USER'S MANUAL

FOR OPERATION PRINTER MODEL CSP-160 II

SHINKO DENSHI CO., LTD.
Tokyo

CONTENTS

<div align="center">
USRES'MANUAL

MODEL CSP-160 II
</div>

1. **INTRODUCTION**

The Operation Micro-Printer CSP-160II, storing data from your Shinko electronic
scale, operates Total, Average, Deviation, Maximum, Minimum, Ratio of Data
of out of Limits, etc., besides ordinary data recording.
The results are printed by cartridge ink ribbon.

1-1. Features

* Statistical Operation and Printing

Number of Data	(N)	Average	(AVE)
Maximum	(MAX)	Standard Deviation	(σn, σn-1)
Minimum	(MIN)	Failure Ratio	(P)
Range	(R)	Total	(TOTAL)

* Histogram
* Judgements: HIGH, LOW or GOOD of data
* AUTO/MANUAL selectable

<div align="center">

CAUTIONS ON USE
</div>

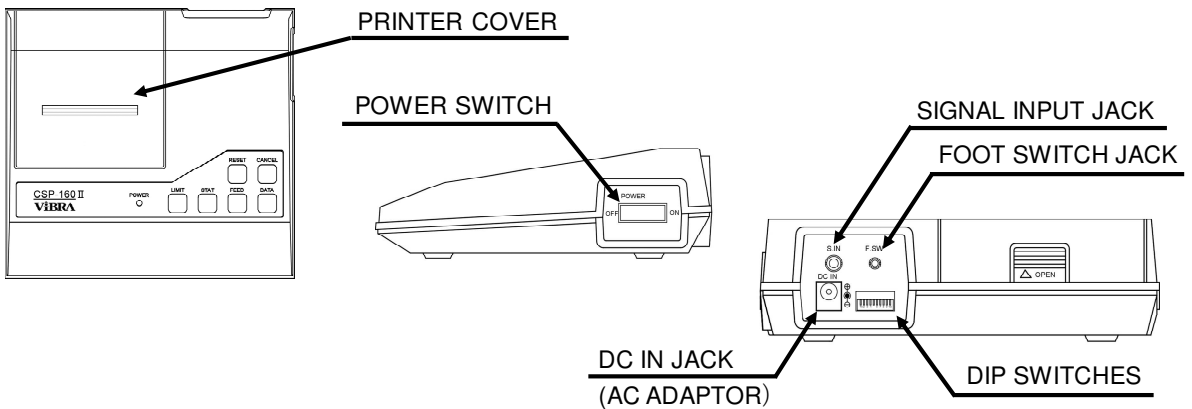|	
1.	Always use the attached AC adaptor only, by connecting to an isolated line outlet from other devices to avoid disturbing noises.
2.	Turn off the power switch of CSP-160II first, before cutting line power off. Never unplug the AC adaptor from the outlet before turning the printer switch off. Turn off power switches of both printer and scale before connecting/disconnecting cable and the AC adaptor.
3.	Do not print without setting roll paper and/or ink ribbon.
4.	Position and use the printer in a suitable place. A quiet area without vibration, dusts, humidity, heat or cooling sources, is preferable.
5.	After operation, turn off the power switch of the printer, then unplug the AC adaptor from The line outlet without fail.

<div align="center">
1
</div>

2. **GENERAL SPECIFICATIONS**

Character Construction	: 5×7 Dot Matrices
Printing Digits	: 16 digits maximum
Printing Speed	: Approx. 1 line/sec.
Character Sizes	: 1.8mm(W)×2.5mm(H)
Operation Temperature	: 0℃ ～ 40℃
Dimensions	: 155mm（W）×145mm（D）×48mm（H）
Power Source	: AC adaptor
Weight	: Approx. 400g without AC adaptor and roll paper
Ink Ribbon / Color	: Cartridge ERC-05 Violet
Recording Paper	: 45mm(W)×30mm diameter ordinary paper

The following items are included in the package. If there are any missing or damaged items, please contact our sales office or the dealer of purchase.

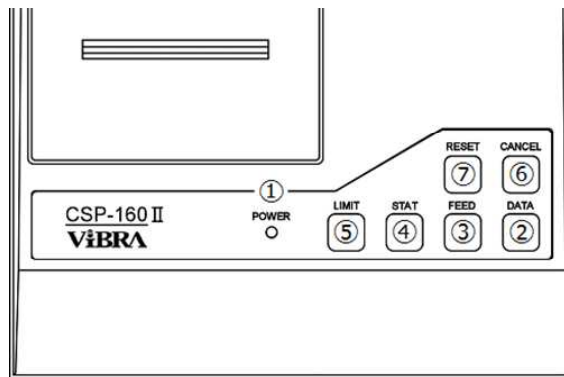1. CSP-160II　(Ink ribbon included)・・・・・・・・・・・・1
2. Recording paper・・・・・・・・・・・・・・・・・・2
3. Connecting cable Din5P ・・・・・・・・・・・・・・・1
4. Connecting cable Dsub9P・・・・・・・・・・・・・・1
5. Foot switch jack・・・・・・・・・・・・・・・・・・1
6. Instruction manual・・・・・・・・・・・・・・・・・1

3．**NAMES OF PARTS**

PRINTER COVER

POWER SWITCH

SIGNAL INPUT JACK

FOOT SWITCH JACK

DC IN JACK
(AC ADAPTOR)

DIP SWITCHES

4．**The name and function of all parts**

4.1 Front part

①	POWER lamp	Lights on to indicate power is on.	
		Also, indicates by colors:	
		Green:	In normal condition of printer.
		Red:	Error in printer mechanism, such as locked by paper jam.
		Orange:	Error in internal clock.
②	DATA	Key to input data manually.	
③	FEED	Key to feed recording paper in inching by one line.	
④	STAT	Key to process statistical data, printing results and histogram, by the procedure described in page 8 to page 9.	
⑤	LIMIT	Key to start/finish setting of limits.	
⑥	CANCEL	Key to cancel the latest input data by printing "CANCEL".	
⑦	RESET	Key to clear all data including LMIT values and operation results.	
④	STAT	Key to process statistical data, printing results and histogram, by the procedure described in page 8 to page 9.	

4.2 Rear side, Right side
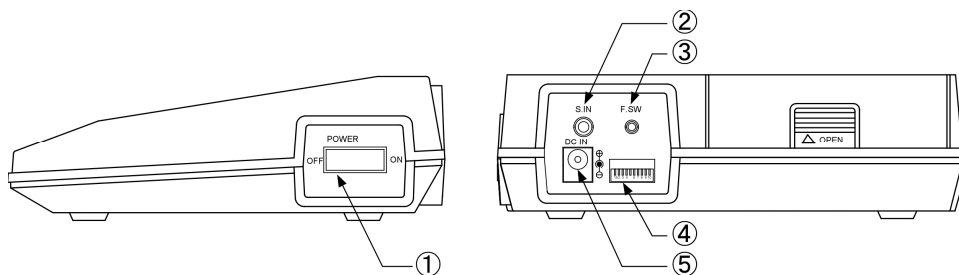
① POWER SWITCH	Switch for on/off of the power to the CSP-160II
② S.IN jack	Jack for data from scale by connecting the attached cable. Corresponding plug: T-0718 by TEISHIN
③ F.SW jack	Jack for foot Switch to operate the same performance as DATA key. Corresponding plug: T-0706 by TEISHIN
④ Dip Switches	Switches for setting function of the printer.
⑤ DC IN JACK	Jack for connection of attached AC adaptor.

SETTING OF DIP SWITCHES

SW №	ON	OFF	Setting at the time of delivery
1	Baud Rate Setting,		OFF
2	See the table below.		OFF
3	Command by scale	Command by printer	ON
4	Statistical Calculation	-	OFF
5	English character	Japanese character	ON
6	Totaling	Statistical Calculation	ON
7	Automatic printing	Manual Printing	OFF
8	5 scales print reset	50 scales print reset	OFF

SW 1	SW 2	BAUD RATE
OFF	OFF	1200
ON	OFF	2400
OFF	ON	4800
ON	OFF	9600

CAUTION : 1. Turn power switch OFF before setting.
2. SW No.9 and 10 are not in use.
3. SW No.4 ON to use the statistical calculation function when the scale is displaying the auxiliary scale interval

4

5. **INSTALLATION**

5.1 Connections
1. Verify that power switches of the CSP-160II Printer and the scale are both OFF.
2. Connection with the scale. Connect one of the connectors of the attached cable with S.IN jack of the CSP-160II and the other connector of the cable to output jack of the scale.
3. Connection of the AC adaptor.
Connect the jack of attached AC adaptor with DC.IN jack of the CSP-160II.
4. Connection of foot switch option
Connect the foot switch F.SW jack of the CSP-160II.

5. 2 Ink Ribbon Setting
1. Remove the printer cover by lifting it up.
2. To remove old cartridge, press the end of the cartridge at "PUSH" mark.
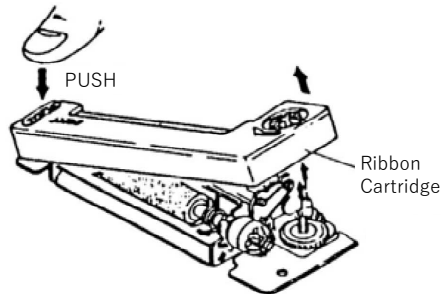
3. Setting new ribbon to platen, put a new cartridge in, fitting knob axis. Turn the knob to arrow direction to get rid of the slack in the ribbon.
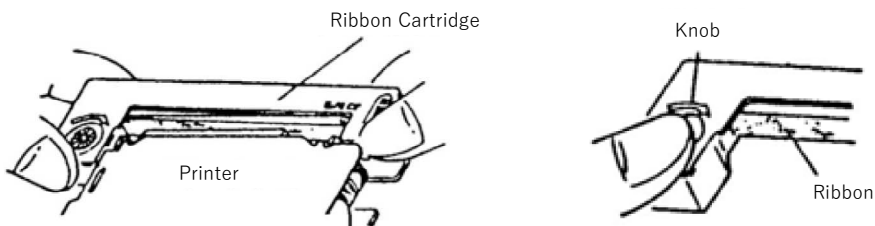
NOTE : The ink ribbon is disposable, don't put ink to the ribbon.

5.3 Roll paper Setting

1.Under power ON, remove the printer cover by lifting it up.

2.Cut the paper tip straight.

3.Inserting the tip into the paper slot, press the "FEED" key to feed the paper out of the outlet.

4.Position the roll paper in the holder, then cover the printer after feeding the paper out of the opening of the Cover.
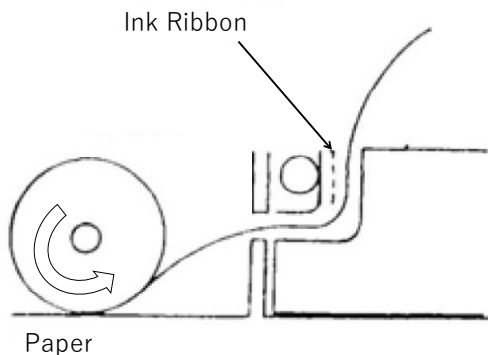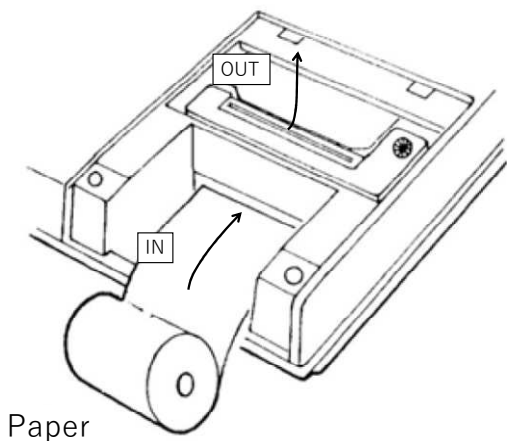
6. ERROR MESSAGES

LIMIT ERROR	: Upper and lower limit are set at the same value, or set only one limit.
I/O ERROR	: Incorrect connection of the printer with scale, or data is out of specification.
STAT ERROR	: STAT key is pressed with only one data inputted.
DATA ERROR	: Data from the scale is out of range.
ERROR	: Printer malfunction by disturbance noise, etc.

7．DATA OPERATIONS

7.1

ITEMS TO BE PRINTED	SETTING CONDINTION OF STATISTICAL OPERATION		
	DIP SWITCH NO.6 SET "ON"	DIP SWITCH NO.6 SET "SET OFF"	
		No Limit are set	Limits are set
TOTAL	○	○	○
N: Number of data	-	○	○
MAX: Maximum	-	○	○
MIN: Minimum	-	○	○
R: Range	-	○	○
AVE: Average	-	○	○
Standard deviation	-	○	○
P: Failure Ratio	-	-	○
Histogram	-	-	○ *1
Judgement result	○ *2	-	○
Date	-	○	○

"○" mark shows items to be printed.

*1: Effective when limits are set by the CSP-160II Printer, not by scale.
*2: Effective when limits are set.

7.2 OPERATION FORMULAE

Total (TOTAL) = Σx_i

Range (R) = (MAX) - (MIN)

Average (AVE) = $\Sigma x_i / N$

Standard Deviation (σn) = $\sqrt{\{N \cdot \Sigma x_i^2 - (\Sigma x_i)^2\}/N^2}$

Standard Deviation ($\sigma n-1$) = $\sqrt{\{N \cdot \Sigma x_i^2 - (\Sigma x_i)^2\}/N \cdot (N-1)}$

Failure ratio (P) = (HIGH) + (LOW) / N

7.3 JUDGMENT FORMULAE

Upper limit Value $<$ Data ·················· ＋NG (Prints "H")
Upper limit $\geqq$ Data $\geqq$ Lower Limit ········· GOOD (space)
Upper limit Value $>$ Data ·················· －NG (Prints "L")

8. **OPERATIONS**

PRINT SANPLE   **KEY OPERATION**

```
*RESET
```

RESET   ····To clear memories

```
*LIMIT DATA
LMT1    599.7 g
LMT2   2199.4 g
```

LIMIT   ····To set limits
      Press for judgements & histogram.

```
 *SET LIMIT DATA
 HILM  2199.4 g
 LOLM   599.7 g
```

DATA   ····Input one limit value

```
001   1199.8 g
002    999.8 g
```

DATA   ····Input another limit value

```
003    599.8 g
004   1999.5 g
005   1599.4 g
006   1199.5 g
```

LIMIT   ····To finish setting of limits

```
H007  2399.4 g
008   1399.5 g
009    799.7 g
```

DATA   ····Data printing, by either of Data key of Printer, or by foot switch, or by command from scale.

```
010    599.8 g
L011   388.8 g
012   1599.3 g
      1002.7 g
      802.7 g
```

DATA

```
024   1193
025    999.8 g
026   1193.8 g
027   1199.9 g
028   1199.6 g
029   1288.7 g
030   1288.8 g
031   1288.9 g
032   1199.4 g
033    999.8 g
034*  2004.1 g
035   1199.7 g
036   1199.7 g
L037   199.9 g
```

Prints * mark with an unstabilized data.

Mark	Judgement Result
L	Data is less than limit
H	Data is over than limit

```
*CANCEL
```

CANCEL   ····To cancel the latest data

```
037    999.7 g
038    799.4 g
       599.8 g
       599.8 g
```

PRINT SANPLE   **KEY OPERATION**

```
L011      5.40 g
L012      7.97 g
L013      3.01 g
L014      9.42 g
L015      1.73 g
L016     24.15 g
L017     24.08 g
L018      2.62 g
L019      2.61 g
L020    103.32 g
L021     30.93 g
 022     81.82 g
H023    166.92 g
 024     55.02 g
```
→ DATA

```
TOTAL
        1034.51 g
```
→ STAT ····To start statistical operation, with setting Dip Switch No.6 "OFF"

```
*STAT
```
— Total amount
```
N         24
```
— Number of data
```
MAX   166.92 g
```
— Maximum value
```
MIN     1.73 g
```
— Minimum value
```
R     165.190 g
```
— Range
```
AVE   43.1045 g
```
— Average
```
6n    40.0716 g
6n-1  40.9335 g
```
— Standard deviation:
$$\sigma_n = \sqrt{S/N} = \sqrt{\{N \cdot \Sigma x_i^2 - (\Sigma x_i)^2\}/N^2}$$
```
P     79.1666 %
```
— Failure ratio
— Root of unbiased variance:
$$\sigma_{n-1} = \sqrt{V/N} = \sqrt{\{N \cdot \Sigma x_i^2 - (\Sigma x_i)^2\}/N \cdot (N-1)}$$

```
HIGH       3
```
— Number of data over limit
```
GOOD       5
```
— Number of data within limit
```
LOW       16
```
— Number of data less than limit

```
*HISTOGRAM
```
— High limit of histogram
```
HILM   89.30 g
```
— Low limit of histogram
```
LOLM   50.99 g
```
— Number of division of histogram
```
DIV       10
```

```
LOW 16||▬▬▬▬▬▬▬▬
LOLM   ||————————
  A    2||□
  B    1||□
  C    0||
  D    0||
  E    0||
  F    0||
  G    0||
  H    1||□
  I    1||□
  J    0||
HILM   ||————————
HIG    3||□
```
} HISTOGRAM

```
□=    2
```
— Number of data indicated by one "□" block of the histogram

```
LOW   50.9900 g
  A   50.9900 g~
  B   54.8210 g~
  C   58.6520 g~
  D   62.4830 g~
  E   66.3140 g~
  F   70.1450 g~
  G   73.9760 g~
  H   77.8070 g~
  I   81.6380 g~
  J   85.4690 g~
HIG>  89.3000 g
 FINISH
```
— Range of each grade of the histogram "~" mark indicates "and over"

→ DATA ····To start printing data again

9

9．CONNECTION WITH SCALE

In case the printer CSP-160II is used in connection with any SHINKO electronic scale, set both the printer and the scale referring to the following. Also refer to operation manual for the scale.

9-1 For Automatic Printing
: Printing starts automatically by stabilization of data from the scale.

1. Setting of the Printer
Set dip switches on the rear of the CSP-160II as follows:
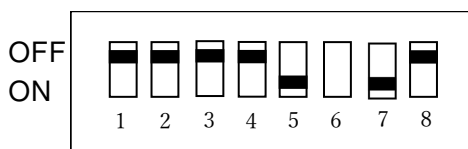
OFF
ON
1 2 3 4 5 6 7 8

Dip Sw. No. 6
OFF : Statistical Operation
ON   : Totaling only

Dip Sw. No.9 & 10 = OFF

2. Setting of the Scale Functions

Scale Series	Functions			Output Provision
AJ	7.	IF.	1	Standard equipment
	71.	O.C.	1	
HG, PF	8.	IF.	1	Standard equipment
	81.	O.C.	1	
CUXII	4.	O.C.	1	Option
CGX, CGX-K	6.	IF.	1	Option
	61.	O.C.	1	
CG, CG-K, CG-KF	6.	IF.	1	Option
	61.	O.C.	1	
DJ-E	6.	O.C.	1	Option
GZII	5.	IF.	1	Option
	51.	O.C.	1	
HTR, HT	7.	IF.	2	Standard equipment
	71.	O.C.	1	
LF	7.	IF.	5	Standard equipment
	71.	O.C.	1	
ALE, HTN	4 1 1 ACTIVATE: ON			Standard equipment
	4 1 2 FORMAT: CSP 7			
	4 1 3 CONDITION: 1			
AB	7.	IF.	1	Standard equipment
	71.	O.C.	1	
LN	6.	IF.	1	Standard equipment
	61.	O.C.	1	
CJ	6.	IF.	1	Standard equipment
	61.	O.C.	1	
SJ	7.	IF.	1	Option
	71.	O.C.	1	
HJ-K	6.	IF.	1	Standard equipment
	61.	O.C.	1	
FJK	6.	IF.	1	Standard equipment
	61.	O.C.	1	
DME	A.	O.C.	1	Standard equipment
CT	7.	IF.	1	Standard equipment
	71.	O.C.	1	
FS, FZ	411.	IC.	2 or 3	Standard equipment
	412.	OO.	1	
	413.	OC.	1	
	415	BL	1	
	416	PA	0	

9-2 For Manual Printing

   A. <u>Print command by DATA key of the CSP-160 Ⅱ</u>

     Printing starts by every pressing of the DATA key, regardless of the status of data.

    1. Setting of the Printer

     Set dip switches on the rear of the CSP-160II as follows:

OFF
ON

     1 2 3 4 5 6 7 8

<u>Dip Sw. No. 6</u>
 OFF : Statistical Operation
 ON : Totaling only
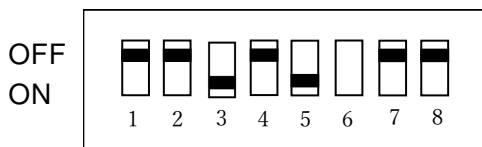<u>Dip Sw. No.9 & 10</u> = OFF

   2. Setting of the Scale Functions: The same as above 9-1 2.

B. <u>Print command by Scale Key</u>
   Printing starts by every pressing of a scale key, regardless of the status of data.

   1. Setting of the Printer
      Set dip switches on the rear of the CSP-160II as follows:

<u>Dip Sw. No. 6</u>
 OFF : Statistical Operation
 ON   : Totaling only
<u>Dip Sw. No.9 & 10 </u>= OFF

   2. Setting of the Scale Functions

Scale Series	Functions			Scale Key
AJ	7. 71.	IF. O.C.	1 3	[Memory]
HG, PF	8. 81.	IF. O.C.	1 3	[S]
CUXII	Impossible to set			
CGX, CGX-K				
CG, CG-K, CG-KF	6. 61.	IF. O.C.	1 3	[S]
DJ-E	6.	O.C.	3	[Print]
GZII	5. 51.	IF. O.C.	1 3	[Print]
HTR, HT	7. 71.	IF. O.C.	2 3	[Print]
LF	7. 71.	IF. O.C.	5 3	[Print]
ALE, HTN	4 1 1 ACTIVATE: ON 4 1 2 FORMAT: CSP 7 4 1 3 CONDITION: 3			[Output]
AB	7. 71.	IF. O.C.	1 3	[Print]
LN	6. 61.	IF. O.C.	1 3	[Print]
CJ	6. 61.	IF. O.C.	1 3	[Output] or [Print]
SJ	7. 71.	IF. O.C.	1 3	[Memory]
HJ-K	6. 61.	IF. O.C.	1 3	[Print]
FJK	6. 61.	IF. O.C.	1 3	[Print]
DME	A.	O.C.	3	[Print]
CT	7. 71.	IF. O.C.	1 3	[Print]
FS, FZ	411. 412. 413. 415 416	IC. OO. OC. BL PA	2 or 3 1 3 1 0	[Transfer]

12

10．CLOCK ADJUSTMENT

10-1 Setting Date and Time

```
┌─────────────────────┐
│  CLOCK  SET ────────────────────── Turn power on with pressing the STAT key
│
│  YES=  DATE  KEY ───────────┐      Press the DATE key
│                                    (Press the CANCEL key for no setting key)
│
│  DATE  2001/ 06/ 20 ──┐            Change the Date
│                                    [STAT] : increase year (2000~2099)
│  TI ME     16: 21: 36 ──┐          [FEED] : increase month (01~12)
│                                    [DATA] : increase date (01~31)
│  TI ME     17: 22: 36 ──┐          [LIMIT] : decrease each number the above with pressing this
│
│                                    Press CANCEL for checking
│  _____                   Press RESET key for Time setting
│  DATE  2002/ 07/ 21 ──┐
│  TI ME     17: 22: 36              Change the Time
│                                    [STAT] : increase hour (00~23)
│  _____                   [FEED] : increase minute (00~59)
│                                    [DATA] : increase second (00~59)
│                                    [LIMIT] : decrease each number the above with pressing this
│
│                                    Press CANCEL for checking
│                                    Press RESET key for normal mode
└─────────────────────┘
```

10-2 Date and Time printing for checking
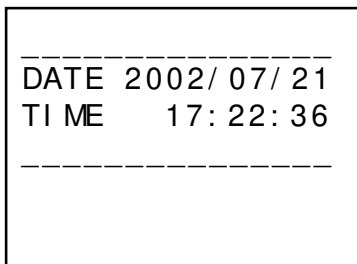
```
┌─────────────────────┐
│  _____
│  DATE  2002/ 07/ 21                Press DATA key for  more than 2 seconds
│  TI ME     17: 22: 36
│
│  _____
│
│
└─────────────────────┘
```