V510 SMEMA

Communications

Updated on 28/01/2015

V510 SMEMA

- Used for machine-to-machine electrical interface
- Two signal lines: “machine not busy” and “board available”
- Signals are communicated between machines via the 14-pins SMEMA connector
- The SMEMA pins configuration is according to IPC-9851 SMEMA standard.

Pin Changes

SMEMA Pin Configuration

Existing

UPSTREAM

PIN NO	PIN
1	COMMON FOR NEXT MACHINE
2	MACHINE NOT BUSY OUT
3	24 GND
4	BOARD AVAILABLE IN

DOWNSTREAM

PIN NO	PIN
1	24 GND
2	MACHINE NOT BUSY IN
3	COMMON FOR NEXT MACHINE
4	GOOD BOARD AVAILABLE
5	FAILED BOARD AVAILABLE

Standard

UPSTREAM

PIN NO	PIN
1	MACHINE NOT BUSY OUT
2	COMMON FOR NEXT MACHINE
3	BOARD AVAILABLE IN
4	24 GND

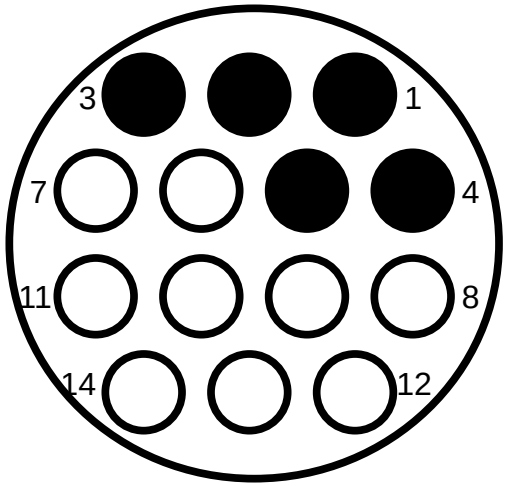
DOWNSTREAM

PIN NO	PIN
1	MACHINE NOT BUSY IN
2	24 GND
3	BOARD AVAILABLE
4	COMMON FOR NEXT MACHINE
7	FAILED BOARD AVAILABLE
8	COMMON FOR NEXT MACHINE

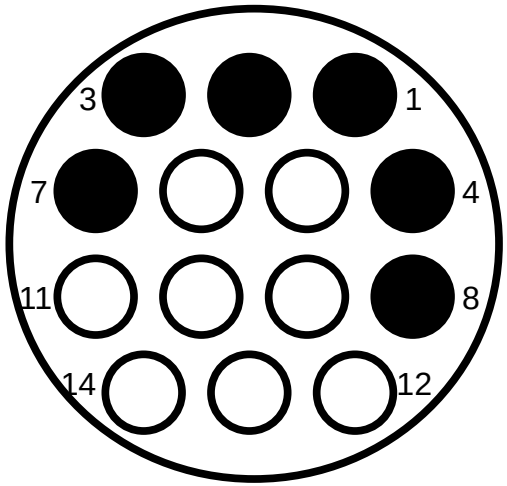
Upstream : Pin polarity change, number of pin remains

Downstream:

