

SPEC. NO. TQ3C-8EAC0-E4AAXX94-01

DATE March 2, 2000

S P E C

FOR:

INVERTER SPECIFICATION FOR CFL

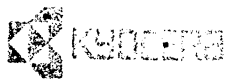
TYPE: KCI-93

C O N T E N T S

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Issued

Date: MAR. 12. 2000



Hayato LCD Division

KYOCERA CORPORATION
KAGOSHIMA HAYATO PLANT
LCD DIVISION

For Reference Only

This specification is subject to change without notice.
Consult Kyocera before ordering.

Original	Designed by :Engineering Dept.			Confirmed by :QA Dept.	
Issue Data	Prepared	Checked	Approved	Checked	Approved
March 18, 1999	S. Oshita	K. Yogo	J. Matsumura	S. Hayashi	Y. Yoshida

Caution

1. This general specification can be changed, just for your reference only. Kyocera will release specification later exclusive for you. Please refer to it as the formal document of specification.
2. This Inverter is supposed to be for general electric appliances such as audio, office automation, industrial applications, home appliances and game machines. Do not use the Inverter as a display for a medical instrument that is required extremely high reliability and its failure and malfunction may affect human lives. In the case you did, Kyocera will not take responsibility for it.
3. Kyocera may scrap the tooling or stop supplying the LCD, after 2 year time frame from your latest purchase of the Inverter.

Revision Record

Date	Designed by : Engineering Dept.			Confirmed by : QA Dept.	
	Prepared	Checked	Approved	Checked	Approved
March 2, 2000	S. Oshita	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
Rev. No.	Date	Page	Descriptions		
01	March 2, 2000	1	1. Mechanical Specifications Delete "()" 2. Absolute Maximum Ratings Delete "()" Change comment "*1". Temp. = -20℃ < " 24Hr." → " 48Hr." Temp. = 60℃ < " 24Hr." → " 168Hr."		
		2	3. Inverter Characteristics 3-1. Electrical Characteristics Delete "()" Change output current ratings. Add item "Input rush current". 3-2. Input Brightness adjustment Change value of tube current. Change content of Volume resistor. " 5kΩ " → " 2kΩ "		
		3	3-4. Supply voltage sequence condition Add item "Supply voltage sequence condition" 4. Interface Signals 4-1. Inverter input connector :CN1 Change content of SYMBOL. " VR(0~5kΩ) " → " VR(0~2kΩ) "		

1. Mechanical Specifications

KCI-93 (Tamura corporation)

ITEM	Standardized Value	UNIT
Outline Dimensions	9.2max (W) × 68max (H) × 8.0max. (D)	mm
Weight	5	g

2. Absolute Maximum Ratings

ITEM	SYMBOL	MIN.	MAX.	UNIT
Operating temperature	Top	0	60	℃
Storage temperature *1	Tsto	-20	70	℃
Operating humidity *2	Hop	20	*3	%RH
Storage humidity *2	Hsto	10	*3	%RH

*1 Temp. = -20℃ < 48 Hr. , Temp. = 60℃ < 168 Hr.

No vibration and shock

*2 Non-condensation

*3 Temp. ≤ 40℃ , 85% RH MAX.

Temp. > 40℃ , Absolute humidity shall be less than 85% RH at 40℃.

* As for Vibration and shock, refer to the data of the LCD module.

3. Inverter Characteristics

3-1. Electrical Characteristics

Temp. = 25°C

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	NOTE
Input voltage	Vin	4.5	5.0	7.0	V	Including ripple
Input Rush current *1	Iinr	—	—	10	A	Vin=4.5V
Input current	Iin	—	—	300	mA	Vin=4.5V Iout=2.1mA _{rms}
Non-load output voltage	Vout	1000	—	—	V _{rms}	Vin=4.5V
Output current Ratings *1	Iout	1.9	2.1	2.3	mA _{rms}	Vin=6.0V
Operating Frequency	f	—	160	—	kHz	Vin=6.0V Iout=2.1mA _{rms}

* Electrical characteristics is defined under the following conditions:
20~25°C temperature circumstance, over 10 minutes after CFL light is turned on.

*1 Kyocera's measurement condition on rush current:
Leave more than 0.5 second for cycle power.

3-2. Input Brightness adjustment

Connect external adjusting volume(2kΩ) to fit the brightness.

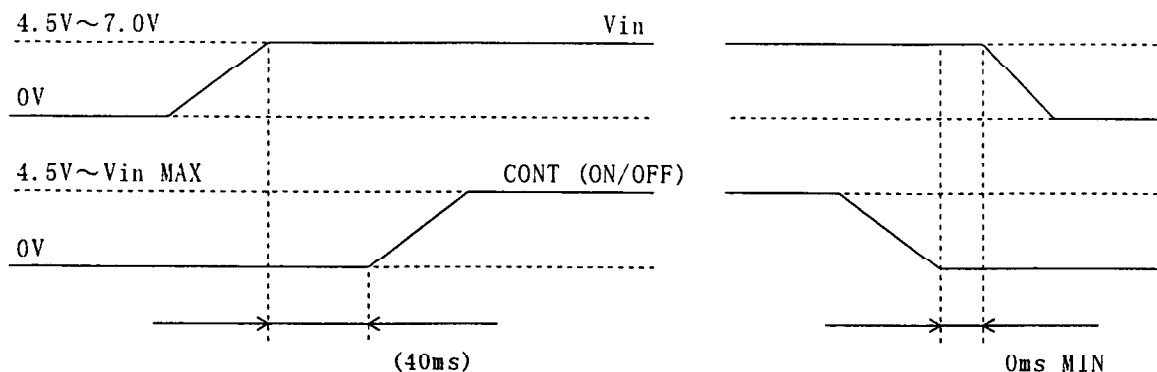
Volume resistor	Function		NOTE
0 Ω	MAX. Brightness	Tube current 2.1mA _{rms} TYP.	—
2 k Ω	MIN. Brightness	Tube current 0.8mA _{rms} TYP.	—

3-3. CFL ON/OFF (CONT terminal)

Input Signal	Specification	Function
ON	4.5V MIN.	Operated Inverter
OFF	0.4V MAX.	Inoperated Inverter

3-4. Supply voltage sequence condition

Always follow supply voltage sequence for Vin and CONT as show below



※CONT must be supplied voltage to ON after Vin is completely ON.

