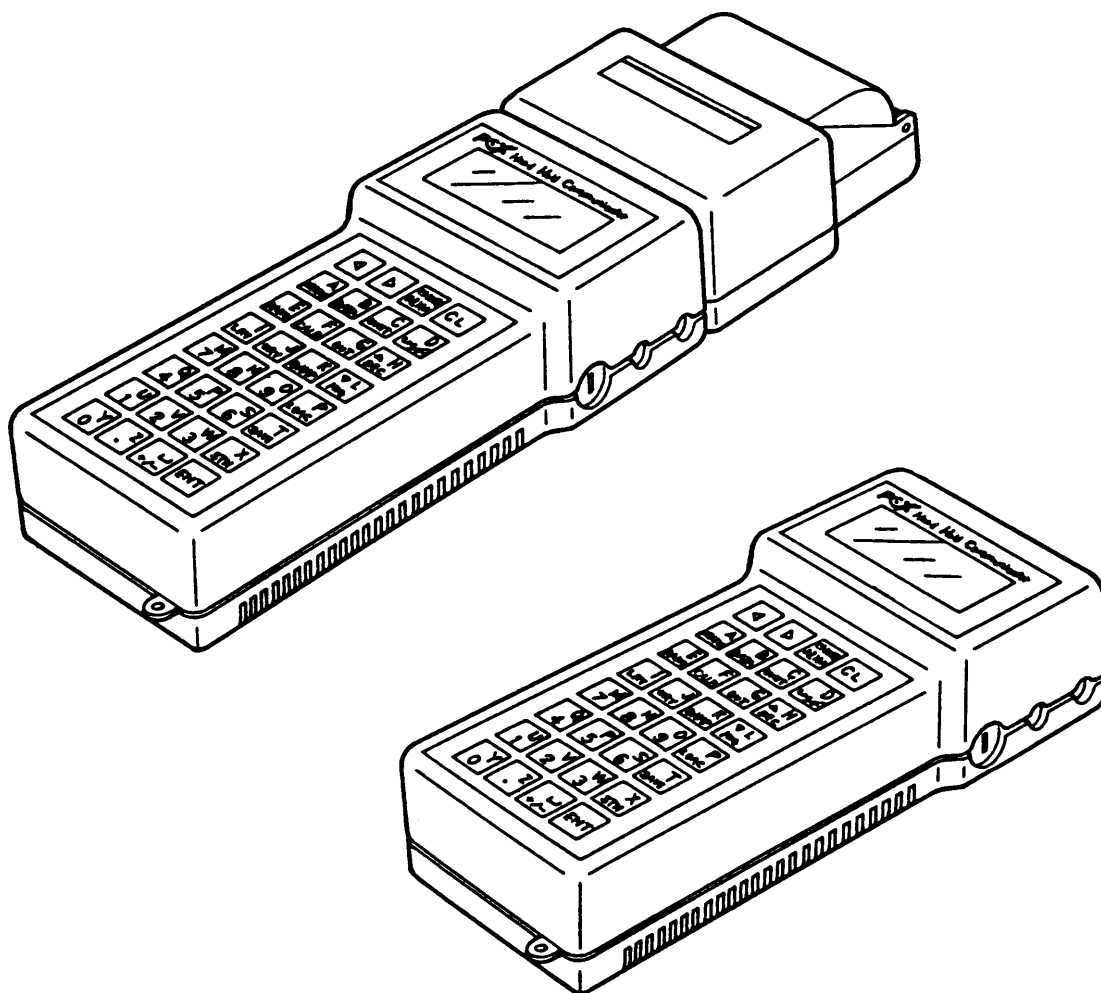


**FCX SERIES  
HAND HELD COMMUNICATOR  
(HHC)  
SMART TYPE**

**TYPE: FXW**



## INTRODUCTION

Thank you very much for your purchase of the Fuji Hand Held Communicator (HHC) (Type : Upper 3 digits ... FXW).

- First read this instruction manual carefully until an adequate understanding is required, and then proceed to connection and operation of the hand held communicator.
- The specifications of the hand held communicator will be changed without prior notice for further product improvement.
- Modification of the hand held communicator without permission is strictly prohibited. Fuji will not bear any responsibility for a trouble caused by such a modification.
- This instruction manual should be kept by a person who is actually using the hand held communicator.
- After reading this manual, keep it at a place easier to access.
- This manual should be delivered to the end user without fail.

### Export Precaution

This unit is not a strategic product (or service) prescribed by the foreign exchange and trade management regulations, but is required to follow the restriction items of the regulations when it is to be exported.

Manufacturer: Fuji Electric Co., Ltd.  
Type: Described in nameplate on main frame (see Page iv)  
Date of manufacture: Described in nameplate on main frame  
Product nationality: Japan

### Request

- Transcription of a part or the whole of this manual without permission is prohibited.
- The contents of this manual are subject to change without prior notice.



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## CAUTION ON SAFETY



**First of all, read this "Caution on Safety" to ensure correct operation of the Hand Held Communicator.**

- The cautionary descriptions listed here contain important information about safety, so they should be observed without fail. Those safety precautions are classified into ranks "DANGER" and "CAUTION".

 <b>DANGER</b>	Wrong handling may cause a dangerous situation, in which there is a risk of death or heavy injury.
 <b>CAUTION</b>	Wrong handling may invite a dangerous situation, in which there is a possibility of medium-level trouble or slight injury or only physical damage is predictable.

On items listed under " **CAUTION**", they may also lead to serious accidents depending on circumstances, and must be fully observed.

- The signs of prohibition and indication are explained in the following.

 <b>PROHIBITION</b>	General items which pertain to prohibition (DO NOT)
 <b>INDICATION</b>	General items which pertain to user's action

### Connection

## **DANGER**

- Non-explosion-proof HHC must not be used in hazardous area to prevent serious accidents such as explosion, fire, etc.
- When using a flame-proof transmitter, do not connect HHC to the transmitter terminals and junction terminals in hazardous area.

### Operation I & II

## **CAUTION**

- When changing set values, make sure that the control loop is in the manual mode.

### Maintenance / Inspection

## **DANGER**

- Do not attempt to charge the battery in hazardous area.
- Do not attempt to replace the battery in hazardous area.

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## CONFIRMATION OF TYPE OF UNIT

Instrument nameplate shown below is attached to the rear panel of the unit. Before using the unit, be sure to confirm the code symbols and specifications.

<b>FUJI</b> ELECTRIC	
Hand Held Communicator	
TYPE	<u>EXW</u>
Power Supply	<u>DC1.2Vx5 500mAh</u>
Ser. No.	_____
Mfd.	_____ TK
Fuji Electric Co., Ltd.	Made in Japan

The following items are shown in this nameplate.

Type:	Type of unit
Power supply:	Power source (nickel-cadmium battery) specifications
Ser. No.:	Work No.
Mfd:	Date of manufacture

# 1. GENERAL

This instrument is designed for use with each smart type device of FCX series transmitter or electromagnetic flowmeter.

Setting changes and adjustments necessary for operation of each device can easily be made during communications with operator.

Applicable field devices

## (1) FCX series transmitter

- Differential pressure/flow transmitter (FKC)
- Pressure transmitter (FKG)
- Absolute pressure transmitter (FKA)
- Level transmitter (FKE)
- Remote seal type differential pressure transmitter (FKD)
- Remote seal type pressure transmitter (FKB)

## (2) FCX-A series transmitter

- Differential pressure/flow transmitter (FKC … 2)
- Pressure transmitter (FKG … 2)
- Absolute pressure transmitter (FKA … 2)
- Level transmitter (FKE … 2)
- Remote seal type differential pressure transmitter (FKD … 2)
- Remote seal type pressure transmitter (FKB … 2)

## (3) FCX-C series transmitter

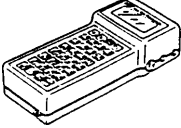
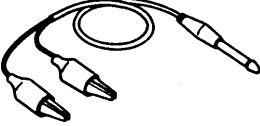


- Differential pressure/flow transmitter (FKK)
- Pressure transmitter (FKP)
- Absolute pressure transmitter (FKH)

## (4) FCX-AX series transmitter

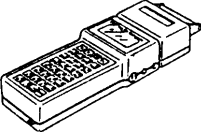
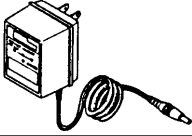
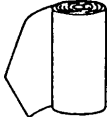
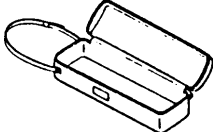
- Differential pressure/flow transmitter (FKC… 3)
- Pressure transmitter (FKG… 3)
- Absolute pressure transmitter (FKA… 3)
- Level transmitter (FKE… 3)
- Remote seal type differential pressure transmitter (FKD… 3)
- Remote seal type pressure transmitter (FKB… 3)

## 2. PRODUCT CHECK

Check to make sure that the following products are included.

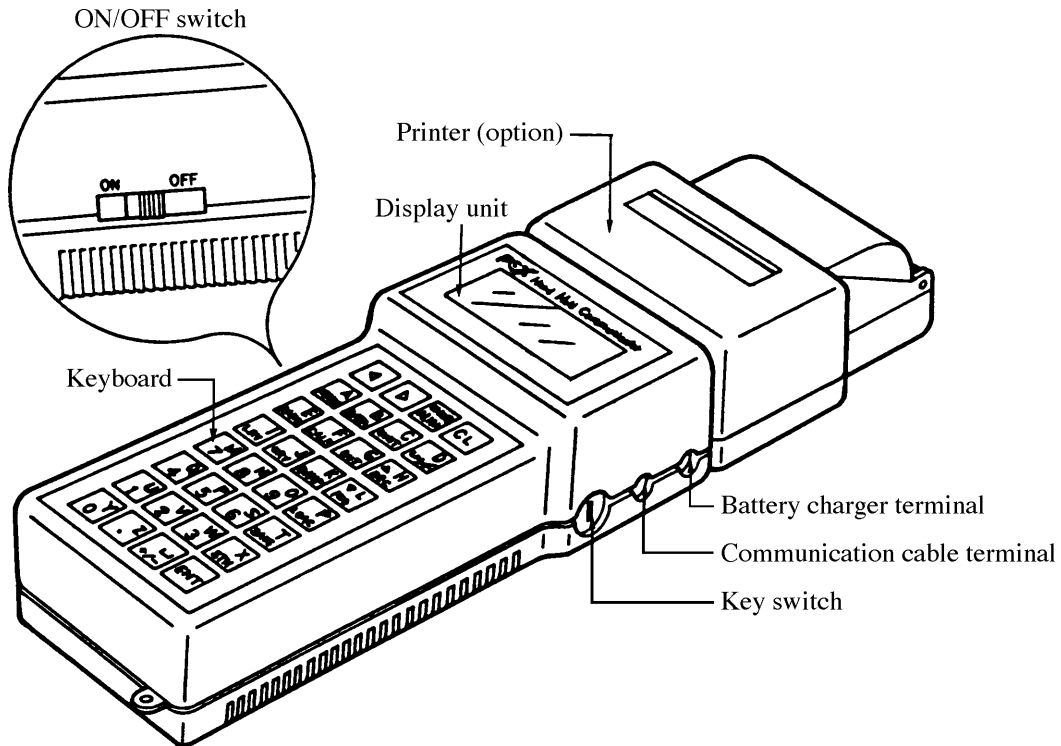
HHC (without printer)	
Communication cable (about 1 m)	
Security key (2 pcs)	
Instruction manual	

Option

HHC with printer	
Battery charger (2 m)	
Roll paper	
Carrying case	

## 3. OPERATING PARTS AND DESCRIPTIONS

### 3.1 Name and description

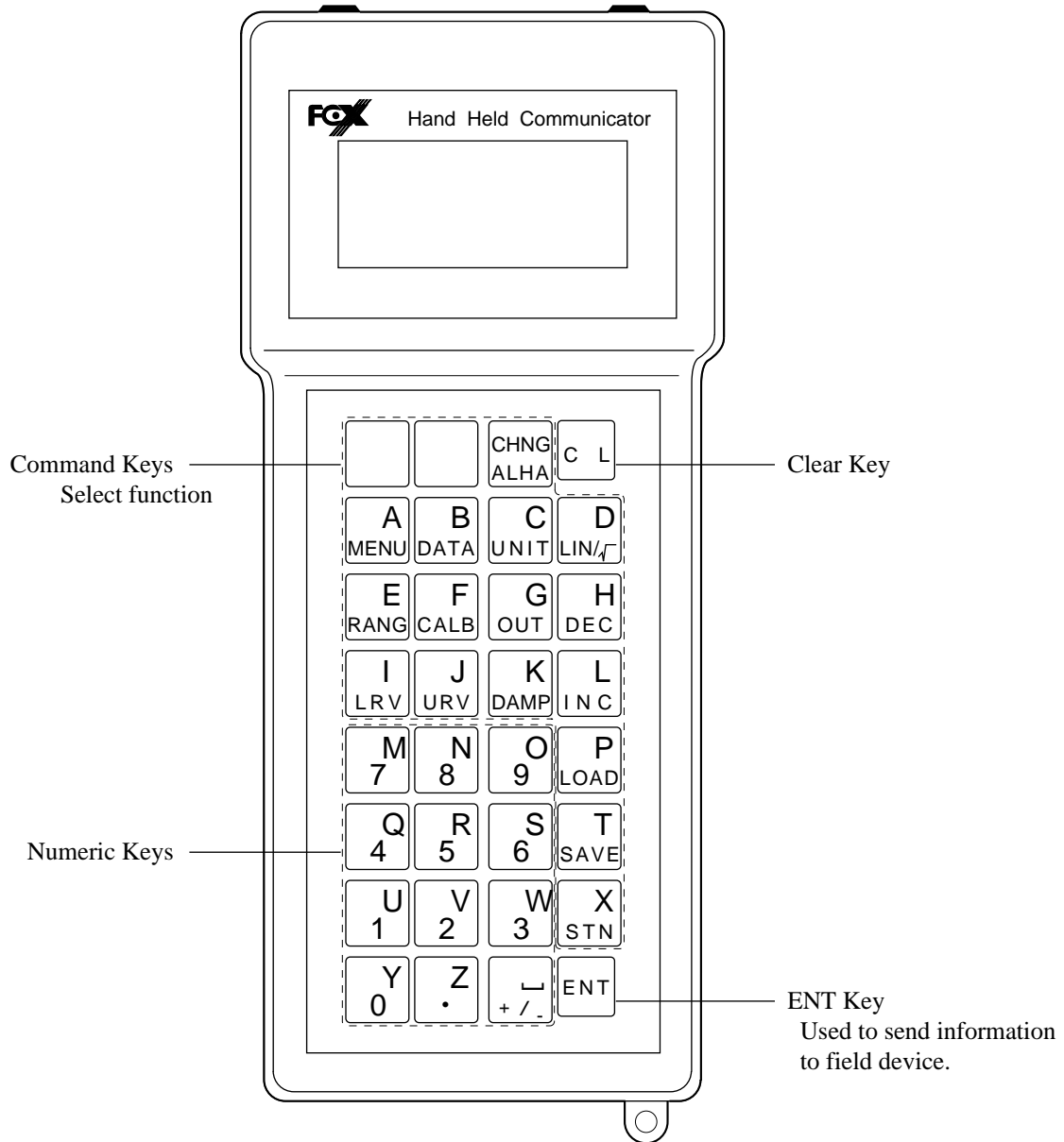


- \* Battery charger terminal:  
Used to charge battery by using a special battery charger.
- \* Communication cable terminal:  
Used to connect communication cable.
- \* Key switch:  
Security switch
- \* Display unit:  
Displays data and set values.
- \* Printer (option):  
Prints data and set values.
- \* ON/OFF switch:  
Power ON/OFF switch



### 3.2 Descriptions of operating parts

The operating unit contains 4 kinds of keys; command keys (blue), numeric keys (yellow), ENT key (red) and CL key (green). For the function of these keys, please refer to "5. Operation".



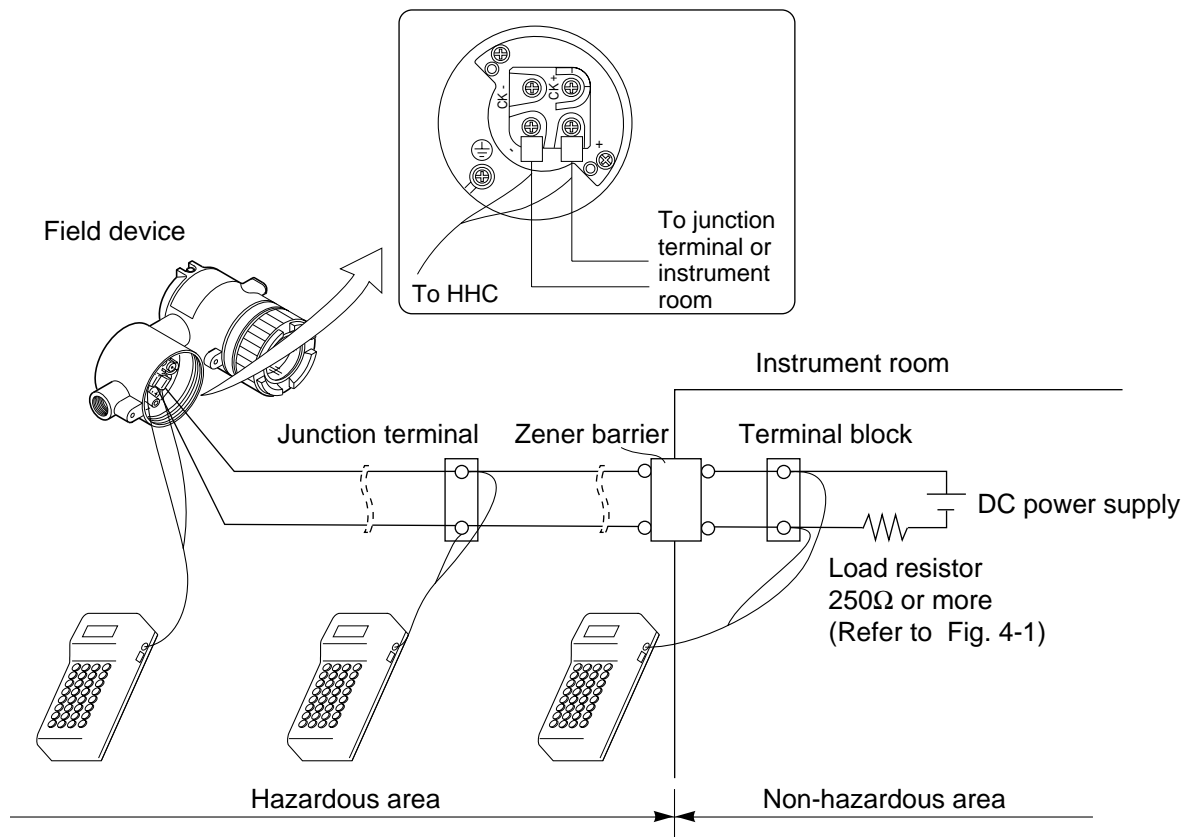
## 4. CONNECTION

### 4.1 Connection of HHC

Connect HHC in parallel with the current output of a field device.



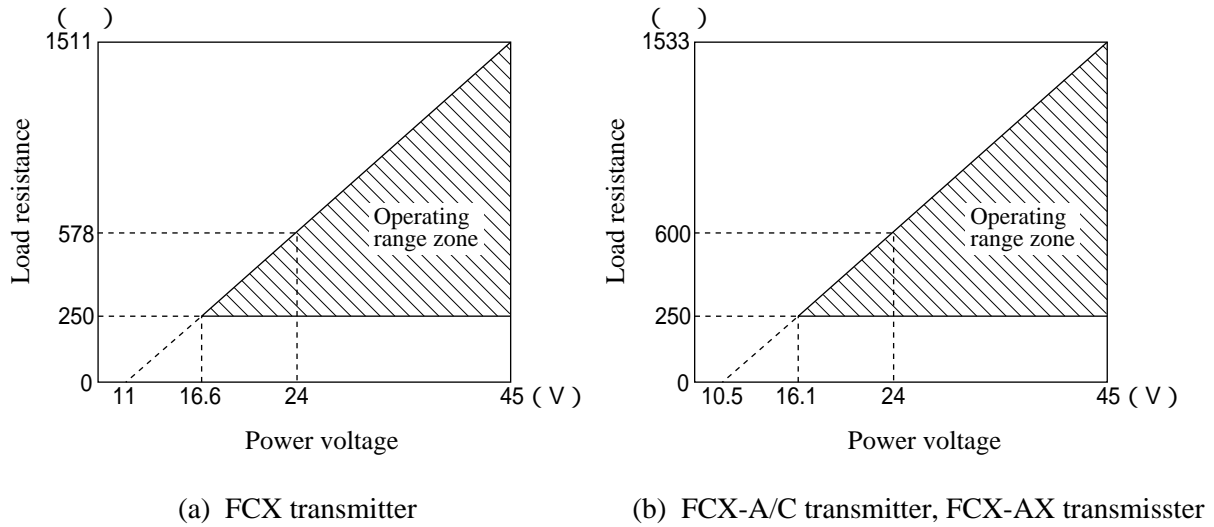
1. Connect HHC after holding the transmitter ON for about 10 seconds.
2. When connecting HHC, ensure ON/OFF switch is in the OFF position.
3. HHC has no polarity.



When using flame-proof transmitter, do not connect HHC to the transmitter terminal and junction terminal in hazardous area.

## 4.2 Power supply and load resistance

When using HHC, the output load resistance of the transmitter should be within the range shown in Fig. 4-1. (for transmitter)



**Fig. 4-1**

When connecting to electromagnetic flowmeter, the output load resistance of the flowmeter should be within the range of 250 to 600Ω.


## 5. OPERATION I (FOR TRANSMITTER)

### Cautions prior to operation









When changing a set value, make sure the control loop is in manual mode.



1. Turn ON the power switch. If the battery alarm is displayed, the battery should be charged.
2. If standby indication is displayed before operation, press the  key.

### Common operation for all displays

- \* If the selected display is incorrect, press the  key to return to the previous display.  
If the alphanumeric display is incorrect, move the cursor to the point to be changed by pressing the  or  key and reset it.
- \* When setting alphacharacters first press the  key, then press an alphacharacters key.  
Alphacharacters cannot be set continuously.  
Press the  key each time.
- \* When the  key is pressed at the completion of an operation, the information is transmitted to the field device.

### Cautions during operation

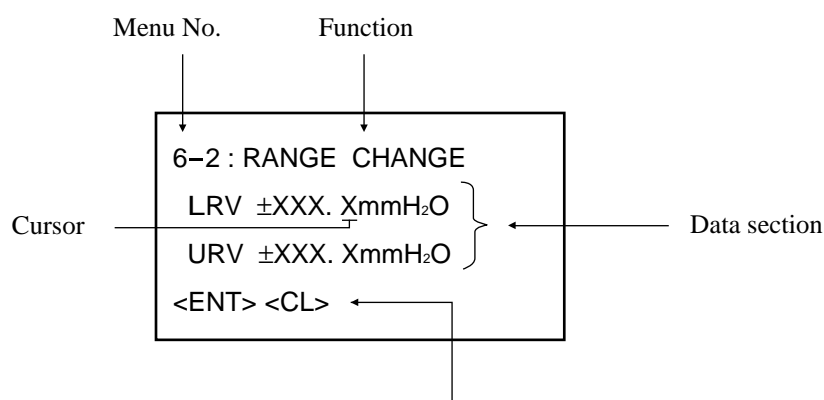


When the security key is in the OFF position, no changes can be made to the field device.

## 5.1 Descriptions of displays

Transmitter information can easily be checked and changed via the HHC using the messages shown on the display.

The display is a liquid crystal type shown the following contents in 4 lines with 16 characters.



Prompts (keys to take operator to next display)

The meaning of the prompts are as follows.

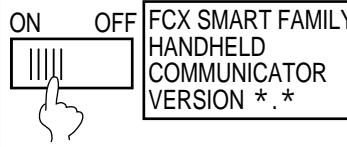

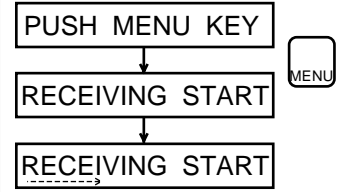
- <ENT> : The contents displayed in the data section are inputted to the field device.
- <INC> : The cursor moves to the next option in the menu.
- <CHANGE>: The cursor moves to the lower display to change the data shown in the data section.
- <CL> : The inputted data is cleared according to the data section and the previous data display.












































There are a total of 18 menu options, from No. 1 to I.

## 5.2 Operating procedures

Check the instrument for correct wiring and operate it according to the following procedures.

(See "4. Connection, 4.1")

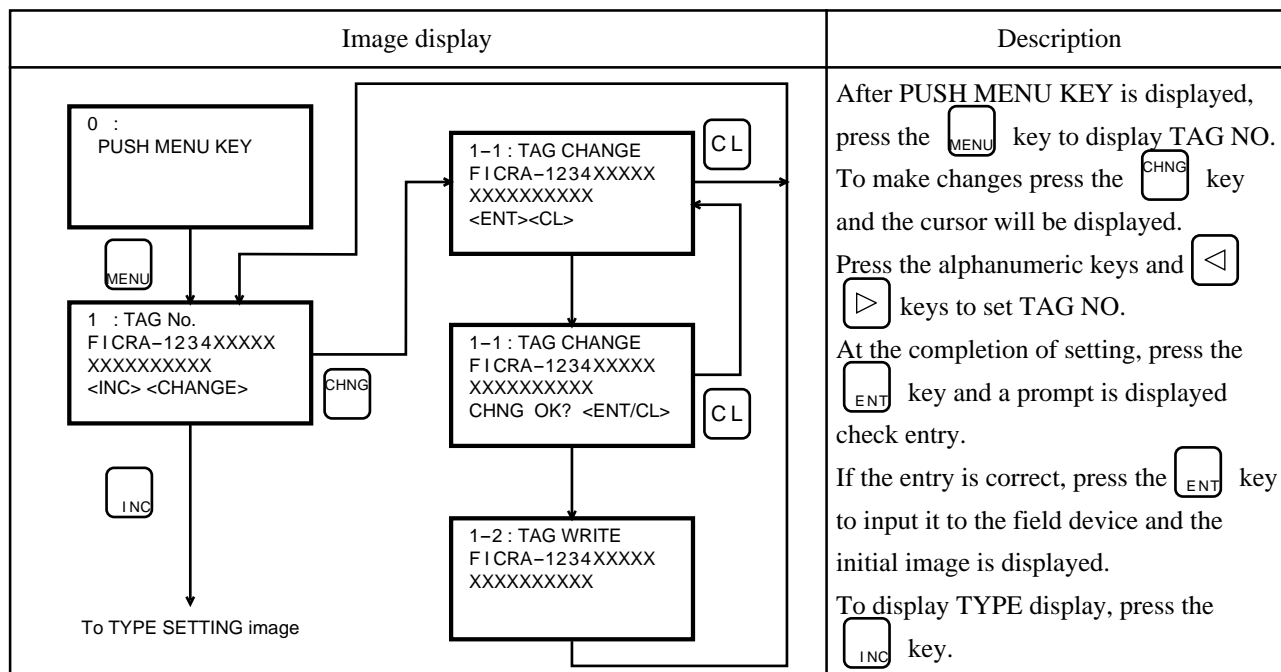
<p>The image shown at right is displayed when the power switch turns ON.          (FXW program version is displayed for about 3 seconds after the power is ON.)          Versions before 4.0 do not support FKP * 01 (1.3kgf/cm<sup>2</sup>) in FCX-C series transmitters.          Versions prior to 5.2 will not support MENU No. H (LINEARIZE) and MENU No. I (RERANGE)          In this case, contact our office to modify the versions of FXW ROM.</p>	
<p>When the printer is not connected to the HHC, "Push MENU KEY" is displayed after the software version is displayed. When the printer is connected to the HHC, please refer to the item 5.4.          By pressing the  key "RECEIVING START" is displayed. The number of broken line arrow marks increases according to the data received. Next "TAG NO." display is shown, press the key symbols shown in the following table to display setting items.</p>	