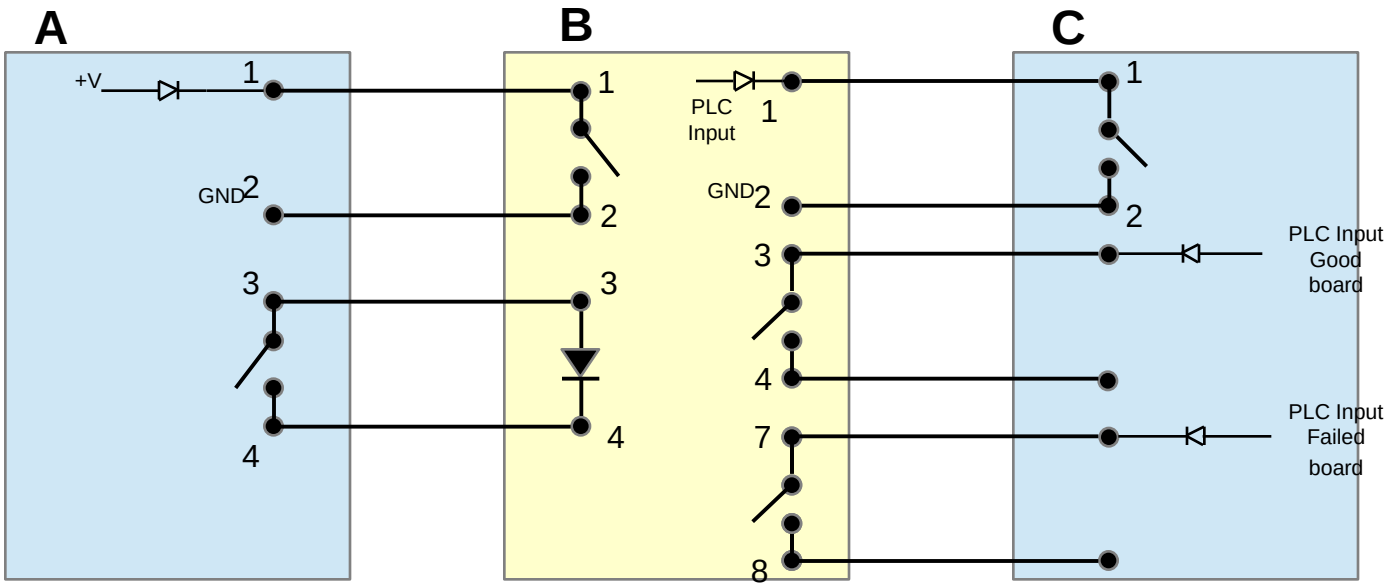
Existing



Standard



Communication

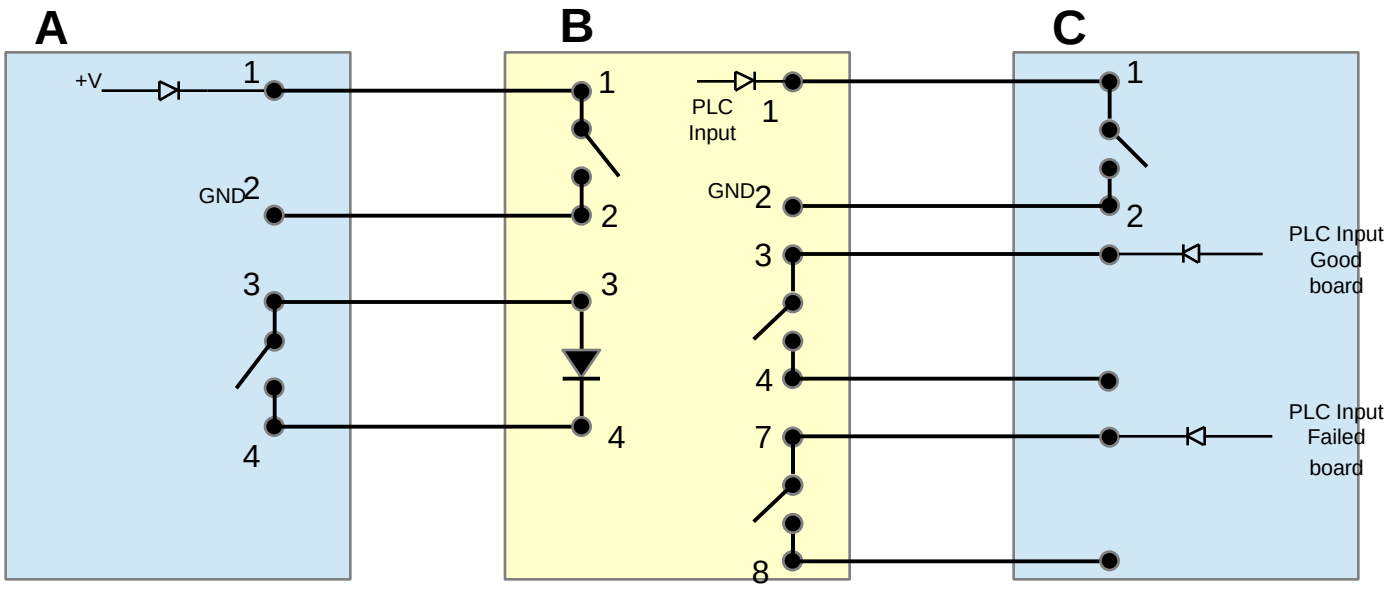


**boards are transferred from A to B and from B to C

***Machine B = V510

- If V510 is not busy, pins 1 and 2 on “B” are closed.
- If upstream has no board available, pins 3 and 4 on “A” are open.
- If V510 machine is busy, pins 1 and 2 on “B” are open . V510 will not allow any board load into the v510.
- If there is a board waiting at upstream and V510 is not busy, upstream conveyor will transfer the board into V510 and v510 conveyor belt will run

Communication



**boards are transferred from A to B and from B to C

***Machine B = V510

- If machine C is busy, pins 1 and 2 on “C” are open. It will not allow any board load in from V510
- IF machine C is free, Pin 1 and 2 will close contact. Board from V510 will send Failed or Good board signal then releases to machine C

Timing Diagram

Good board

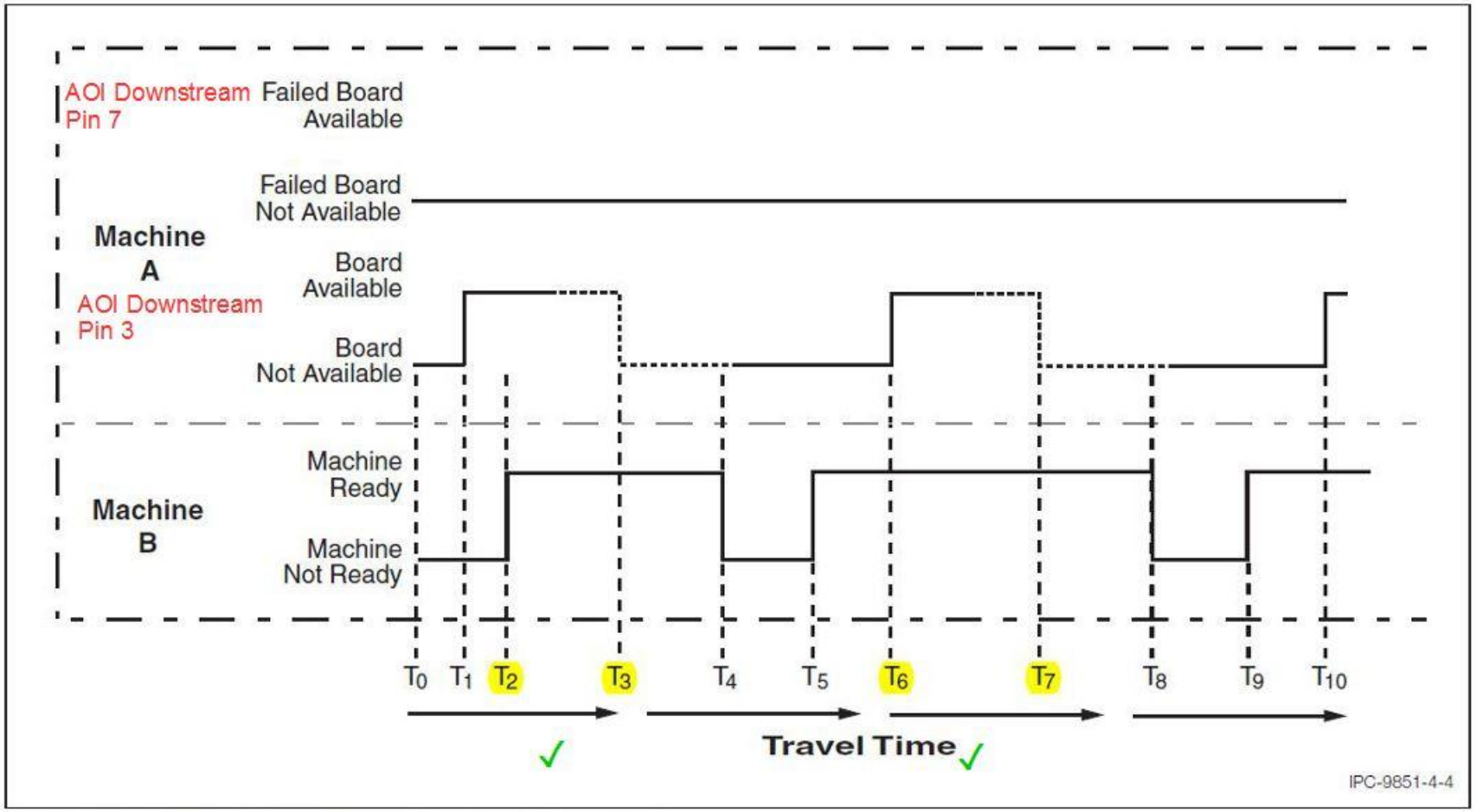


Figure 4-4 Timing Logic Diagram for Normal Transfer

✓ = board transfer

Failed board

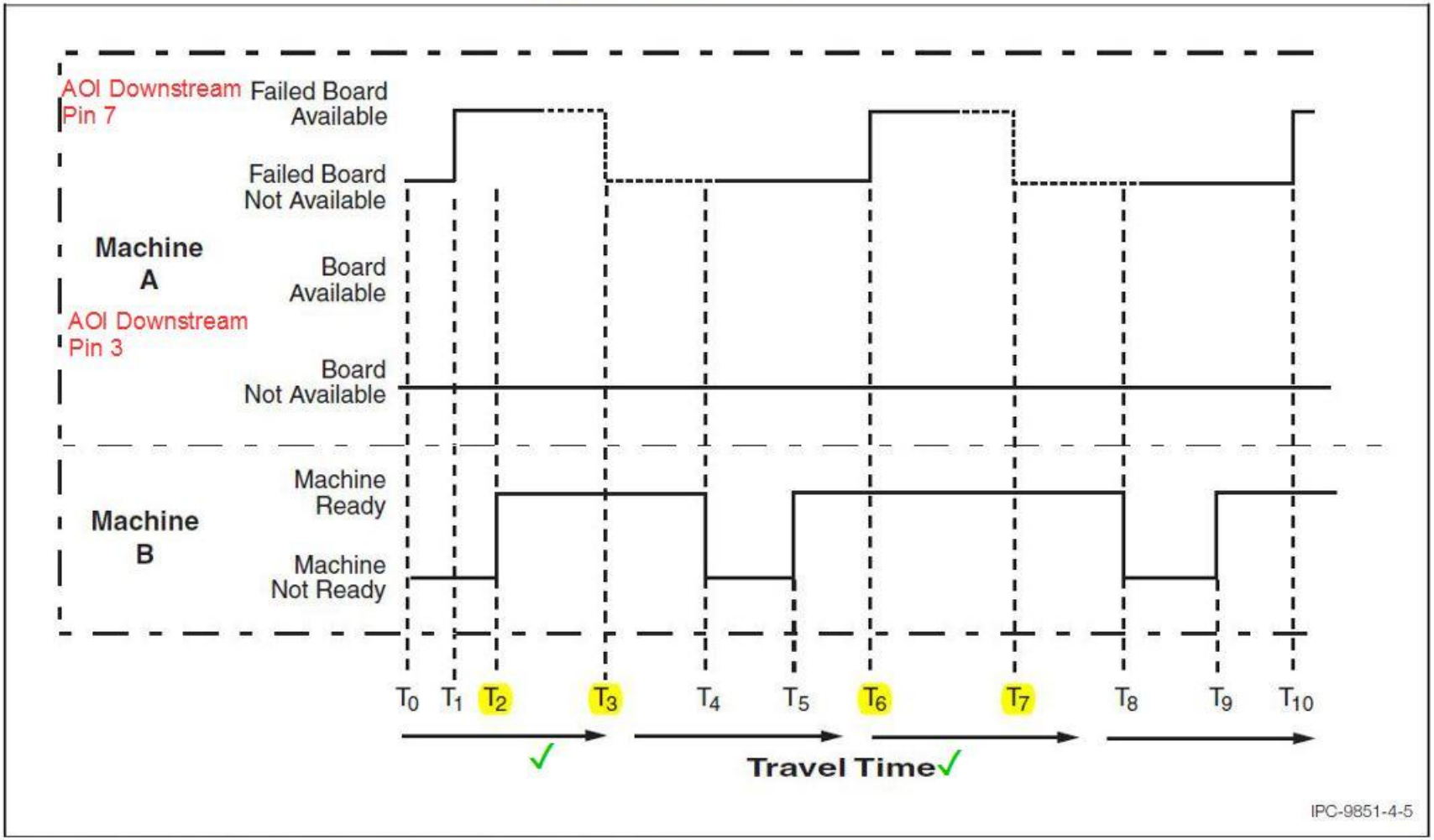


Figure 4-5 Timing Logic Diagram for Failed Board Option

✓ = board transfer

Notes:

Good board

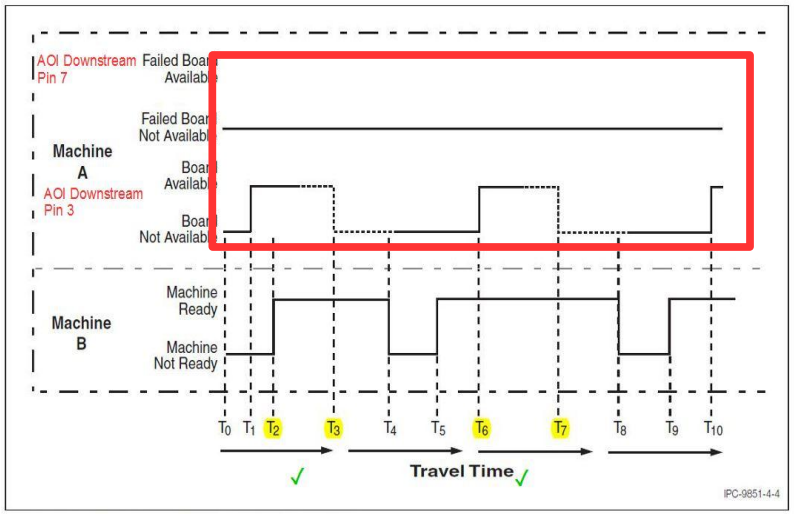


Figure 4-4 Timing Logic Diagram for Normal Transfer

✓ = board transfer

Failed board

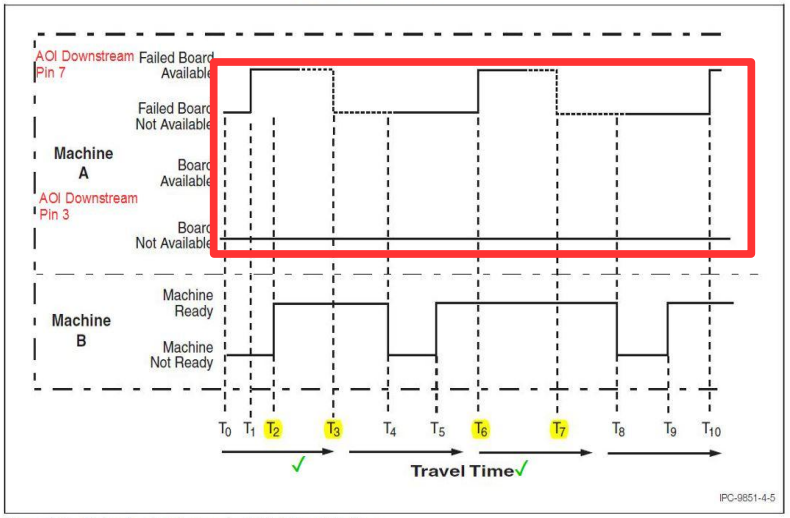
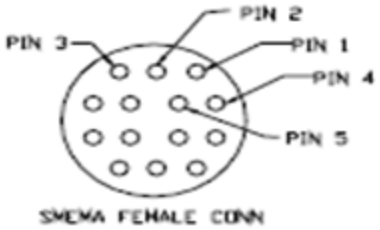


Figure 4-5 Timing Logic Diagram for Failed Board Option

✓ = board transfer

- The board transfer only start when either Good board (board available) or Failed board signal on, but not both signal on at the same time (refer to IPC-9851 pg3 Section 4.3 Interface Signal Logic)

V510 SMEMA Trobleshooting

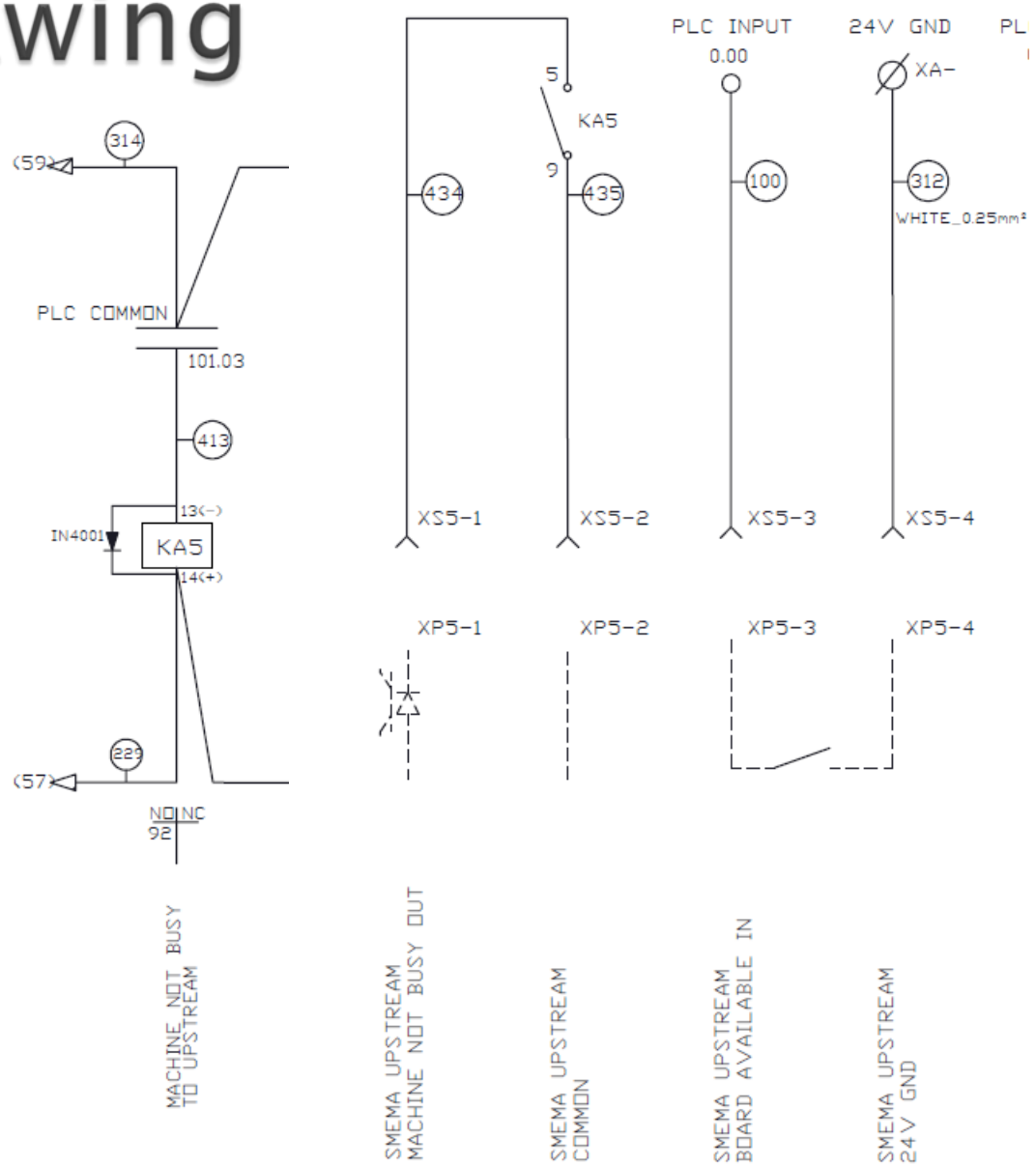


- Empty the V510 to make it idle
- Short Pin 3 and 4 on upstream connector. The conveyor should run
- Place the multimeter on pin 3(+) and pin 4(-) on upstream connector, it shows +24V.
- Place the multimeter between pins 1 and 2 on the upstream connector, the multimeter should beep continuously.

