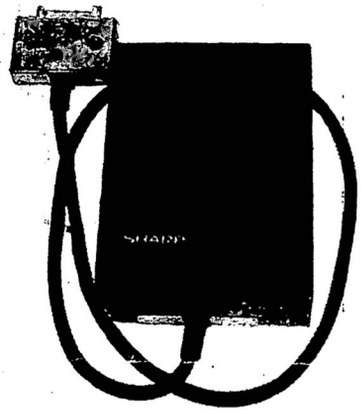
CE-130T

SHARP SERVICE MANUAL

CODE : 00ZCE130TS/ME

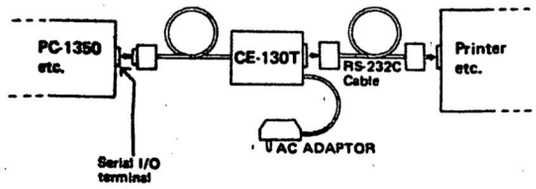


MODEL CE-130T

RS-232C Level converter

INTRODUCTION

By connecting this interface between the SHARP computer with a serial I/O function such as the PC-1350, and another computer or peripheral device with an RS-232C interface, information can be interchanged between the computer and the device.
Except for the input and output levels, the serial I/O functions of the SHARP computers conform to the RS-232C standard. This interface adjusts the input and output levels to the RS-232C standard.



SPECIFICATIONS

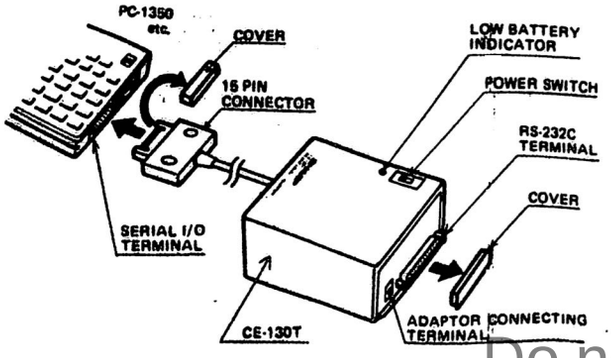
Model: CE-130T RS-232C level converter
Applicable standard: EIA RS-232C
Connectors used: 15-pin male connector for connection with the PC-1350 etc.
25-pin connector, DB-25W, for connection with an external device.
Power supply source: 4.8 V (DC) Ni-Cd rechargeable battery
Power consumption: 4.8 V (DC) 0.45 W
Battery capacity: Approx. 4 hours of operation with 15-hour charge
Input/Output signals:

	Input/Output signals to 15-pin connecting terminal (serial I/O)	Output signals 25-pin connecting terminal (RS-232C)
High level	+4.5 to +6.5 V (CMOS level)	+5 to +10 V (3 to 7 Kohms load)
Low level	0 to −0.4 V (CMOS level)	−5 to −10 V (3 to 7 Kohms load)

* Each output terminal is capable of driving one C-MOS IC.

Dimensions: 86 (W) x 116 (D) x 52 (H) mm
(3-3/8" (W) x 4-17/32" (D) x 2-1/16" (H))
Weight: 400g (0.89 lbs.)
Accessories: Connector covers (2; RS-232C terminal and 15-pin connector), AC adaptor (1; EA-11E), Operation manual (1)

CONNECTION



(1) Turn off the power to the interface, the computer and the other device.
(2) Remove the terminal covers from the connector of the interface and from the computer.
(3) Connect the 15-pin connector of the interface to the serial I/O terminal on the computer.
Connect the RS-232C cable of the other device to the RS-232C terminal on the CE-130T.
(4) Turn on the power to the device, the computer and then the interface.

Note:
- Whenever connecting the interface to or disconnecting it from a computer or a device, turn off the power to both the computer or the device and the interface. If the power is left on when connecting or disconnecting, the computer or the device may stop functioning. If this should happen, refer to the operation manual for the computer or the device.
- For programming, refer to the command explanations for the serial I/O output of the computer.

