

Specification for the connection of additional devices to Smart-binder (SB1, SB2, SB3, SB4).



Rev	Date	Change
1.0	09/02/06	First Issue
2.0	31/5/07	Correction to digital input & output pin numbers, inputs were previously shown on 51-58 & outputs on 41-48.
3.0	7/9/07	Corrected polarity of Harting connector & added part numbers and added ccts to pdf
4.0	20/12/08	Added DFA/DFD interface signal specs supported in Sb6 version software.
4.1	24/06/14	Post device pin numbers added
5.0	21/04/20	Added monitor pulse for Emergency stop input. Deleted Roller table jam, End of set, Attention, Bell as no longer supported by V7 software.

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1 Signal specification

Connections are to a Harting 72DD Female connector (0916 072 3101) designated **10-X21**. Located on the upstream side of the control enclosure on the rear of the Smart-binder. Mating connector (0916 072 3001) and spare pins (0915 000 6102) are supplied with the Smart-binder.

Pins 1 to 6 Run Signals – Two sets of change over volt free contacts for stop start signals to external equipment. On = Infeed Running.

Pins 7 to 12 Not Fault Signals – Two sets of change over volt free contacts signalling status to external equipment. On = Not Fault (or ready)

Function	Rating	Pin Number		
		N/C	COM	N/O
Run, K131	8A 250VAC	1	2	3
Run, K131	8A 250VAC	4	5	6
NOT Fault, K132	8A 250VAC	7	8	9
NOT Fault, K132	8A 250VAC	10	11	12

Pins 13,14,15 External Emergency Stop In - single channel, 24V. Connect pins 13 and 15 to allow the Smart-binder to run. Pin 14 is connected to the Smart-binder frame. Connect the armour/screen of the cable carrying these conductors to pin 14 (or otherwise to the Smart-binder frame). This circuit is monitored by the Smart-binder which injects a 1ms 0v pulse every 200ms to detect wiring faults.

Pins 16,17,18 Emergency stop out - single channel volt free contact. External circuit MUST protect the switch contacts with maximum 4A or less using a general purpose or fast fuse to prevent contacts welding and detect ground faults. Return of external supply must be connected to Smart-binder frame on pin 17 eg using the screen of this cable to create a ground fault in the event of damage to the cable.

Pins 22, 23, 24 Power out 24V - +24Vdc fused 1.35A shared between 3 pins, supply for use with digital signals to/from Smart Binder. This is a limited power source according to EN60950. Ref. To 0V on pins 19, 20, 21.

Pins 34, 35, 36 Power out 24V - 24Vdc fused 1.35A shared between 3 pins, supply for use with digital signals to/from Smart Binder. This is a limited power source according to EN60950. Ref. to 0V on pins 31,32,33.

Pins 41 to 48 Digital Inputs – 8 inputs for control signals to Smart-binder. Input voltage range 15-24VDC, requires approx. 10mA to turn input on. Some functions defined see table below. Software versions 7.xx allocate these signals to the DFA/DFD interface when it is configured.

Pins 51 to 58 Digital Outputs – 8 outputs for use with external 24V equipment. Some functions defined see table below. Maximum current is approx. 800mA each channel. Software versions 7.xx allocate these signals to the DFA/DFD interface when it is configured.

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Pins 61 to 66 Feeder Select signal – Two sets of change over volt free contacts signalling status to external equipment. On = Pile feeder selected

Function	Rating	Pin Number		
		N/C	COM	N/O
Run, K137	8A 250VAC	61	62	63
Run, K137	8A 250VAC	64	65	66

Pins 67, 68, 69, 70 Sol. Switching Output- Solid State relay cable of switching an inductive load up to 32W. pin 67 24V supply fused at 1.35A (this circuit is a limited power source according to EN60950), pin 68 + terminal of SSR, pin 69 – terminal of SSR, pin 70 0V ref.

Defined inputs	
Cycle up	Input to permit upstream device to start/stop the Smart-binder,
Post device ready	Input from following device to signal that it can receive books from the Smart-binder (cannot be used with DFD/DFA) if End of job signal is to be used.

+10-X21 External signals (Link up) connector			
Pin	Function	Pin	Function
1	Run (Normally closed)	37	Not connected
2	Run (Common)	38	Not connected
3	Run (Normally open)	39	Not connected
4	Run (Normally closed)	40	Not connected
5	Run (Common)	41	Digital in 1 – C0 Sheet exit
6	Run (Normally open)	42	Digital in 2 – C1 End of set
7	Not Fault (Normally closed)	43	Digital in 3 – C2 Cycle up
8	Not Fault (Common)	44	Digital in 4 – C3 End of Job/Post Device Ready
9	Not Fault (Normally open)	45	Digital in 5 - unallocated
10	Not Fault (Normally closed)	46	Digital in 6 – reserved for insert feeder
11	Not Fault (Common)	47	Digital in 7 – reserved for insert feeder
12	Not Fault (Normally open)	48	Digital in 8 - unallocated
13	E Stop in	49	Not connected
14	PE	50	Not connected
15	E Stop in	51	Digital out 1 – S0 Offline
16	E Stop Out	52	Digital out 2 – S1 Faulted
17	PE	53	Digital out 3 – S2 Full
18	E Stop Out	54	Digital out 4 – S3 Sheet delivered
19	0v	55	Digital out 5 – S4 Set delivered
20	0v	56	Digital out 6 – reserved for insert feeder
21	0v	57	Digital out 7 – unallocated
22	+24V	58	Digital out 8 – unallocated
23	+24V	59	Not connected
24	+24V	60	Not connected
25	Not connected	61	Feeder Select (Normally closed)
26	Not connected	62	Feeder Select (Common)

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27	Not connected	63	Feeder Select (Normally open)
28	Not connected	64	Feeder Select (Normally closed)
29	Not connected	65	Feeder Select (Common)
30	Not connected	66	Feeder Select (Normally open)
31	0v	67	+24V DC (1.35A)
32	0v	68	Solenoid driver +V
33	0v	69	Solenoid driver o/p
34	+24V	70	0v
35	+24V	71	Not connected
36	+24V	72	Not connected

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2 Interface signals for upstream equipment

2.1 Not Fault (or Ready)

On when the Smart-binder is not in a fault condition. This signal can be used to implement a simple single signal interface.

2.2 Running

On when the infeed of the Smart-binder is running. The Smart-binder cannot accept sheets unless this signal is on, however, in some fault conditions the Smart-binder can still accept sheets in order to permit an orderly stop, in this case this signal remains on after the Not Fault has been turned off (known as a soft stop).

2.3 Cycle up

Signal from upstream equipment that the Smart-binder is to run. The Smart-binder will only respond if there is no fault (ie Not Fault is ON). If the infeed is not already running it will start (Running will come on after approx 0.5s when the infeed is at full speed).

If this signal is turned off while the infeed is running the infeed will stop after it has been cleared of sheets and running will turn off.

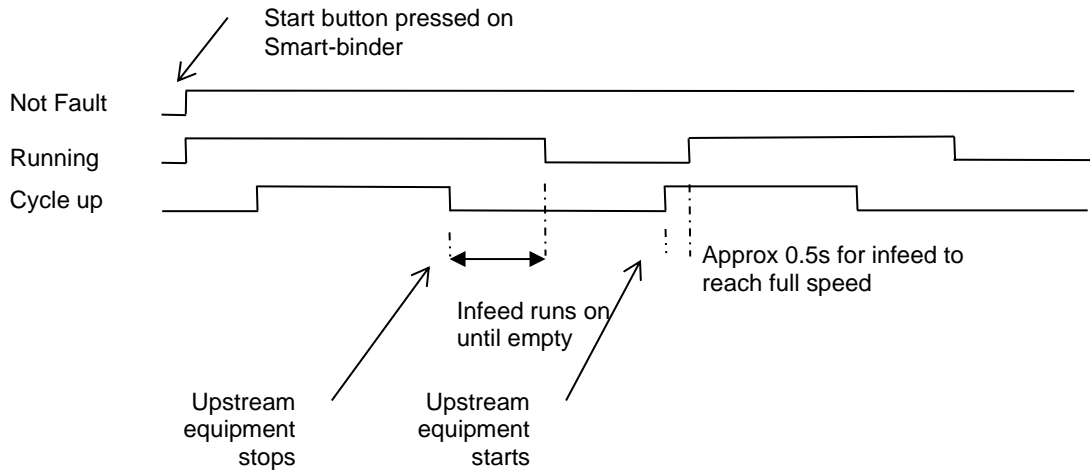
2.4 DFA/DFD interface

According to Oce DFD-2 Specification V2.13 and XEROX DFAGENC version 2.0.3. Generally cut sheet printers will require E0000123 rev 1 to provide the correct physical interface.

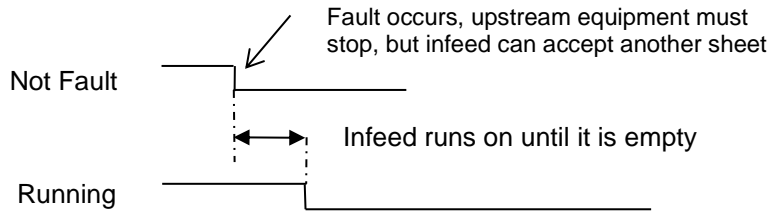
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3 Timing diagrams for upstream equipment

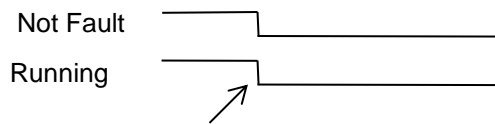
Normal sequence of operation



Sequence of operation for a soft fault



Sequence of operation for a hard fault (infeed or collator jam)



Fault occurs upstream equipment must stop, infeed stops immediately as it cannot take more sheets