- Load in a board into V510, the multilmeter stop beeping
- Place multimeter on pin 1(+) and pin 2(-) on downstream connector, it shows +24V.
- Unload the board, when the board stopped at the exit sensor. Place multimeter between pins 7 and 8 on the downstream connector, the multimeter should beep continuously.
- Short pins 1 and 2 on the downstream connector, the board should be released from V510

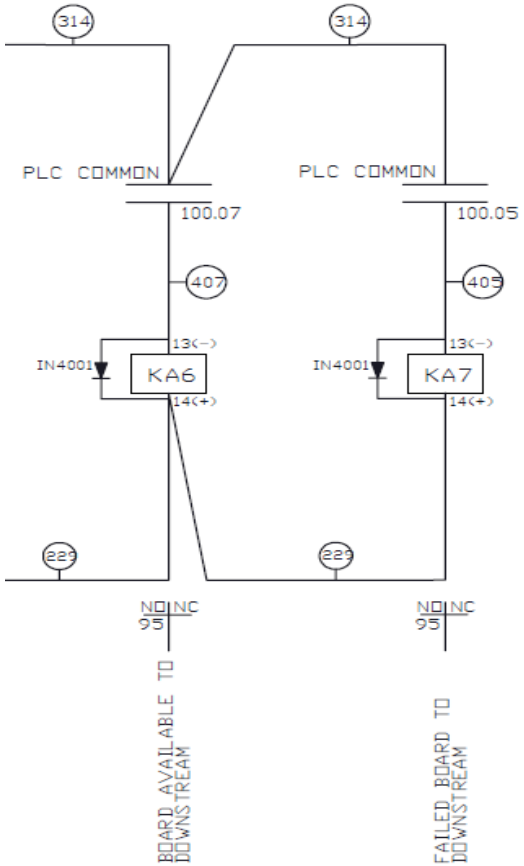
Electrical drawing

- Upstream SMEMA electrical schematic diagram
- Relay KA5 is normally closed
- Machine is not busy when KA5 triggered from PLC