SIGNALS USED IN THE RS-232C INTERFACE

RS-232C

The RS-232C is the standards by EIA (Electronics Industries Association) which is established to set the standard interfacing requirements between the data terminal unit and the data communication unit.

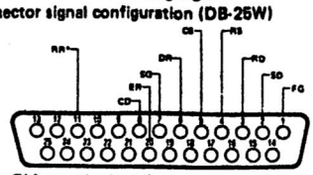
Main parts of this standards defines the following conditions:
(1) Electrical characteristics
(2) Functions of interfacing signals

(1) Electrical characteristics

1) Input signal below −3 V is regarded as MARK, and above +3 V as SPACE.
2) Load side impedance shall be a direct current resistance of more than 3 Kohms against an impressed voltage of less than 25 V, or less than 7 Kohms against an impressed voltage of 3 to 25 V.
3) Output signal in MARK state shall be −5 to −15 V or output signal in SPACE state shall be +5 V to +15 V.
4) Effective load capacitance at the end shall be less than 2500 pF, including cable capacitance.

(2) Functions of interfacing signals

Connector signal configuration (DB-25W)



- In EIA standards, pin number 11, symbol RR is undefined. Be sure to confirm the external device before use.
- Different signal connection may be required depending on signals used by the device connected.

Signal levels at the I/O pins of the DB-25W connector shall be as follows:

Input signal	
High level (SPACE or ON state of signal):	+ (3 to 15) V
Low level (MARK or OFF state of signal):	− (3 to 15) V
Output signal	
High level:	+ (5 to 10) V
Low level:	− (5 to 10) V

As the level of the output signal is measured with the load of 3 to 7 Kohms with the cable length of 1 meter, note that there may be a case when above condition is not met, if the load is out of above range or the cable length is longer, or the cable capacity is larger.

SHARP CORPORATION

2. Test program

- CHECK PROGRAM FOR PC1350 (a)

```
10:"A" OPEN : WAIT 0
20:A=10:B$="BB"
30:PRINT #1A,B$
40:PRINT "SEND OK"
50:INPUT #1C
60:INPUT #1D$
70:IF C<>100 THEN 200
80:IF D$<>"DD" THEN 200
90:PRINT "CHECK OK!": BEEP 1
100:CLOSE : END
200:WAIT 10
210:PRINT "ERROR": BEEP 1: CLS :
    GOTO 210
```

- CHECK PROGRAM FOR PC1350 (b)

```
10:"A" OPEN : WAIT 0
20:INPUT #1A
30:INPUT #1B$
40:IF A<>10 THEN 200
50:IF B$<>"BB" THEN 200
60:PRINT "RECIVE OK"
70:C=100:D$="DD"
80:PRINT #1C,D$
90:PRINT "CHECK OK!": BEEP 1
100:CLOSE : END
200:WAIT 10
210:PRINT "ERROR": BEEP 1: CLS :
    GOTO 210
```

3. Operational procedure

(1) Load the test program to both of the PC-1350 (a) and (b)
(2) Make the cable connected as shown in the connection diagram and turn power on the both units.
(3) First, execute the program in the PC-1350 (b) with depression of the [DEF] and [A] keys, then execute the program in the PC-1350 (a) with depression of the [DEF] and [A] keys.
(4) If "CHECK OK" should appear on the display of the both units in a few seconds later, the respective CE-130T is accepted good.
(5) If nothing appears on the display after a lapse of more than 30 seconds or "ERROR" be displayed with a repeating buzzer alerts the respective CE-130T is rejected no good. In this event, push the [ON/BRK] key on both units to terminate the test. Then, the CE-130T needs to be corrected.

4. Connection cable

For this test, it requires the use of the RS-232C DB-25 interfacing cable in order to make connection of the both CE-130T.
NOTES: