Interface Description

I/O Interfaces I/O 24V25-2 and I/O 24V25-3

Edition: 05/2023 · **Part No.** 9003559

Function

The I/O interfaces are designed to connect the printer to a superordinated control.

The interfaces I/O 24V25-2 and I/O 24V25-23 are 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 24V25-3 supports beside the I/O functions also the ribbon saver function.

	I/O 24V25-2	I/O 24V25-3
Part No.	6010372	6010394
Operating Voltage	24 V	
External Interface	25 pin SUB-D connector	
Interface to the CPU	USB	
Ribbon Saver Support	no	yes

Table 1   Technical Data

1 Pin Assignment

The interface has a 25 pin SUB-D connector.
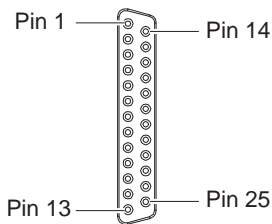
Pin 1 —— Pin 14

Pin 13 —— Pin 25

Figure 1　I/O interface

ℹ **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 ✳ without applicator for *Print on demand = On* Print start signal	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		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. ✳ without applicator A label is in peel-off position.	A label is in peel-off position.	Contact between Pin 21 and Pin 20 is closed
		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

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

Pin 1	FSTLBL
Pin 11	LBLFEED
Pin 12	REPRINT
Pin 13	START
Pin 14	PAUSE
Pin 16	LBLREM
Pin 17	JOBDEL
Pin 18	RSTERR
Pin 23	STOP
Pin 24	LBLROT
Pin 25	GND_EXT
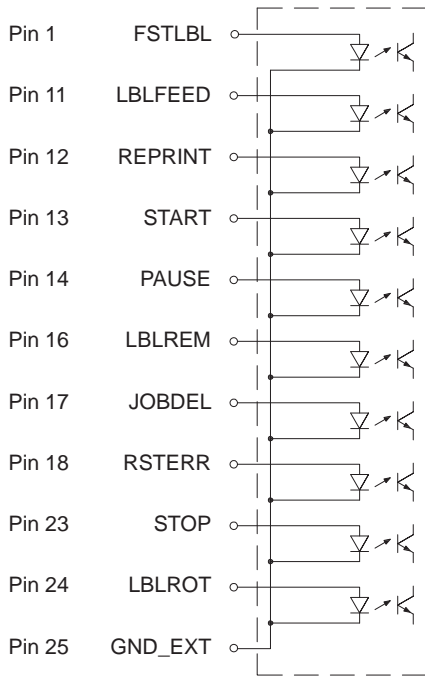
Figure 2   Connecting inputs

Pin 20	COMMON
Pin 2	LBLWARN
Pin 3	ENDPOS
Pin 4	FEEDON
Pin 5	HOMEPOS / PRSTD
Pin 7	RIBERR
Pin 8	MEDERR
Pin 9	JOBRDY
Pin 10	READY
Pin 15	RIBWARN
Pin 21	PEELPOS
Pin 22	ERROR
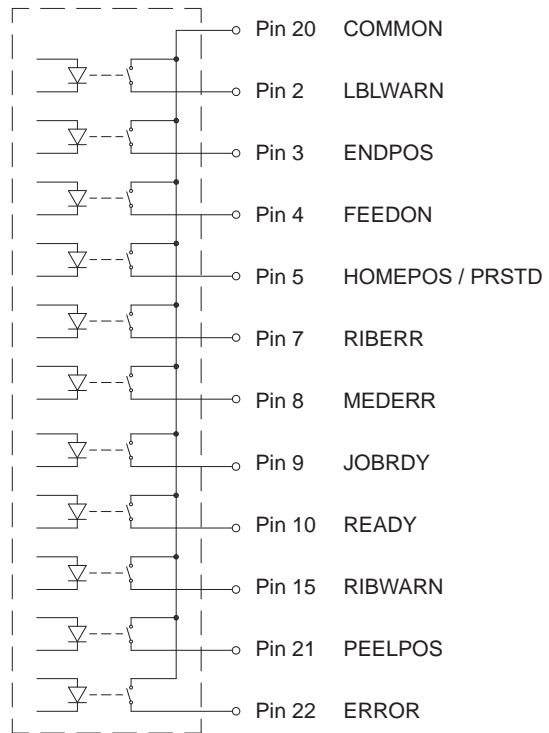
Figure 3   Connecting outputs

Pin	
FSTLBL	1
LBLWARN	2
ENDPOS	3
FEEDON	4
HOMEPOS/PRSTD	5
GND_INT	6
RIBERR	7
MEDERR	8
JOBRDY	9
READY	10
LBLFEED	11
REPRINT	12
START	13
PAUSE	14
RIBWARN	15
LBLREM	16
JOBDEL	17
RSTERR	18
P24_INT	19
COMMON	20
PEELPOS	21
ERROR	22
STOP	23
LBLROT	24
GND_EXT	25

Operation without cab applicator

Operation with cab applicator
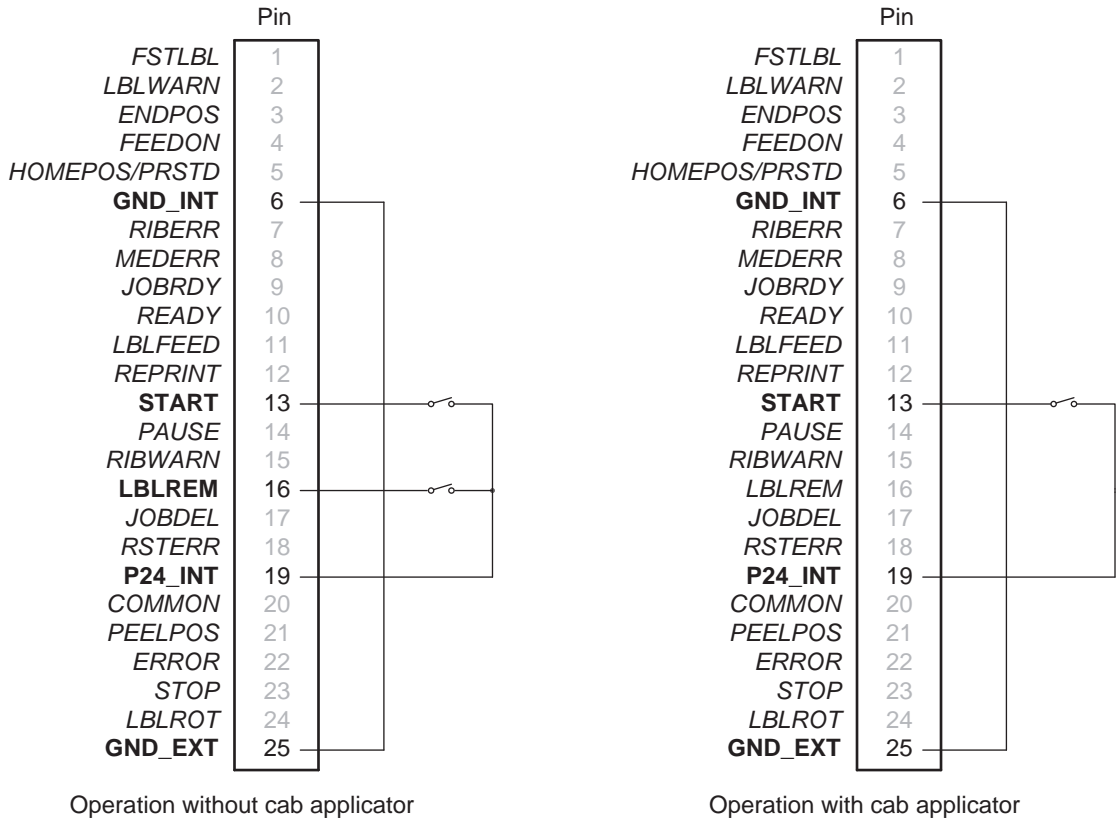
Figure 4   External minimum circuit of the I/O interface using the internal voltage P24_INT

Operation without cab applicator

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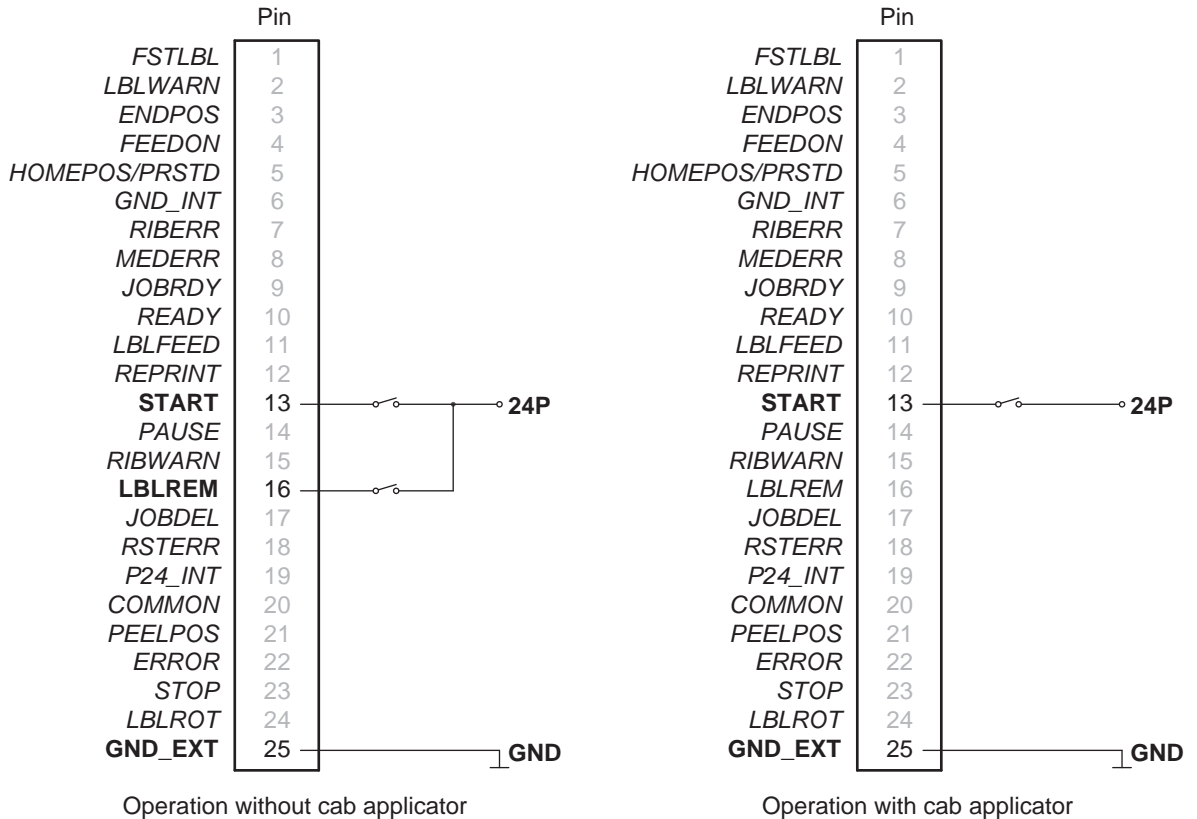
Figure 5   External minimum circuit of the I/O interface with external voltage supply

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 24V25-2 or I/O 24V25-3 and Applicator 4014
in "Print/Apply" mode

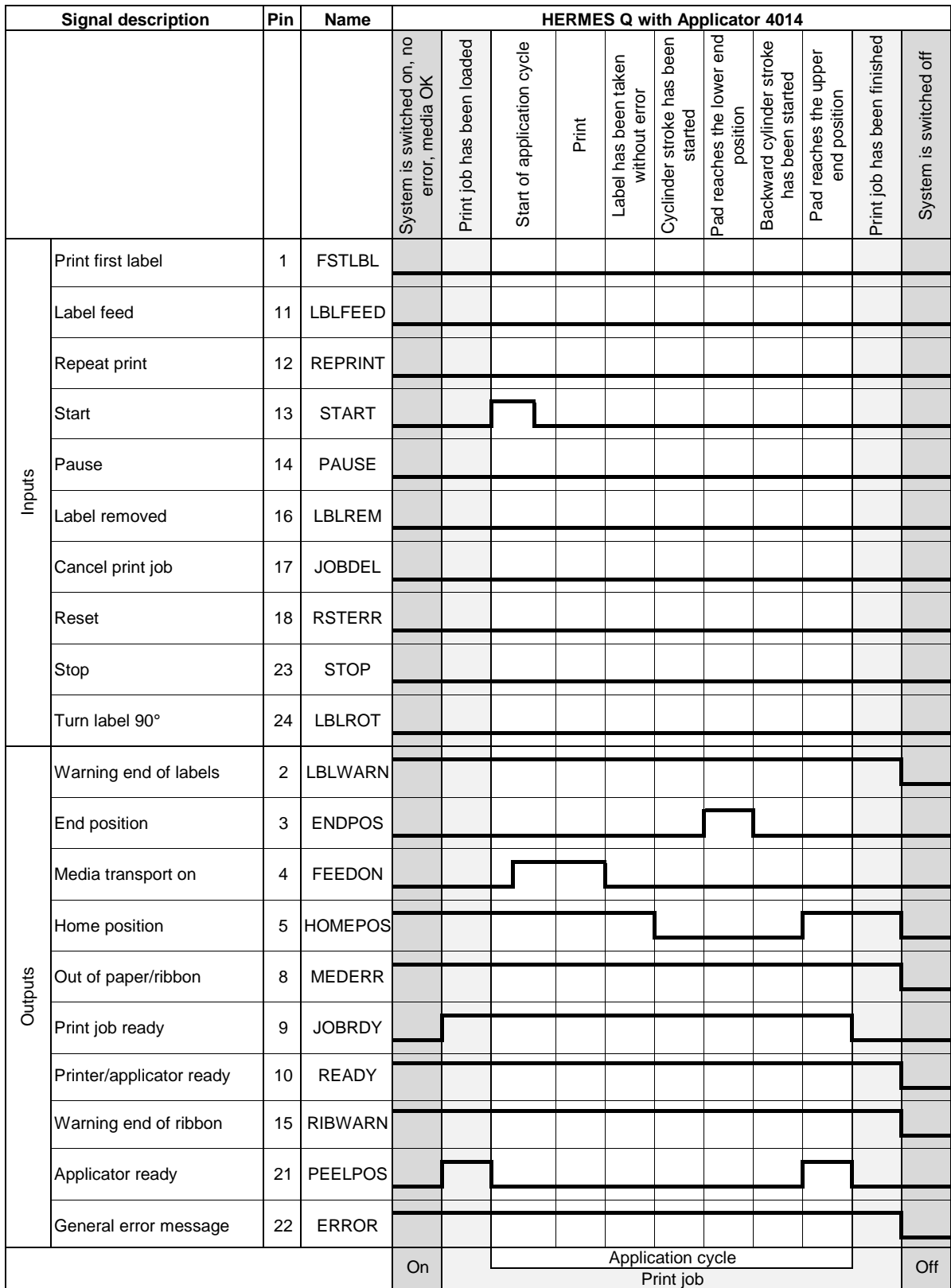| Signal description		Pin	Name	PX Q in peel-off mode							
				System is switched on, no error, media OK	Print job has been loaded	Start peel-off cycle	Print and feed to the peel-off position	Label in peel-off position	Label has been taken from the peel-off position	Backfeed	Print job has been finished
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 24V25-2 or I/O 24V25-3 in peel-off mode

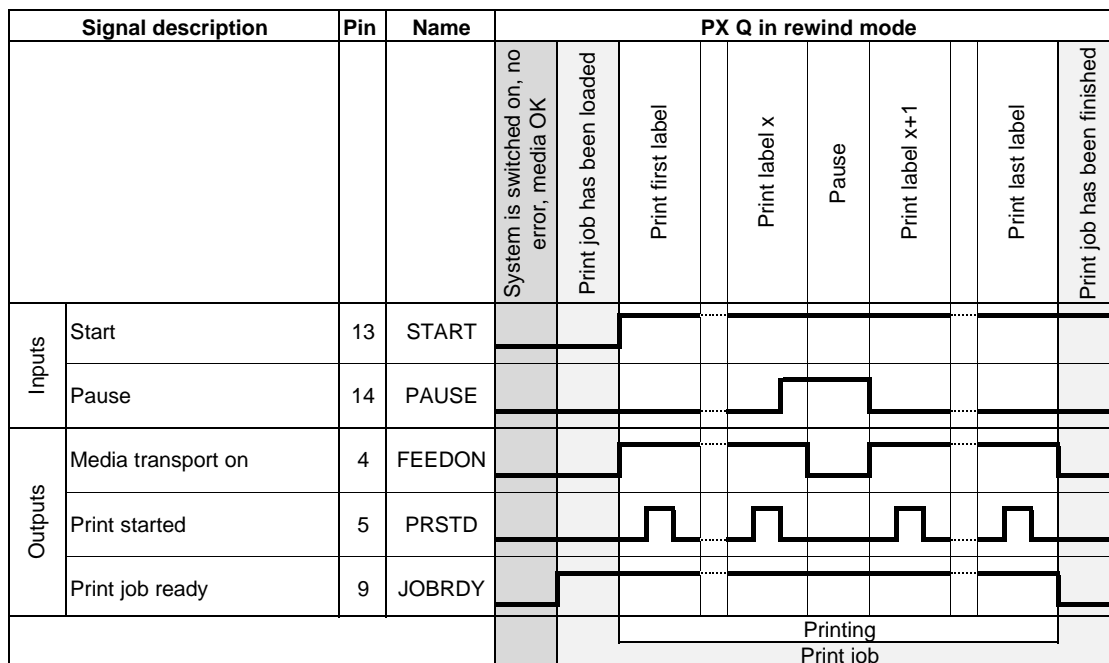| Signal description		Pin	Name	PX Q in rewind mode							
				System is switched on, no error, media OK	Print job has been loaded	Print first label	Print label x	Pause	Print label x+1	Print last label	Print job has been finished
Inputs	Start	13	START								
	Pause	14	PAUSE								
Outputs	Media transport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

Figure 8　　Signal map PX Q with I/O 24V25-2 or I/O 24V25-3 in rewind mode