Interface Description

I/O Interface I/O 24V25-4

Edition: 05/2023 · **Part No.** 9003880

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Function

The I/O interfaces are designed to connect the printer to a superordinated control.
The interface I/O 24V25-4 is intended for printers of the current cab series with X4 electronics.
When using the interfaces with printers of the PX Q series several signals have functions differing from the standard.

	I/O 24V25-4
Part No.	5551447
Operating Voltage	24 V
External Interface	25 pin SUB-D connector
Interface to the CPU	USB

Table 1 Technical Data

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www.cab.de/fr

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Phone +27 11 886 3580
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The interface has a 25 pin SUB-D connector.

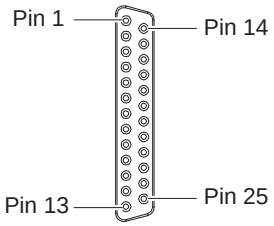

Figure 1 I/O interface

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.

Pin	Signal	Name	Standard function	PX Q function	Activation / Active State
1	←	FSTLBL	∗ with applicator for *Cycle sequence = Apply-Print* Print first label	-	+24 V between Pin 1 and Pin 25
2	→	LBLWARN	∗ at HERMES Q The label supply roll diameter has undershot a predefined level	-	Contact between Pin 2 and Pin 20 is open
3	→	ENDPOS	∗ with applicator End position Applicator is in the position of transferring the label onto the product.	-	Contact between Pin 3 and Pin 20 is closed
4	→	FEEDON	Media transport ON Labels are fed by the printer		Contact between Pin 4 and Pin 20 is closed
		Bit 0	User Bit 0 is set.		
5	→	HOMEPOS	∗ with applicator Home position Applicator is in the position where the label can be taken from the printer.	-	Contact between Pin 5 and Pin 20 is closed
		PRSTD	-	The print start of a label is signalized by a 40 ms pulse.	
6		GND_INT	Ground (0 V) for sensors or trigger switches		
7	→	RIBERR	Out of ribbon		Contact between Pin 7 and Pin 20 is open
8	→	MEDERR	Out of ribbon or paper		Contact between Pin 8 and Pin 20 is open
9	→	JOBRDY	Print job ready Print jobs are stored in the print buffer.		Contact between Pin 9 and Pin 20 is closed
		Bit 1	User Bit 1 is set.		
10	→	READY	Printer respectively printer and applicator are ready		Contact between Pin 10 and Pin 20 is closed
		Bit 2	User Bit 2 is set.		
11	←	LBLFEED	Label feed An empty label will be fed to synchronize the paper feed; enabled if no print job is loaded or after an error is occurred		Contact between Pin 11 and Pin 20 is closed
12	←	REPRINT	The last printed label will be repeated.		+24 V between Pin 12 and Pin 25

1 Pin Assignment

Pin	Signal	Name	Standard function	PX Q function	Activation / Active State
13		START	∗ with applicator Print and labelling start signal	Print start signal	+24 V between Pin 13 and Pin 25
			∗ without applicator for *Print on demand = On* Print start signal		
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		Contact between Pin 15 and Pin 20 is open
16		LBLREM	∗ in peel-off mode without applicator Label removed 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
18		RSTERR	Reset Error state of the printer will be reset.		Switch on +24 V between Pin 18 and Pin 25
19		P24_INT	Internal operating voltage +24 V, Si T 100mA for external consumers e.g. sensors, trigger switches		
20		COMMON	External reference potential for the outputs		
21		PEELPOS	∗ with applicator The applicator is ready a new cycle. Required for the validity of a new start signal.	A label is in peel-off position.	Contact between Pin 21 and Pin 20 is closed
			∗ without applicator A label is in peel-off position.		
		Bit 3	User Bit 3 is set.		
22		ERROR	General error message The operation will be stopped and the error type will be displayed.		Contact between Pin 22 and Pin 20 is open
23		STOP	Stop signal to interrupt the operation		Switch on +24 V between Pin 23 and Pin 25
24		LBLROT	∗ at applicators with variable labelling orientation Off: Labelling with primary orientation e.g. 0° On: Labelling with secondary orientation e.g. 90°		Switch on +24 V between Pin 24 and Pin 25
25		GND_EXT	Ground of the external 24 V		

Table 2 Pin assignment of the I/O interface

▶ Start menu.

Select *Setup* > *Interfaces* > *I/O*.

Parameter	Meaning	Default
START mode	∗ For operation without applicator Configuration of the I/O signal START *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*
REPRINT mode	∗ For operation without applicator Configuration of the I/O signal REPRINT *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*
JOBDEL mode	Configuration of the I/O signal JOBDEL *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*
Automatic LBLREM	∗ For operation without applicator ∗ 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*
Start delay	∗ For operation without applicator Delay (max. 2,5 s) between start signal and the start of an labelling cycle.	*0 ms*
Lock time	∗ For operation without applicator All start signals coming in following the first start signal are ignored when they arrive within the lock time (max. 2,5 s).	*0 ms*
Legacy I/O	∗ For use on SQUIX Inversion of the positions signals HOMEPOS (old: XSOE) and ENDPOS (old: XSUE) for using the applicator S1000 in systems, which were previously operated with an applicator A1000.	*Off*

Table 3 Parameters of the *Setup* > *Interfaces* > *I/O* menu

3 Circuit Diagram of Inputs and Outputs

Digital Inputs

- conform to IEC/EN 61131-2 (Type 1+3)
- Operating voltage: 24 V DC (18..30 V)
- Switching logic: PNP switching
- Low level „0“: < 5 V DC
- High level „1“: > 15 V DC
- Input current per channel: 4..5 mA (at 24 V DC)
- Galvanic isolation: 3,75 kV
- Reverse polarity protection: yes
- ESD protection: up to 8 kV

Digital Outputs

- conform to IEC/EN 61131-2
- Operating voltage: -35..+35 V=
- Switching logic: NPN/PNP switching
- Output current per channel: 700 mA
- Total output current: 700 mA (overload protection)
- Galvanic isolation: 3,75 kV
- Short-circuit protection: yes
- Reverse polarity protection: yes
- ESD protection: up to 8 kV

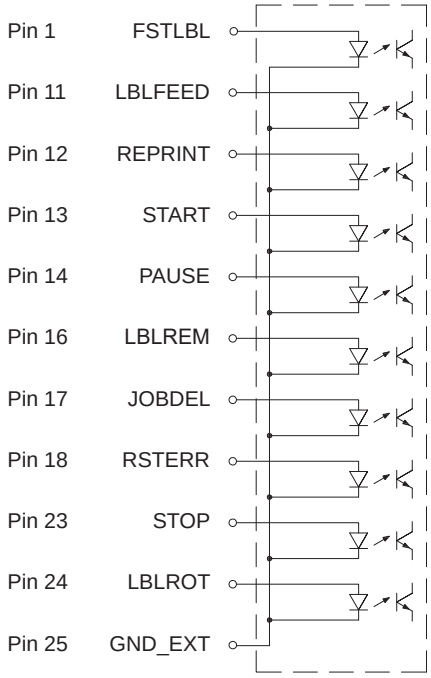

Figure 2 Connecting inputs

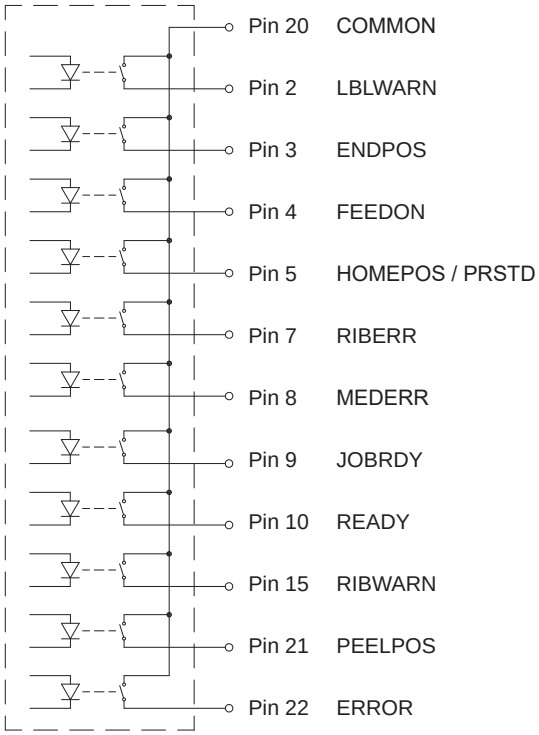

Figure 3 Connecting outputs

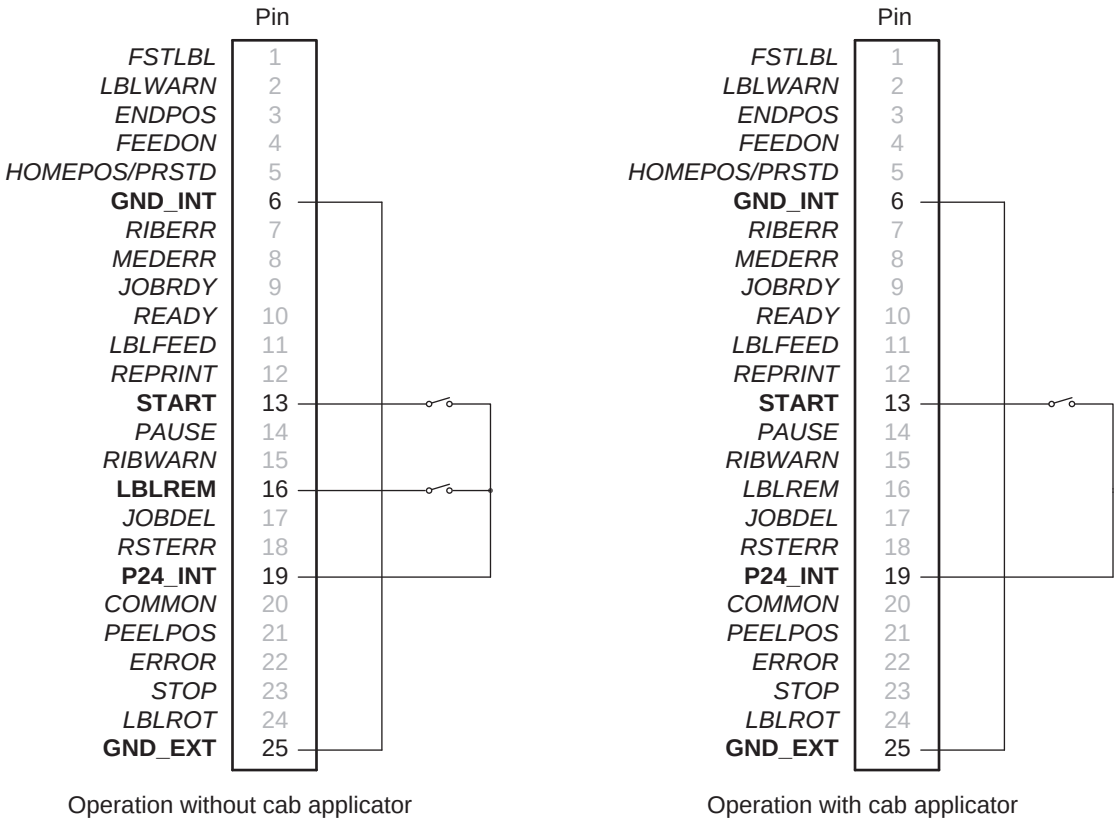

Figure 4 External minimum circuit of the I/O interface using the internal voltage P24_INT

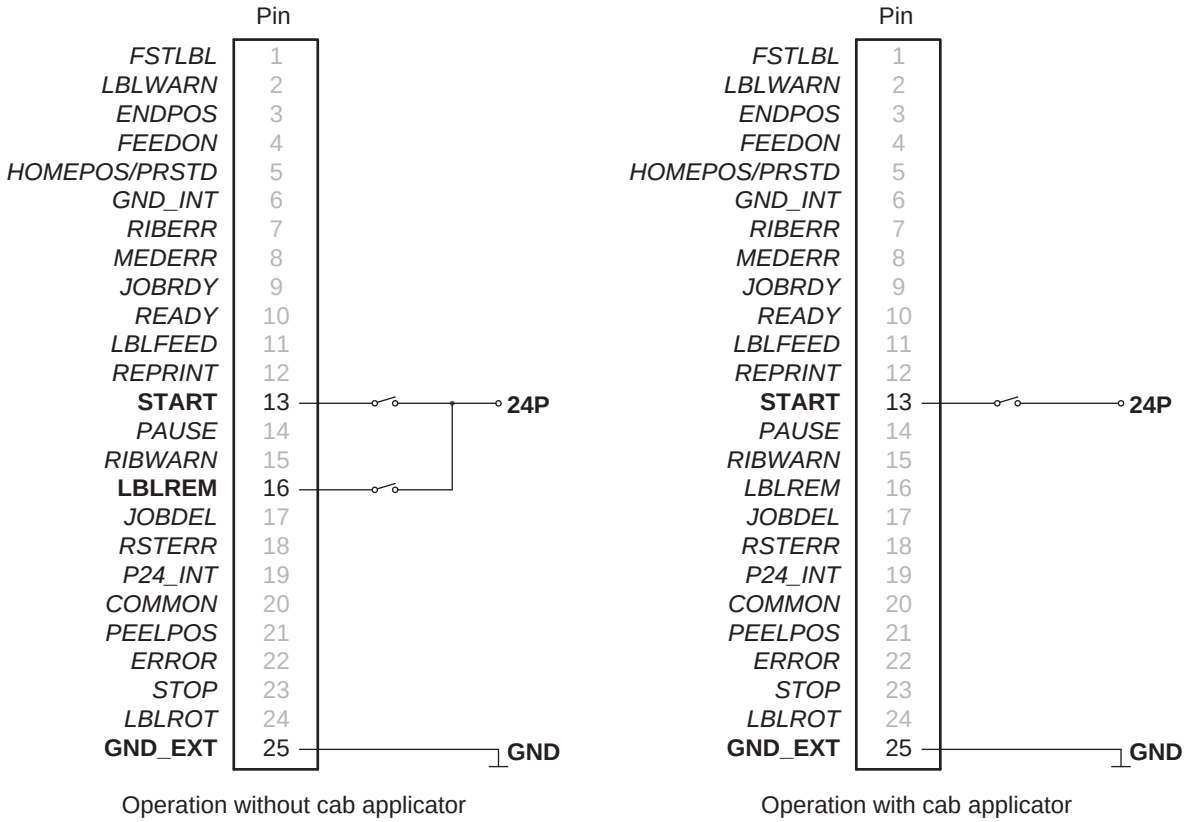

Figure 5 External minimum circuit of the I/O interface with external voltage supply

Signal description		Pin	Name	HERMES Q with Applicator 4014										
				System is switched on, no error, media OK	Print job has been loaded	Start of application cycle	Print	Label has been taken without error	Cyclinder stroke has been started	Pad reaches the lower end position	Backward cylinder stroke has been started	Pad reaches the upper end position	Print job has been finished	System is switched off
Inputs	Print first label	1	FSTLBL											
	Label feed	11	LBLFEED											
	Repeat print	12	REPRINT											
	Start	13	START											
	Pause	14	PAUSE											
	Label removed	16	LBLREM											
	Cancel print job	17	JOBDEL											
	Reset	18	RSTERR											
	Stop	23	STOP											
	Turn label 90°	24	LBLROT											
Outputs	Warning end of labels	2	LBLWARN											
	End position	3	ENDPOS											
	Media transport on	4	FEEDON											
	Home position	5	HOMEPOS											
	Out of paper/ribbon	8	MEDERR											
	Print job ready	9	JOBRDY											
	Printer/applicator ready	10	READY											
	Warning end of ribbon	15	RIBWARN											
	Applicator ready	21	PEELPOS											
	General error message	22	ERROR											
				On	Application cycle									Off
					Print job									

Figure 6 Signal map HERMES Q with I/O 24V25-4 and Applicator 4014 in "Print/Apply" mode

Signal description		Pin	Name	PX Q in peel-off mode
				System is switched on, no error, media OK / Print job has been loaded / Start peel-off cycle / Print and feed to the peel-off position / Label in peel-off position / Label has been taken from the peel-off position / Backfeed / Print job has been finished
Inputs	Start	13	START	
	Label removed	16	LBLREM	
Outputs	Media transport on	4	FEEDON	
	Print started	5	PRSTD	
	Print job ready	9	JOBRDY	
	Label in peel position	21	PEELPOS	
				Peel-off cycle / Print job

Figure 7 Signal map PX Q with I/O 24V25-4 in peel-off mode

Signal description		Pin	Name	PX Q in rewind mode
				System is switched on, no error, media OK / Print job has been loaded / Print first label / Print label x / Pause / Print label x+1 / Print last label / Print job has been finished
Inputs	Start	13	START	
	Pause	14	PAUSE	
Outputs	Media transport on	4	FEEDON	
	Print started	5	PRSTD	
	Print job ready	9	JOBRDY	
				Printing / Print job

Figure 8 Signal map PX Q with I/O 24V25-4 in rewind mode