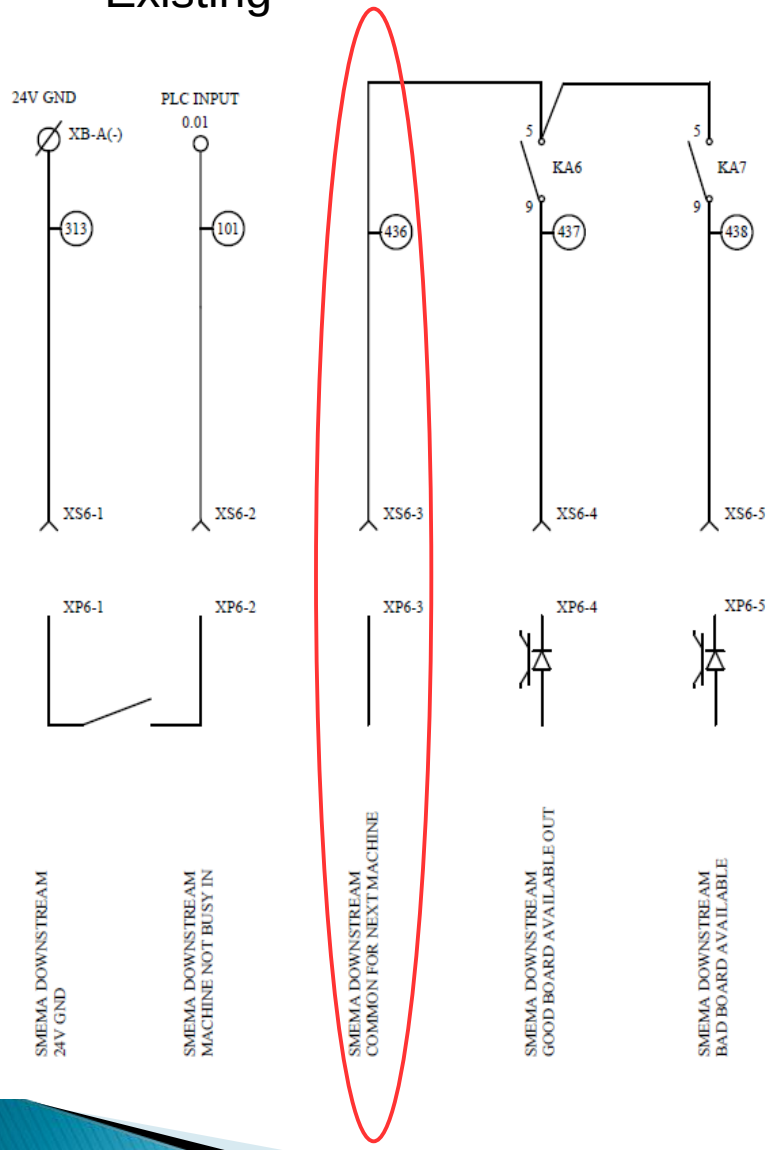


Electrical drawing

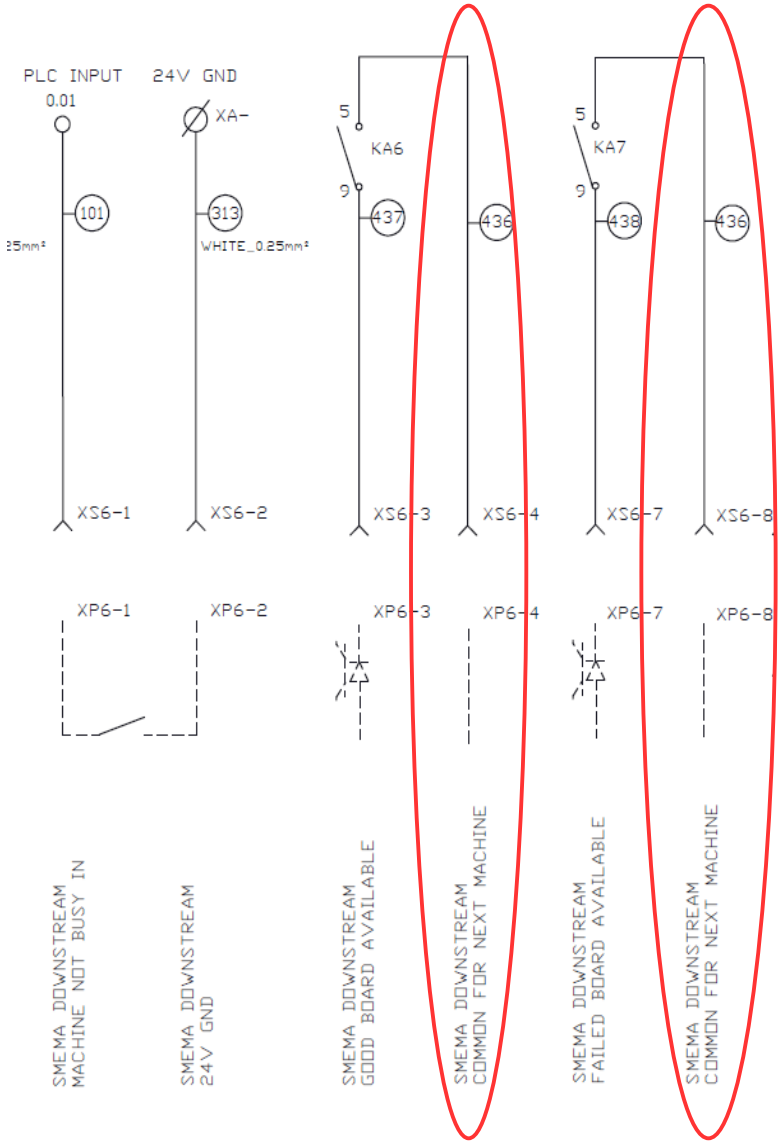
- Downstream SMEMA electrical schematic diagram
- Good board – KA6 ON , Bad board – KA7 ON
- KA6 and KA7 are controlled by PLC



Existing

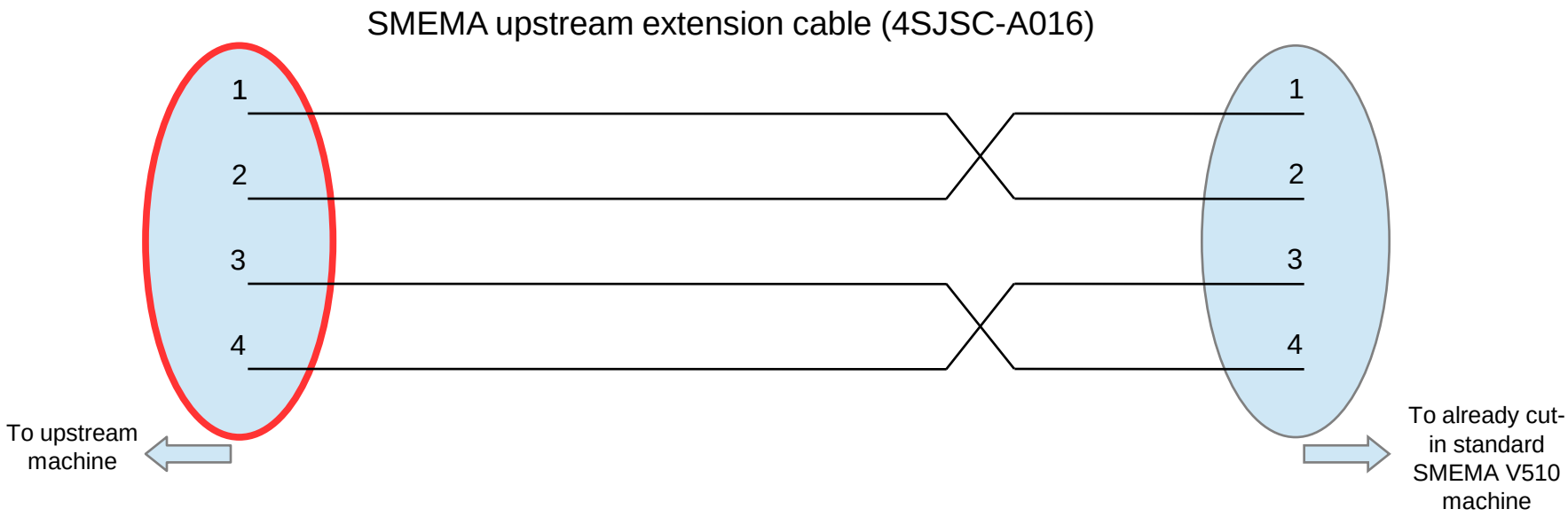


Standard



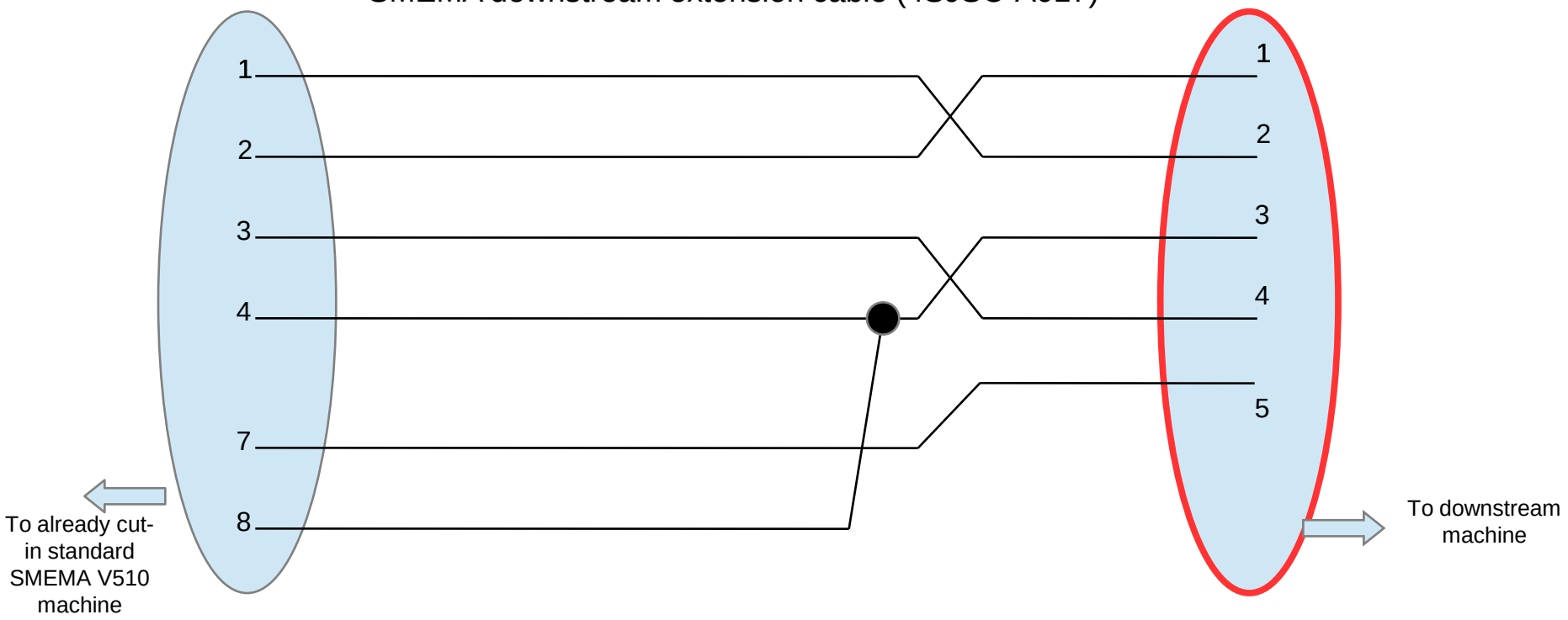
What if customer prefer old SMEMA pin configuration?

If customer prefer existing SMEMA pin configuration, there are a few rework process need to be done on V510 machine that already cut-in standard SMEMA.



1) Please pull out the all the pins on the SMEMA extension cable connector (4SJSC-A016) end that will connect upstream machine.
2) Swap pin 1 and pin 2.
3) Swap pin 3 and pin 4.

SMEMA downstream extension cable (4SJSC-A017)



1) Please pull out the all pins on the SMEMA extension cable connector end that will connect downstream machine.
2) Swap pin 1 and pin 2.
3) Take pin 3 and put it as 4th of SMEMA connector pin.
4) Short pin 4 and 8 and put it as 3rd of SMEMA connector pin.
5) Take pin 7 and put it as 5th of SMEMA connector pin.