLREM
- Pin 17: JOBDDEL
- Pin 18: RSTERR
- Pin 23: STOP
- Pin 25: GND_EXT

#### Figure 3 Connecting outputs
- Pin 20: P24_EXT
- Pin 3: ENDPOS
- Pin 4: FEEDON
- Pin 5: HOMEPOS
- Pin 9: JOBRDY
- Pin 10: READY
- Pin 15: RIBWARN
- Pin 21: PEELPOS
- Pin 22: ERROR
- Pin 25: GND_EXT

---

**Circuit Diagram of Inputs and Outputs**
### Signal Maps

#### Signal Maps

**Signal description** | Pin | Name | Peel-off mode
--- | --- | --- | ---
System is switched on, no error, media OK | 13 | START | Print job has been loaded
Print job has been loaded | | | Print and feed to the peel-off position
Print job has been loaded | 16 | LBLREM | Label has been taken from the peel-off position
Label has been taken from the peel-off position | | | Backfeed
Backfeed | | | Print job has been finished

**Inputs**
- Start 13 START
- Label removed 16 LBLREM

**Outputs**
- Media transport on 4 FEEDON
- Print job ready 9 JOBRDY
- Label in peel position 21 PEELPOS

**Figure 4**
Signal map SQUIX with I/O 24V25-1 in peel-off mode - Printing and confirming label removal with two signals

| Signal description | Pin | Name | Rewind mode
--- | --- | --- | ---
System is switched on, no error, media OK | 13 | START | Print first label
Print first label | | | Print label x
Print label x | 14 | PAUSE | Pause
Pause | | | Print label x+1
Print label x+1 | | | Print last label
Print last label | | | Print job has been finished
Print job has been finished | | | Print job

**Inputs**
- Start 13 START
- Pause 14 PAUSE

**Outputs**
- Media transport on 4 FEEDON
- Print job ready 9 JOBRDY

**Figure 5**
Signal map SQUIX with I/O 24V25-1 in rewind mode
5 Solution Examples

5.1 Peeling-off on Demand with Present Sensor PS800 / PS900 / PS1000

In the standard peel-off mode a label will be printed immediately after the previous label has been taken from the peel position.

Using the I/O interface the print of the next label can be triggered by an external signal.

Requirements:
• SQUIX with Present Sensor PS800, PS900 or PS1000
• External circuit as shown in Figure 6.
• Setting Printing > Print on Demand = "On".

Operation:
▷ Send a print job.
▷ Activate START.
  The first label will be printed and transported to the peel position.
▷ Remove the label.
▷ Activate START to start the next cycle.

Figure 6 External circuit for peeling-off on demand with Present Sensor PS800 / PS900 / PS1000
5.2 Peeling-off on Demand without Present Sensor

In the peel-off mode with present sensor the label removal from the peel position is detected by an optical sensor. Using the I/O interface the label removal can be confirmed by the external signal LBLREM. That way it is possible to operate the printer in peel-off mode without present sensor.

Starting Print and Confirming Label Removal with Two Signals

Requirements:
- SQUIX without present sensor.
- External circuit as shown in Figure 7
- Setting Printing > Print on Demand = "On".
- Setting Interfaces > I/O > Automatic LBLREM = "Off"

Operation:
- Send a print job.
- Activate START. The first label will be printed an transported to the peel position.
- Remove the label.
- Confirm the label removal with signal LBLREM.
- Activate START to start the next cycle.

![External circuit for peeling-off on demand without present sensor with two signals](image-url)
**Solution Examples**

**Starting Print and Confirming Label Removal with Signal LBLREM**

Requirements:
- SQUIX without present sensor.
- External circuit as shown in Figure 8.
- Setting *Printing > Print on Demand = "On".*
- Setting *Interfaces > I/O > START mode = "Level".*
- Setting *Interfaces > I/O > Automatic LBLREM = "Off".*

Operation:
- Hold signal **START** permanently active.
- Send a print job.
  The first label will be printed and transported to the peel position.
- Remove the label.
- Confirm the label removal with signal **LBLREM**.
  The next cycle will be started.

---

**Figure 8**  
External circuit for peeling-off on demand without present sensor with switching signal LBLREM

![Diagram](image-url)
Solution Examples

Starting Print and Confirming Label Removal with Signal START

Requirements:
- SQUIX without present sensor.
- External circuit as shown in Figure 9
- Setting Printing > Print on Demand = "On".
- Setting Interfaces > I/O > START mode = "Level".
- Setting Interfaces > I/O > Automatic LBLREM = "On".

Operation:
- Send a print job.
- Activate START and hold it active. The first label will be printed and transported to the peel position.
- Remove the label.
- Confirm the label removal with deactivation of START.
- Activate START again to start the next cycle.

Operation with external voltage supply

Operation using the internal voltage

![Diagram](image-url)
5 Solution Examples

5.3 Cutting on Demand with Cutter CU400

In the standard cut mode all labels of a print job will be printed and cut one after another without interruption. Using the I/O interface the print job can be split into single steps with printing and cutting each one label.

Requirements:
• SQUIX with Cutter CU400.
• External circuit as shown in Figure 10.
• Setting Printing > Print on Demand = "On".

Operation:
► Send a print job.
► Activate START.
The first label will be printed and cut
► Activate START to start the next cycle.

![Diagram showing external circuit for cutting on demand with Cutter CU400]

Notes!
The function of the signal START can be released alternatively by pressing on the touchscreen display.
5.4 Pausing and Continuing a Print Job

In the standard operation without a peripheral device connected all labels of a print job will be printed without interruption.

To adapt the label output of the printer e.g. to an external device with a lower transport speed the print job can be interrupted meanwhile.

Requirements:
• SQUIX without peripheral device.
• External circuit as shown in Figure 11.
• Setting Printing > Print on Demand = "Off".

Operation:
▶ Send a print job.
The labels of the print job will be printed one after the other.
▶ Activate the signal PAUSE.
After completion of the current label the print job will be paused.
▶ Deactivate the signal PAUSE.
The print job will be continued.

![Figure 11](attachment:image.png)  
External circuit for pausing and continuing a print job
5 Solution Examples

5.5 Connecting an Optical Sensor

Optical sensors can be used to switch the input signals. The example shows the circuit for the signal START.

**Figure 12** External circuit for releasing the signal START using optical sensors

*depending on sensor type*