
APPENDICES

App A. R1-T1 connection with Synthetic Mains supply

This appendix describes how to use Fuji Electric synthetic mains supply (SMS) to supply R1-T1, when this supply is mandatory in solar applications. As stated in inverter’s user manual, or in Solar pumping inverter user’s manual, when supplying FRN0203E2_-4_ or higher inverters with DC voltage, it’s mandatory to supply inverter fans and charging circuit contactor with AC voltage. If this AC supply comes from Fuji Electric SMS, some adaptations are needed in the inverter setup and sequence.

Fuji Electric SMS may provide AC conditioned supply for R1 T1 in isolated electrical installations where no commercial AC supply is available. For details in SMS, please contact your Fuji Electric representative.

A.1 Digital inputs sequence

Some additional wiring is needed when using big FRENIC-Ace inverters in solar pumping application. This wiring is depicted in the figure below.

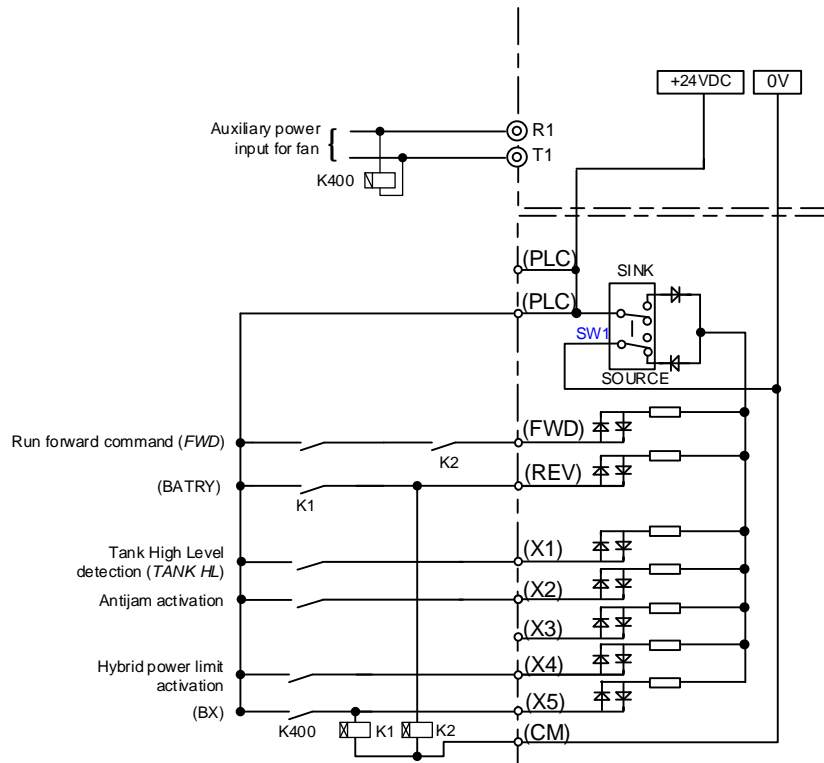


Figure A- 1: Recommended digital inputs connection

If the inverter is used with stable “R1, T1” supply from an external source, this sequence for the digital inputs can be avoided. In this case, and due to the inputs’ new default settings, it will be mandatory to make a short-circuit between [X4] and [X5] digital inputs and [PLC] terminals, to make them continuously activated.

Some timing needs to be kept in order to make the inverter able to respond to a sudden loss of the power at R1, T1. The relay named as K400 needs to be a fast-disconnection relay to protect the inverter in case of a sudden power loss.

It is important to keep certain timing between the digital signals for restarting the inverter, also. K1 and K2 should be delay-ON relays, for enabling the inverter in the correct way after a power loss. Details in the different times between signals are depicted in the Figure A-2, below:

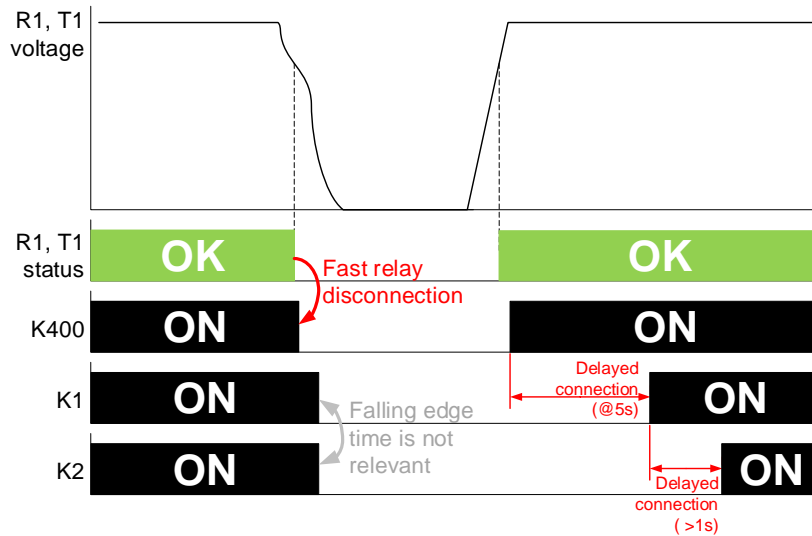


Figure A- 2: Inputs' sequence

A.2 Additional default settings for FRN0203E2_-4_ or above

Some additional settings will come for big Ace inverters while used in solar pumping application. All these additional settings are made for adapting the inverter to the input sequence explained above in this document.

Code	Keypad code	Name	Data setting range	Factory default	Setting
E05	E05	Terminal [X5] function	Refer to User Manual	8	1007
E99	E99	Terminal [REV] function		99	59

A.3 Switches adaptation for external FAN supply (R1, T1)

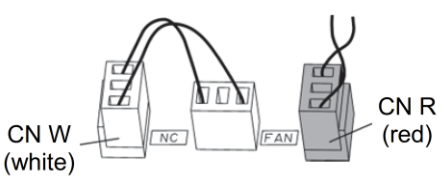
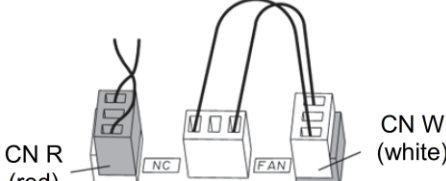
For FRN0203E2_-4_ or above supplied with DC power, it is needed to supply some internal parts working with AC voltage. Besides supplying the R1, T1 terminals, some adaptations are needed in the inverter power board switches. Therefore, when using DC power for the inverter, move connector "CN R" to **[NC]** side and move connector "CN " to **[FAN]** side.

For details on the switching procedure, refer to the figures below:

(a) FRN0203E2-4 to FRN0290E2-4

Setting		
Purpose	In the case terminals R1 and T1 are NOT used (Factory default)	In the case terminals R1 and T1 are used <ul style="list-style-type: none"> • DC bus input type • Combination with PWM converter

(b) FRN0361E2-4 to FRN0590E2-4

Setting		
Purpose	In the case terminals R1 and T1 are NOT used (Factory default)	In the case terminals R1 and T1 are used <ul style="list-style-type: none"> • DC bus input type • Combination with PWM converter

Note The fan power source switching connector “CN R” is on **FAN** and “CN W” is on **NC** when shipped from the factory. When direct current power supply input is not used, do not modify this setting. Mistakes in the fan power source switching connector setting may prevent the cooling fan from operating, and alarms such as cooling fin overheat **CH1** and charging circuit error **PLF** may be generated.