※In case of shut off, CONT must be OFF first, then Vin must be OFF

4. Interface Signals

4-1. Inverter input connector : CN1

Pin NO.	SYMBOL	CONTENTS
1	GND	GND
2	GND	GND
3	CONT	ON/OFF terminal
4	VR(0~2KΩ)	Adjusting volume Terminal
5	Vin	Input voltage
6	Vin	Input voltage

INV side connector : SFV6R-1ST (FCI)

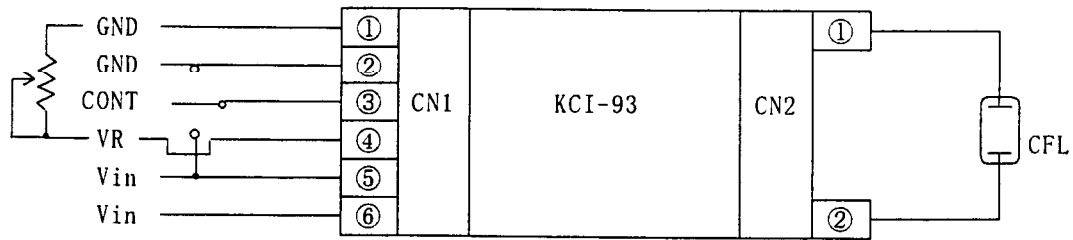
4-2. Inverter output connector : CN2

Pin No	CONTENTS
1	HOT (High voltage terminal)
2	COLD (Return terminal)

INV side connector : HV-2P-HF (JAE)

Matching connector : HV-2S-C1 (JAE)

4-3. Circuit figure



5. Precaution for use

5-1. About 1000 V of high voltage will be supplied to the transfer and output connector(CN2). Please be careful for description below.

- (1) Please make sure power is off when both connectors are connected.
- (2) Please see to it that additional insulation is well prepared, assembling inverter to the unit.

5-2. Please consider the influence of float capacitor about connection between inverter and lamp.

- (1) Please shorten the wiring to the lamp as much as possible.
- (2) Please avoid the wire tightly restricted to the high voltage terminal and return terminal.
- (3) Putting the conductor near by the lamp will might decrease the brightness or might have an effect on the nature of starting the CFL operation.

5-3. On using inverter itself please be careful about description below.

- (1) Do not make any stress to the base board or transfer.
- (2) Do not use the inverter which once dropped.

5-4. GND of the inverter shall be connected to either the VSS GND or one of the mounting holes of the LCD module.

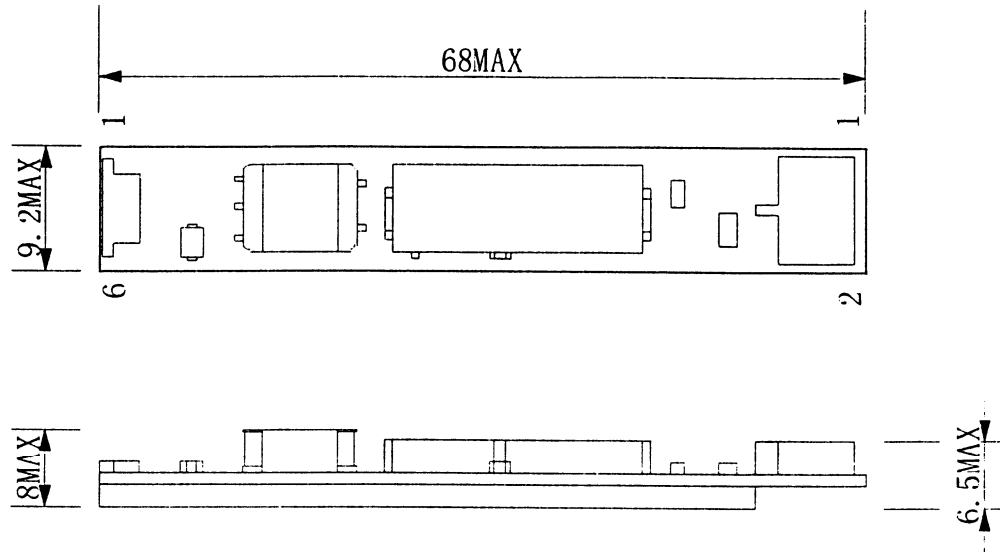
6. Reliability test

Please look at the specification for LCD module. Actually this reliability test is result for our standard backlight module, so use this as only for reference.

7. Warranty

Please look at the specification for the LCD module.

8. Outline Drawing



CN1:SFV6R-1ST (FCI)

CN2:HV-2P-CF (JAE)

Recommended FPC or FFC outline

Pitch	0.5mm
Terminal length	3.5mmMIN
Terminal thickness	0.30 ± 0.05 mm
Reinforcement plate thickness	0.45mmMAX