	Classification	Display symbol	Key symbol	Reference page
1	Check of TAG NO.	1: TAG NO.		5-4
2	Check of type	2: TYPE	 → 	5-4
3	Check of serial No.	3: SERIAL NO.	 →  → 	5-5
4	Setting of engineering unit	4: UNIT		
5	Range limit	5: RANGE LIMIT	 → 	
6	Set range	6: RANGE		
7	Check of damping time constant	7: DAMPING		
8	Check of output type	8: OUTPUT MODE		
9	Check of burnout direction	9: BURNOUT	 → 	5-6
A	Input adjustment	A: CALIBRATE		
B	Output circuit adjustment	B: OUTPUT ADJ		
C	Measured data display	C: DATA		5-7
D	Self-check function	D: SELF CHECK	 → 	
E	Printer function	E: PRINT	 →  → 	5-7
F	External switch lock function	F: XMTR PUSH SW	 →  →  → 	
G	Setting of display of digital indicator	G: XMTR DISPLAY	 →  →  →  → 	
H	Programable linearization function	H: LINEARIZE	 →  →  →  →  → 	5-8
I	Rerange (Set LRV/URV calibration)	I: RERANGE	 →  →  →  →  → 	5-10

Note) For full description of HHC operation, please refer to the instruction manual of the transmitter.

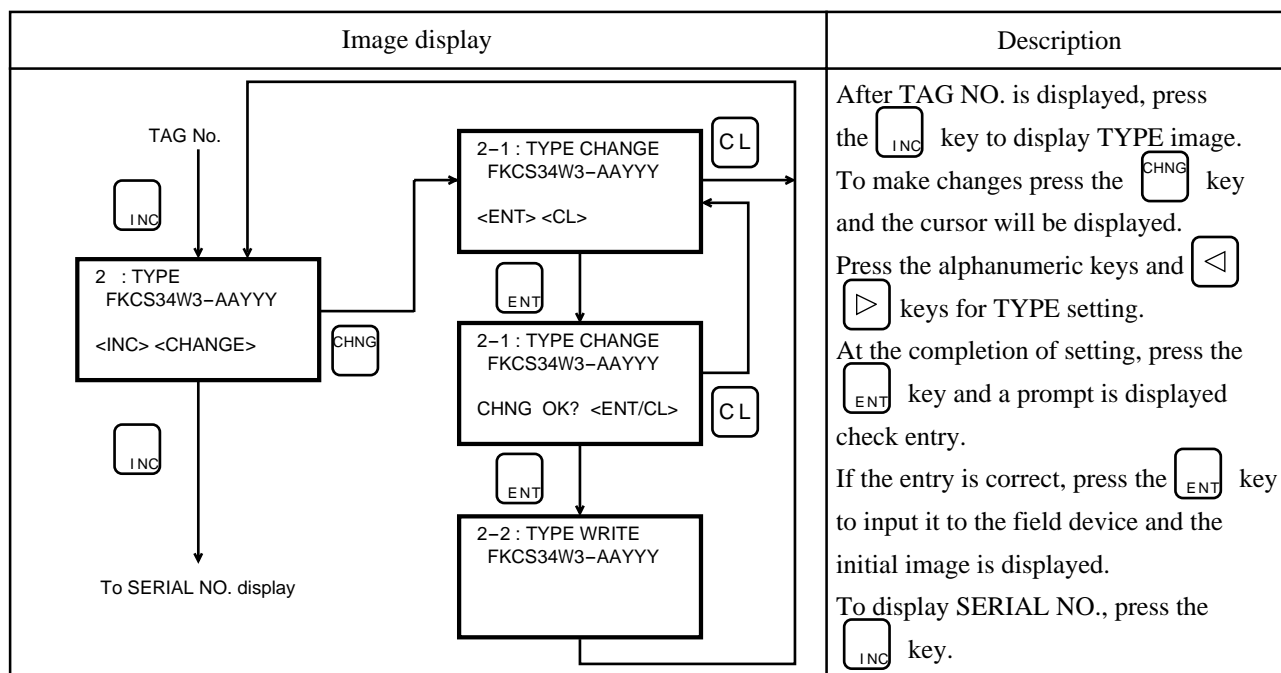
### 1. Setting of TAG NO.

To set the TAG NO. of each field device, use the procedures shown in the following diagram. TAG NO. can be inputted up to 26 character of alphanumeric codes.



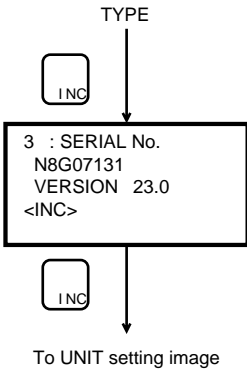
### 2. Setting of TYPE

Type of field device is displayed and changed (example of differential pressure transmitter).



**3. Display of SERIAL NO.**

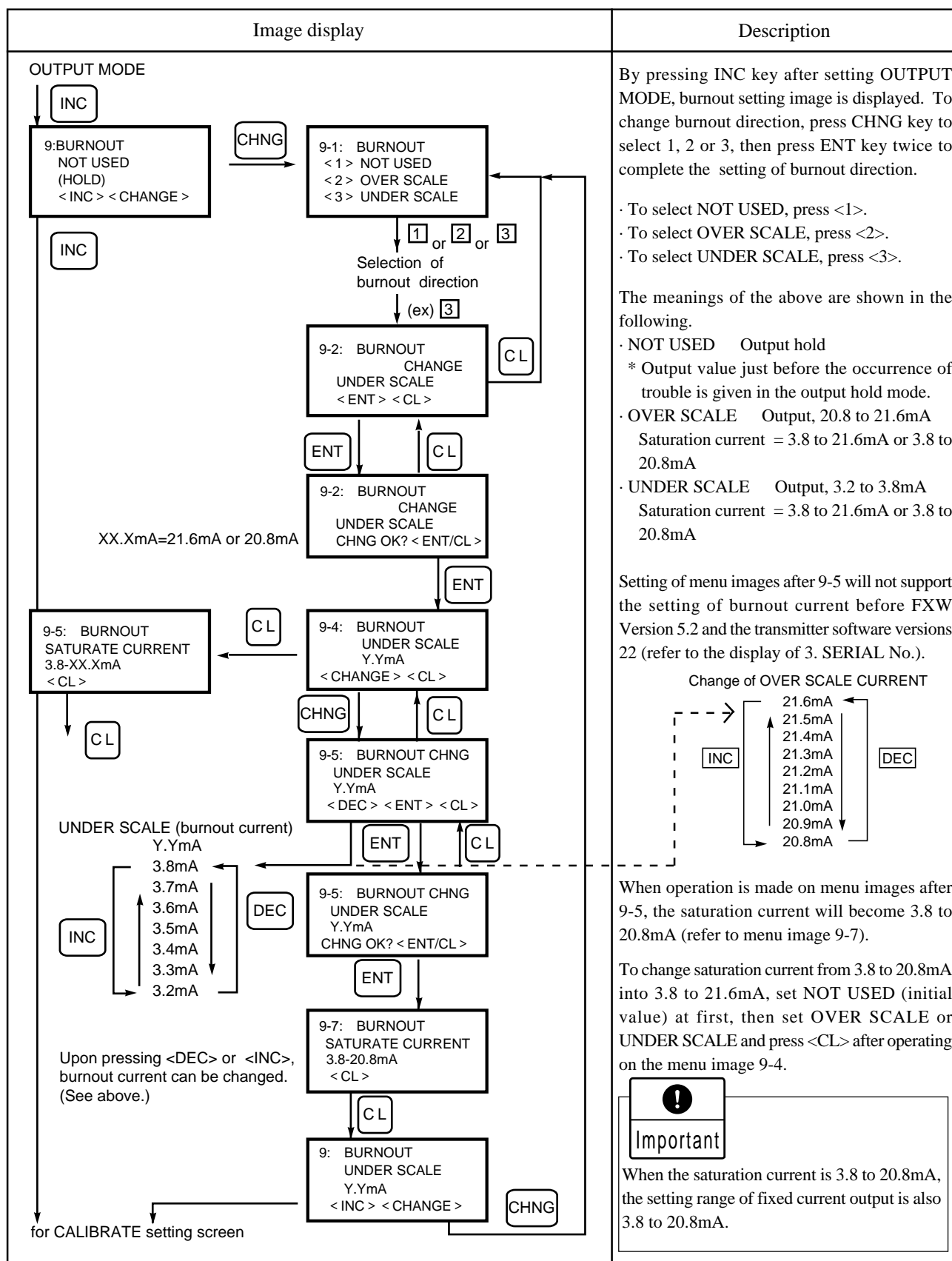
SERIAL NO. and transmitters software version are displayed.

Image display	Description
 <p>TYPE</p> <p>INC</p> <p>3 : SERIAL No. N8G07131 VERSION 23.0 &lt;INC&gt;</p> <p>INC</p> <p>To UNIT setting image</p>	<p>After setting TYPE, press the INC key to display SERIAL NO. and software version of transmitter.</p> <p>By pressing the INC key, UNIT setting image is displayed.</p>



#### 4. Setting of BURNOUT direction

When trouble arises with the transmitter detecting unit etc., burnout direction should be set to process the output. (Setting of burnout current will not support versions before FXW Version 5.2 and the transmitter software version 22)



### 5. Display of field device measurement data

Display of present measured data.

Image display	Description
	<p>Press the <b>DATA</b> key to display the measured data.</p> <p>To check the present data, press the <b>ENT</b> key.</p> <p>Press the <b>CHNG</b> key to be able to display in 0.01% unit.</p> <p>Press the <b>CHNG</b> key again to display in former 0.1% unit.</p> <p>When there is no key input for more than 10 minutes, the display on HHC automatically turns to STANDBY.</p> <p>By pressing the <b>CL</b> key, the image returns to C-1: DATA.</p> <p>Note: When output mode is state of flow characteristics, FLOW is displayed on the right of % display.</p>

### 6. PRINT function

This is displayed only on the type with printer.  
Set data and time for printing.

Image display	Description
	<p>After SELF CHECK, press the <b>INC</b> key to display PRINT image.</p> <p>By pressing the <b>ENT</b> key, the cursor is displayed for changing data and time.</p> <p>Press the numeric keys and <b>&lt;&lt;</b> <b>&gt;&gt;</b> keys for setting.</p> <p>After setting, press the <b>ENT</b> key to display the image for printout.</p> <p>By pressing the <b>INC</b> key continuously during display, the roll paper is fed from the printer.</p> <p>Note: On the type without printer, NO CONNECTION is displayed.</p> <p>It turns to XMTR PUSH (EXT.) SW at the press the <b>INC</b> key.</p>



Image display	Description
<p>2</p> <p>H-4: LINEARIZE CV1 XXX.XX% &lt; INC &gt; &lt; CNG/ENT/CL &gt;</p> <p>INC</p> <p>17 18</p> <p>11 CL</p> <p>H-4: LINEARIZE CV2 XXX.XX% &lt; INC &gt; &lt; CNG/ENT/CL &gt;</p> <p>INC</p> <p>17 18</p> <p>12 CL</p> <p>Next parameter</p> <p>H-4: LINEARIZE CV3 XXX.XX% &lt; INC &gt; &lt; CNG/ENT/CL &gt;</p> <p>INC</p> <p>17 18</p> <p>13 CL</p> <p>H-4: LINEARIZE CV14 XXX.XX% &lt; INC &gt; &lt; CNG/ENT/CL &gt;</p> <p>INC</p> <p>17 18</p> <p>14 CL</p> <p>for display 11 17 18</p> <p>H-5: LINEARIZE CHANGE LP XXX.XX% &lt; ENT &gt; &lt; CL &gt;</p> <p>ENT</p> <p>15 CL</p> <p>for display 7, 8, 9, 10</p> <p>H-5: LINEARIZE CHANGE LP1-14 CHNG OK? &lt; ENT/CL &gt;</p> <p>ENT</p> <p>16 CL</p> <p>for display 6</p> <p>for display 7, 8, 9, 10</p> <p>H-5: LINEARIZE CHANGE CV XXX.XX% &lt; ENT &gt; &lt; CL &gt;</p> <p>ENT</p> <p>17 CL</p> <p>for display 11, 12, 13, 14</p> <p>H-5: LINEARIZE CHANGE CV1-14 CHNG OK? &lt; ENT/CL &gt;</p> <p>ENT</p> <p>18 CL</p> <p>for display 6</p> <p>for display 11, 12, 13, 14</p> <p><b>Important</b></p>	<p>Change of compensated program for CV</p> <p><b>Important</b></p> <p>When INC is pressed at display of menu image 3, the following is displayed,</p> <p>H-2: LINEARIZE POINT 0 SETTING ERR &lt;CL&gt;</p> <p>or</p> <p>When ENT is pressed at display of menu image 4, the following is displayed,</p> <p>H-3: LINEARIZE POINT 15 POINT SET SETTING ERR &lt;CL&gt;</p> <p>POINT=2 (number of correction) 14 setting err=00 or 01 or 15</p> <p>When ENT is pressed at display of menu image 15, the following is displayed,</p> <p>H-5: LINEARIZE CHANGE LP 150.01% SETTING ERR &lt;CL&gt;</p> <p>Requirement of setting -1.25% LP1 &lt; LP2... &lt; LP14 +110%</p> <p>When ENT is pressed at display of menu image 17, the following is displayed,</p> <p>H-5: LINEARIZE CHANGE CV 100.01% SETTING ERR &lt;CL&gt;</p> <p>Requirement of setting -100% CV1, CV2...CV14 +100%</p>
<p><b>Important</b></p> <p>When ENT is pressed at display of menu image 20, the following is displayed,</p> <p>H-3: LINEARIZE Set LINEARIZE Point, LP and CV correctly. &lt;CL&gt;</p> <p>or</p> <p>the following is displayed.</p> <p>H-3: LINEARIZE Set OUTPUT MODE LIN-LIN or SQR-SQR &lt;CL&gt;</p>	<p>Requirement of setting</p> <ol style="list-style-type: none"> <li>1. LP1 &lt; LP2 &lt; LP3...LP8 &lt; LP9...LP13 &lt; LP14 (In the case that LP1-LP14=All Zero, it is inhibited to be set enable)</li> <li>2. If CV<sub>a</sub> &lt; CV<sub>b</sub>, then it must be LP<sub>a</sub> &lt; LP<sub>b</sub>. (Note 1)</li> <li>3. If LP<sub>a</sub> = LP<sub>b</sub>, then it must be CV<sub>a</sub> = CV<sub>b</sub>. (Note 1)</li> </ol> <p>Note 1) a, b show next numeral such as a=1 b=2 or a=2 b=3 or ..... a=13 b=14.</p> <p>Setting requirement</p> <ol style="list-style-type: none"> <li>1. For setting OUTPUT MODE, either OUT=LIN DISP=LIN or OUT=SQR DISP=SQR must be selected. Select the suitable OUTPUT MODE in 8. OUTPUT MODE.</li> </ol>

### 8. Rerange (Set LRV/URV Calibration)

Input and output can be adjusted by changing the range (LRV/URV). (Application of level measurement). The function of RERANGE is also able to change the measurement range at the same time by adjusting LRV or URV from FXW, when the lower range value (LRV) and upper range value (URV) need to be adjusted again during the level measurement of tank. (Setting of RERANGE will not support the versions before FXW Version 5.2 and the transmitter Software Version 22)

Image display	Description
<pre> graph TD     I["I: RERANGE &lt;INC&gt; &lt;CHNG&gt;"] -- INC --&gt; I1["I-1: RERANGE &lt;LRV&gt; &lt;URV&gt; &lt;CL&gt;"]     I1 -- CHNG --&gt; I2L["I-2: RERANGE LRV 0.00% &lt;ENT&gt; &lt;CL&gt;"]     I1 -- URV --&gt; I2R["I-2: RERANGE URV 100.00% &lt;ENT&gt; &lt;CL&gt;"]     I2L -- ENT --&gt; I3L["I-3: RERANGE CHANGE LRV *.*% CHNG OK? &lt;ENT/CL&gt;"]     I2R -- ENT --&gt; I3R["I-3: RERANGE CHANGE URV *.*% CHNG OK? &lt;ENT/CL&gt;"]     I3L -- ENT --&gt; I5L["I-5: RERANGE LRV ±*.*.*kPa URV ±*.*.*kPa &lt;CL&gt;"]     I3R -- ENT --&gt; I5R["I-5: RERANGE LRV ±*.*.*kPa URV ±*.*.*kPa &lt;CL&gt;"]     I5L -- CL --&gt; I1     I5R -- CL --&gt; I1     </pre>	<p>By pressing INC key after setting LINEARIZE, the RERANGE setting image is displayed.</p> <p>At display of menu image I-1; RERANGE, press LRV and the setting image for RERANGE LRV will be displayed.</p> <p>At display of the LRV setting image, apply an input pressure and press ENT key twice to complete the setting of new measurement range LRV/URV. (Refer to the menu image I-5)</p> <p>When LRV adjustment needs to be made at any point other than 0%, input the set value (%) of that point at display of the LRV setting image and press ENT key while applying the required pressure at display of the menu image I-3. In this way, the adjustment is completed and the setting of the measurement range that conforms to the input pressure is also completed.</p> <p>At display of the menu image I-1. RERANGE, press URV and the setting image for RERANGE URV will be displayed. At display of the URV setting image, apply an input pressure and press ENT key twice to complete the setting of new measurement range LRV/URV that conforms to the input pressure. (Refer to menu image I-5)</p> <p>When URV needs to be adjusted at any point other than 100%, input the set value (%) of that point at display of the URV setting image, then press ENT key while applying an input pressure at display of the menu image I-3. In this way, the adjustment is completed. The setting of the measurement range that conforms to the input pressure is also completed.</p>
<p><b>Important</b></p> <p>Setting condition at adjustment point is as follows.          -1.00% LRV 100.00% 0.00% URV 110.00%</p> <p>When a setting is inputted at a point other than adjustment points, it is displayed as a setting error.</p> <p>(Ex) I-2: RERANGE          LRV 100.01%          SETTING ERR &lt;CL&gt;</p> <p>In case of the actual scale specification with a digital indicator provided, if the range is change, indicator display might not match. So, setting is required again in response to the display in the digital indicator (G:XMTR DISPLAY).</p> <p>In case of the actual scale specification with an analog indicator provided, if the range is changed, the scale for indicator might not ensure exact reading. So, the scale needs to be changed.</p> <p>When CHNG is pressed at display of the menu image I. RERANGE and the following data is displayed,</p> <p>I-1: RERANGE          Can't proceed.          Set Linearize          Invalid &lt;CL&gt;</p> <p>It means that RERANGE is not possible because the segmented line compensation function is set in EFFECTIVE. In such a case, press CL key and set the linearization function into INVALID.</p>	<p>Note) The unit of LRV/URV displayed on the menu image I-5 is the unit of industrial value selected from the setting (4. UNIT) of industrial value unit.</p>

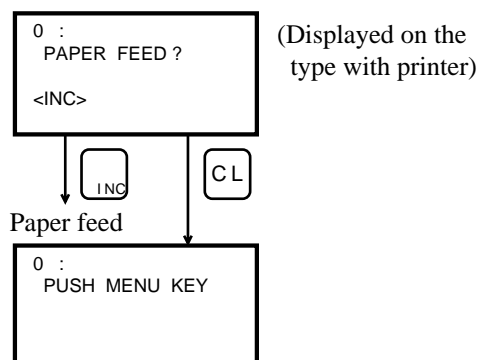
### 5.3 HHC printout format for smart type transmitter




Items printed are 12 items; TAG NO., TYPE, SERIAL NO., FIELD DEVICE VERSION, URL, RANGE, DAMPING, BURN OUT, EXT.(PUSH)SW, DATA, TEMP and RAS. An example is shown below.

FCX transmitter		FCX-A/C, FCX-AX transmitter
94:10:10 13:00	Date and time	94:10:10 13:10
TAG NO. :0123456789 ABCDEFGHIJKL-XYZ	TAG NO.	TAG NO. :0123456789 ABCDEFGHIJKL-XYZ
TYPE :FKCS34H1-LAAYY- DP LIN	Model number Output format	TYPE :FKCS34H2-LAAYY- AA DP OUT =LIN DISP =LIN
SER No. :ABCD0123	Serial No.	SER No. :0123ABCD
VERSION : 9.0	Field device version	VERSION :23.0
URL : 6400mmH <sub>2</sub> O	Max. measuring value	URL : 64kPa
RANGE :LRV 0.0mmH <sub>2</sub> O URV 6400.0mmH <sub>2</sub> O	Range	RANGE :LRV 0.0kPa URV 64.0kPa
DAMPING : 0.0 SEC	Damping time constant	DAMPING : 0.0 SEC
BURNOUT :OVER SCALE 21.6mA	Burnout	BURNOUT :OVER SCALE 20.8mA
SATURATE CURRENT: 3.8-21.6mA	Burnout current Saturate current	SATURATE CURRENT: 3.8-20.8mA
PUSH SW :ENABLE	External switch lock	EXT. SW :INHIBIT
DATA : 0.0kPa	Data value	DATA : 0.0kPa
TEMP.(AMP): 30.3°C 86.5°F	Amplifier temperature (Centigrade and Fahrenheit)	TEMP.(AMP): 24.7°C 76.4°F
RAS :ALARM CHECK GOOD	RAS	RAS :ALARM CHECK GOOD
XMTR LCD DISPLAY: 4mA=***** 20mA=*****	Actual scale display	XMTR LCD DISPLAY: 4mA=***** 20mA=*****
	Linearize	LINEARIZE :INVALID

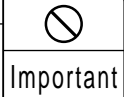
### 5.4 Printer paper feed function

- (1) On the type with printer, PAPER FEED is displayed at power ON.



- (2) Print menu  
After setting day and time, press the  key and the data is printed according to "5.3 HHC printout format for smart type transmitter".
- (3) Printout of menu display  
Press the  →  keys continuously while selected display is shown and the image is printed out. (Common at any display)

#### Caution after operation:



When setting and change to the field device has been completed, be sure to turn OFF the power.


## 6. OPERATION II (FOR ELECTROMAGNETIC FLOWMETER)

### Cautions prior to operation









When changing a set value, make sure the control loop is in manual mode.



1. Turn ON the power switch. If the battery alarm is displayed, the battery should be charged.
2. If standby indication is displayed before operation, press the  key.

### Common operation for all displays

- \* If the selected display is incorrect, press the  key to return to the previous display.  
If the alphanumeric display is incorrect, move the cursor to the point to be changed by pressing the  or  key and reset it.
- \* When setting alphacharacters first press the  key, then press an alphacharacters key.  
Alphacharacters cannot be set continuously.  
Press the  key each time.
- \* When the  key is pressed at the completion of an operation, the information is transmitted to the field device.

### Cautions during operation



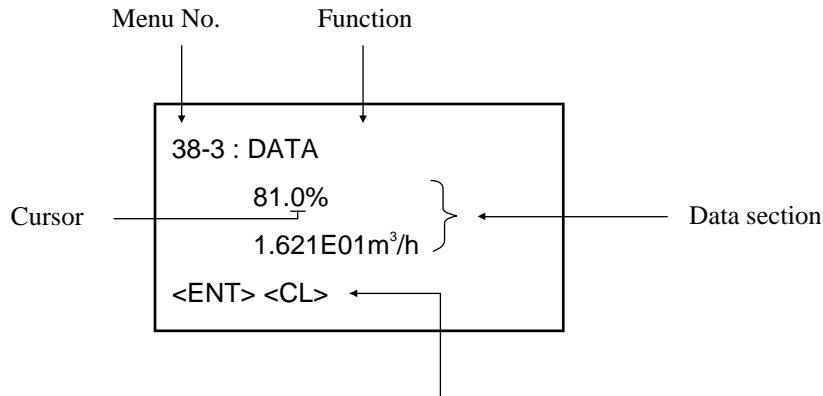
When the security key is in the OFF position, no changes can be made to the field device.

For setting and change of various functions on flow rate span, integration constant, flow direction, etc., refer to the instruction manual of the electromagnetic flowmeter.

### 6.1 Descriptions of displays

Flowmeter information can easily be checked and changed via the HHC using the messages shown on the display.

The display is a liquid crystal type shown the following contents in 4 lines with 16 characters.



Prompts (keys to take operator to next display)

The meaning of the prompts are as follows.

- <ENT> : The contents displayed in the data section are inputted to the field device.
- <INC> : The cursor moves to the next option in the menu.
- <CHANGE>: The cursor moves to the lower display to change the data shown in the data section.
- <CL> : The inputted data is cleared according to the data section and the previous data is displayed.


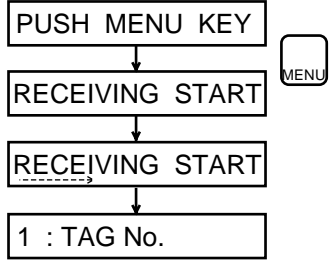
There are a total of 41 menu options, from No. 1 to 41, each having lower display with the exception of the menu No. 3, No. 5 and No. 29.



### 6.2 Operating procedures

Check the instrument for correct wiring and operate it according to the following procedures. (See "4. Connection, 4.1")

The following explains "3. SERIAL No." using the versions after VERSION 3.

<p>The image shown at right is displayed at ON of the power switch (FXW program version is displayed for about 3 seconds after the power is ON. When VERSION is before 4.0, the electromagnetic flowmeter cannot be supported.</p>	
<p>When the printer is not connected to the HHC, PUSH MENU KEY is displayed after the version is displayed.                  When the printer is connected, please refer to "Note" as shown below.                  By pressing the <b>(MENU)</b> key, RECEIVING START is displayed and the number of arrow marks (broken line) are increased.                  Then, TAG No. display appears automatically.                  To set an item of data after TAG No. is displayed, use the keys as shown in Table 6.2.</p>	

On the type with printer, PAPER FEED is displayed at power ON.

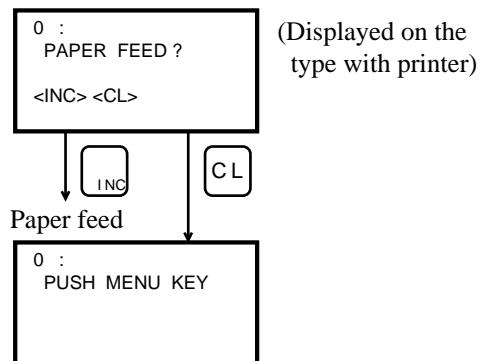












































Table 6.2 List of parameter

	Parameter	Display symbol	Key symbol	Reference page
1	TAG NO.	1: TAG NO.	 ↑	
2	Type	2: TYPE	 ↓ ↑ 	
3	Serial No.	3: SERIAL NO.	 ↓ ↑ 	
4	Diameter unit	4: DIAMETER UNIT	 ↓ ↑ 	P. 6-6
5	Diameter	5: NOMINAL DIAMETER	 ↓ ↑ 	P. 6-6
6	Flow rate or velocity unit	6: FLOW UNIT	 ↓ ↑  or 	
7	Flow rate time unit	7: TIME UNIT	 ↓ ↑ 	
8	Flow rate or velocity span	8: FLOW SPAN	 ↓ ↑  or 	
9	Damping time constant	9: DAMPING	 ↓ ↑  or 	
10	Output low cut	10: FLOW CUT POINT	 ↓ ↑ 	
11	Integral constant unit	11: TOTAL UNIT	 ↓ ↑ 	
12	Integral constant (integration per pulse)	12: TOTAL RATE	 ↓ ↑ 	
13	Integrated pulse width	13: PULSE WIDTH	 ↓ ↑ 	
14	Integration low cut	14: TOTAL CUT POINT	 ↓ ↑ 	
15	Normal/reverse integration	15: TOTAL FLOW DIRECTION	 ↓ ↑ 	
16	Integrated preset value	16: PRESET DATA	 ↓ ↑ 	
17	Execution of integrated preset	17: CARRY OUT TOTAL PRESET	 ↓ ↑ 	
18	Single/multi-range selection	18: RANGE FUNCTION	 ↓ ↑ 	
19	No. 2 range flow rate/velocity unit	19: FLOW UNIT 2	 ↓ ↑ 	
20	No. 2 flow rate time unit	20: TIME UNIT 2	 ↓ ↑ 	
21	No. 2 range flow rate/velocity span	21: FLOW SPAN 2	 ↓ ↑ 	

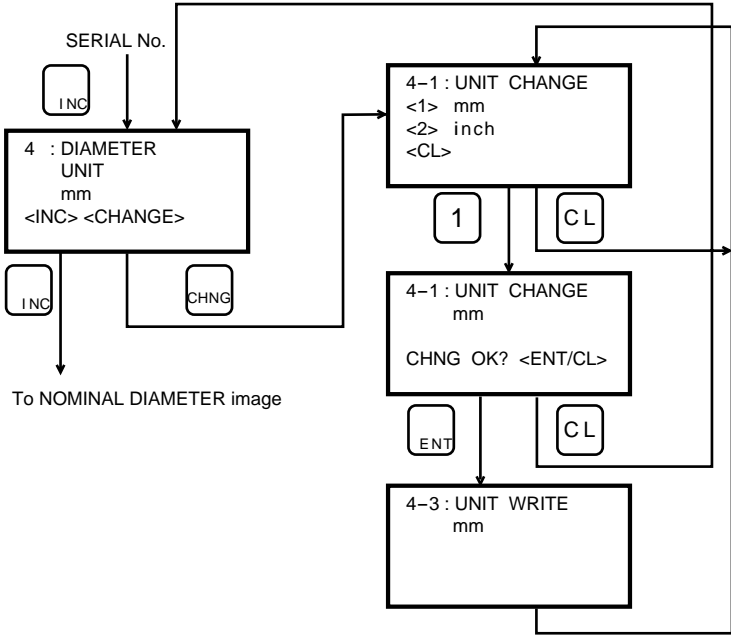
	Parameter	Display symbol	Key symbol	Reference page
22	Range select hysteresis	22: HYSTERESIS	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
23	Status function	23: STATUS FNC.	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
24	Rate limit value	24: RATE LIMIT VALUE	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
25	Rate limit time	25: RATE LIMIT TIME	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
26	Flow direction	26: FLOW DIRECTION	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
27	Burnout direction	27: BURNOUT	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
28	Empty detection	28: EMPTY DETECTION	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
29	Exciting frequency	29: EXCITING FREQUENCY	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
30	Amplifier factor	30: AMP. FACTOR	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
31	Detector factor	31: DETECTOR FACTOR	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
32	Flowmeter display type	32: FLOWMETER DISPLAY TYPE	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
33	Display flow unit (unit and minimum digit), or display full scale	33: DISPLAY FLOW UNIT 33: DISPLAY FULL-SCALE	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
34	Display total unit (unit and minimum digit)	34: DISPLAY TOTAL UNIT	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
35	No. 2 range display flow unit (unit and minimum digit), or display full scale	35: DISPLAY FLOW UNIT 2 35: DISPLAY FULL-SCALE 2	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
36	Zero adjustment	36: CALIBRATE ZERO	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/> or <input type="button" value="CALB"/>	
37	Fixed output and 0, 100% calibration	37: OUTPUT MODE	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/> or <input type="button" value="OUT"/>	
38	HHC measured value display	38: DATA HHC DISPLAY TYPE	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/> or <input type="button" value="DATA"/>	P. 6-7
39	Self-check	39: SELF CHECK	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
40	Print	40: PRINT	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	P. 6-8
41	Flowmeter zero adjustability	41: FLOWMETER PUSH SWITCH	<input type="button" value="INC"/> ↓ ↑ <input type="button" value="DEC"/>	
		1: TAG NO.	<input type="button" value="INC"/> ↓	

A typical example of the parameter setting method is shown below.

For other parameter setting and change, refer to the instruction manual of the electromagnetic flowmeter.

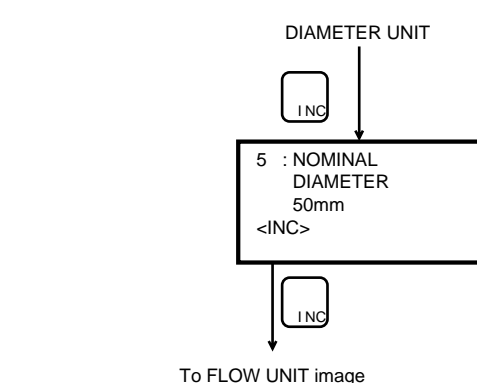
### 1. Diameter unit display

Detector diameter unit is displayed and changed.

Image display	Description
 <p>The flowchart illustrates the process of changing the diameter unit. It starts with the 'SERIAL No.' screen, where pressing the <b>INC</b> key leads to the '4 : DIAMETER UNIT' screen (displaying 'mm' and '&lt;INC&gt; &lt;CHANGE&gt;'). From here, pressing <b>INC</b> leads to the 'NOMINAL DIAMETER' image, while pressing <b>CHNG</b> leads to the '4-1 : UNIT CHANGE' screen (displaying '&lt;1&gt; mm', '&lt;2&gt; inch', and '&lt;CL&gt;'). Pressing <b>1</b> on the '4-1' screen leads to the '4-1 : UNIT CHANGE mm' screen (displaying 'CHNG OK? &lt;ENT/CL&gt;'). Pressing <b>CL</b> on the '4-1' screen also leads to the '4-1 : UNIT CHANGE mm' screen. Pressing <b>ENT</b> on the '4-1 : UNIT CHANGE mm' screen leads to the '4-3 : UNIT WRITE mm' screen. Pressing <b>CL</b> on the '4-1 : UNIT CHANGE mm' screen leads back to the '4 : DIAMETER UNIT' screen. Pressing <b>ENT</b> on the '4-3 : UNIT WRITE mm' screen leads back to the '4 : DIAMETER UNIT' screen.</p>	<p>After SERIAL No. is displayed, press the <b>INC</b> key and DIAMETER UNIT is displayed.</p> <p>The unit can be changed by pressing the <b>CHNG</b> key.</p> <p>In changing the unit, select the desired unit using numeric keys and it is displayed for confirmation.</p> <p>When the unit displayed is correct, press the <b>ENT</b> key.</p> <p>After it is inputted to the field device, the initial image appears automatically when the selected unit is displayed. At this time, press the <b>INC</b> key and the next NOMINAL DIAMETER is displayed.</p>

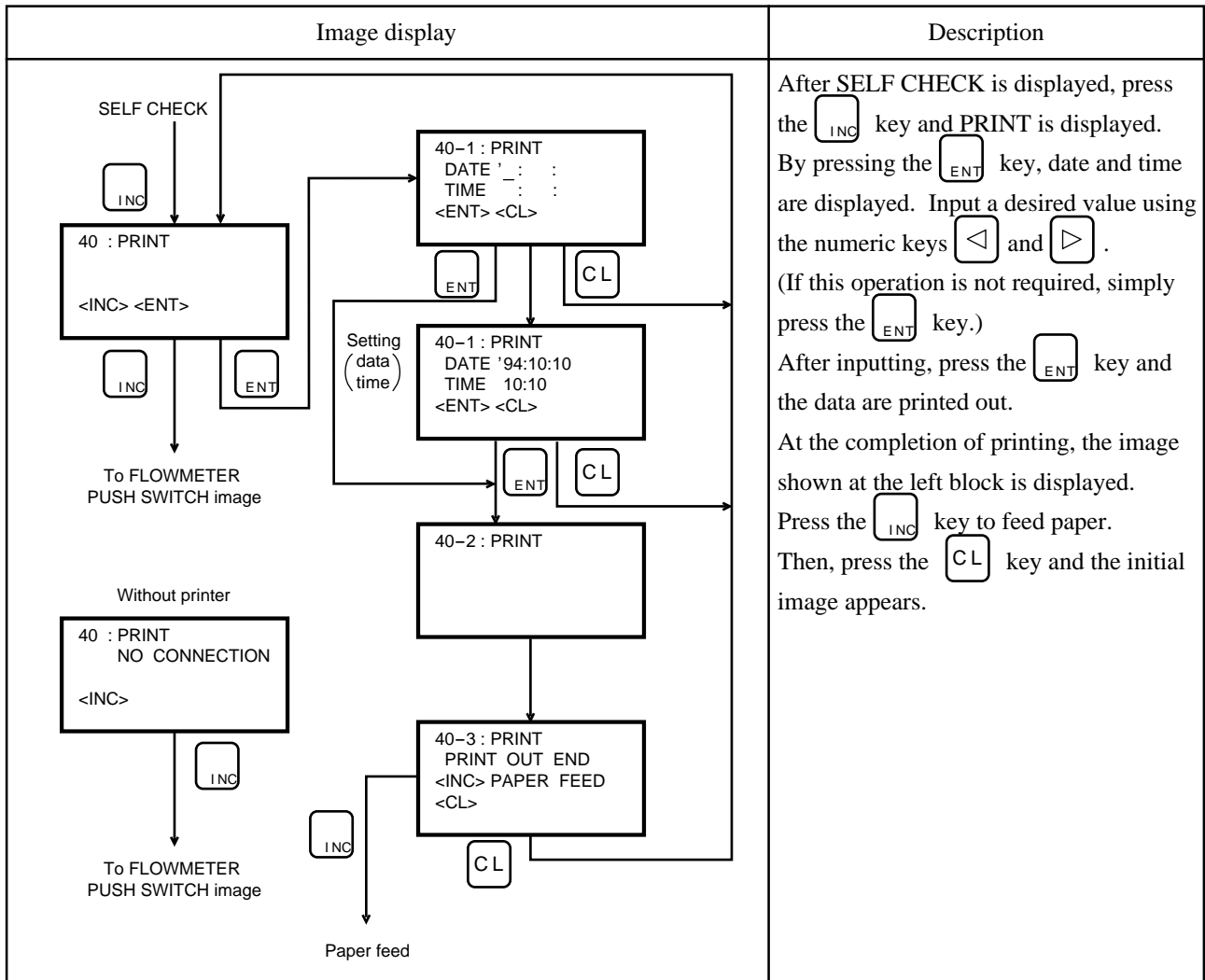
### 2. Diameter display

Detector diameter is displayed.

Image display	Description
 <p>The flowchart shows the process of displaying the detector diameter. It starts with the 'DIAMETER UNIT' screen, where pressing the <b>INC</b> key leads to the '5 : NOMINAL DIAMETER' screen (displaying '50mm' and '&lt;INC&gt;'). Pressing <b>INC</b> on the '5 : NOMINAL DIAMETER' screen leads to the 'FLOW UNIT' image.</p>	<p>After DIAMETER UNIT is displayed, press the <b>INC</b> key and NOMINAL DIAMETER is displayed, together with the diameter of the detector. If the detector diameter is different from the nominal diameter, check the setting of the flowmeter and change the diameter.</p> <p>By pressing the <b>INC</b> key, FLOW UNIT image is displayed.</p>



**4. Print**



### 6.3 Printout format for electromagnetic flowmeter

Some examples of printout are shown below.

94:10:10 10:10	Date and time
TAG NO. : .....	TAG No.
TYPE : FMQOEC11-BPEN1- XXX MAG FLOW	Product type Type
NOMINAL DIAMETER : 50mm	Diameter
FLOW : 2.829m/s SPAN : 2.00 E01 m <sup>3</sup> /h	Flow velocity/rate span
DAMPING : 15sec	Damping
CUT POINT : 10.0%	Low cut point
TOTAL RATE : 5.000E00 m <sup>3</sup>	Integral constant
PULSE WIDTH : 30msec	Integrated pulse width
TOTAL CUT POINT : 10.0%	Integration low cut point
TOTAL FLOW DIRECTION : FORWARD	Normal/reverse integration
PRESET DATA : 30000 PULSE	Integrated preset value
RANGE FUNCTION : AUTO 2 RANGES	Range selection
FLOW : 1.415m/s SPAN 2 : 1.00E01 m <sup>3</sup> /h	No. 2 range flow velocity/rate span
HYSTERESIS : 20%	Range select hysteresis
STATUS : FLOW SWITCH FUNCTION 90%	Status function
RATE LIMIT : 10.0% 30sec	Rate limit value and time
FLOW DIRECTION : FORWARD	Flow direction
BURNOUT : UNDER SCALE	Burnout direction
EMPTY DETECTION : ENABLE	Empty detection
EXCITING FREQUENCY: f/8	Exciting frequency
AMP. FACTOR : 15315	Amplifier factor
DETECTOR FACTOR : 1.2355	Detector factor
DATA FLOW% : H 81.0% FLOW : 1.621E01 m <sup>3</sup> /h PULSE : 30025 PULSE TOTAL : 1.50126E05 m <sup>3</sup>	Measured value
FLOWMETER PUSH SWITCH : ENABLE	Flowmeter Zero adjustability

## 7. ABNORMAL DISPLAY AND COUNTERMEASURE

If the following indication appear while using HHC, it means that a fault has occurred.

Display	Cause	Remedy
<div style="border: 1px solid black; padding: 5px; width: fit-content;">1 : <u>BAT. ALM</u></div> <p style="text-align: center;">↕ Displayed alternately ↕</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;">1 : <u>TAG NO.</u></div>	<ul style="list-style-type: none"> <li>• Battery voltage drop alarm</li> </ul>	<p>⇒ Charge the battery (see "8. Maintenance and inspection").</p>
<div style="border: 1px solid black; width: 100px; height: 40px; margin-bottom: 5px;"></div> <p style="text-align: center;">No display</p>	<ul style="list-style-type: none"> <li>• Power switch is OFF.</li> <li>• Battery is discharged.</li> </ul>	<p>⇒ Turn ON the power switch</p> <p>⇒ Charge the battery (see "8. Maintenance and inspection").</p>
<div style="border: 1px solid black; padding: 5px; width: fit-content;">SIGNAL ERR</div> <p style="text-align: center;">Communication error display</p>	<ul style="list-style-type: none"> <li>• Incorrect connection</li> <li>• Communication cable is disconnected.</li> <li>• Power for field device OFF.</li> <li>• Load resistance of field device current output circuit is less than 250Ω.</li> <li>• Transmission line between HHC and field device is defective.</li> </ul>	<p>⇒ Check the connection referring to this manual (see "4. Connection").</p> <p>⇒ Check for continuity using a tester.</p> <p>⇒ Turn ON the power for field device.</p> <p>⇒ Increase the load resistance to 250Ω or larger.</p> <p>⇒ Change the wiring to meet load capacity, load inductance, etc.</p>
<div style="border: 1px solid black; padding: 5px; width: fit-content;">PUSH CL KEY</div> <p style="text-align: center;">Standby display</p>	<ul style="list-style-type: none"> <li>• No key input on measurement data panel for more than 10 minutes.</li> </ul>	<p>⇒ Press the <span style="border: 1px solid black; padding: 2px;">CL</span> key to display the image before STANDBY.</p>

In any indications other than above appear, contact Fuji distributor.



## 8. MAINTENANCE AND INSPECTION

### 8.1 Battery charging



**DANGER**

Do not attempt to charge the battery in hazardous area.

#### (1) Continuous operating time

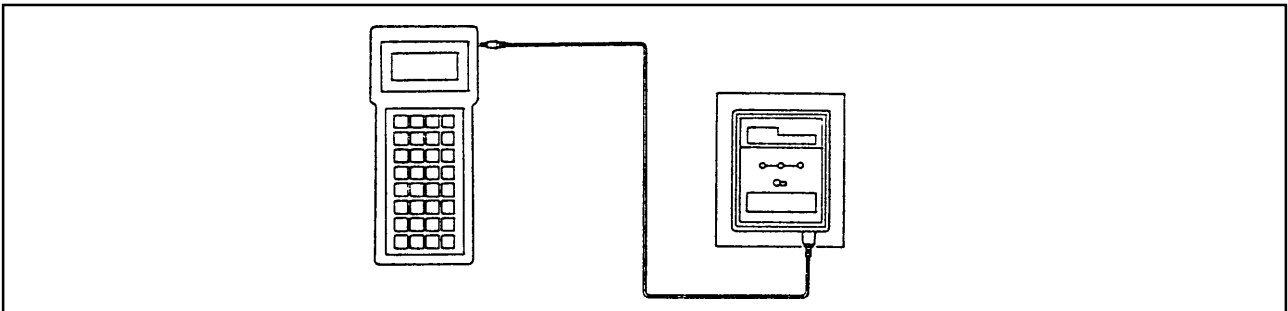
The HHC incorporates a built-in rechargeable nickel cadmium battery.

Under normal use of HHC (without printer), the continuous operating time with fully charged battery is about 24 hours.

When HHC (with printer) is used, the operating time becomes shortened with printing frequency. In the case of intrinsic safety explosion-proof HHC, the operating time is reduced to about a half of the standard time.

#### (2) Charging time

For charging the battery, connect the supplied charger to the charger terminal and insert the charger plug into the socket. The battery will be fully charged in about 5 hours.



**Important**

1. First connect the plug to HHC and then insert the charger to the socket. To disconnect the charger, follow this procedure in reverse order.
2. To ensure a long life of battery, avoid overcharge and overdischarge.
3. When charging, be sure to turn OFF the power switch.
4. HHC cannot be operated while the battery is being charged.
5. The battery charger is of a special type, and should be obtained from Fuji distributor.

#### Battery life

When the continuous operating time is less than 24 hours with the battery charged for the standard time (about 5 hours), it is an indication that the battery life is terminated. Replace the battery with a new one. The battery is of a special type, and should be obtained from Fuji distributor.

## 8.2 Battery replacement

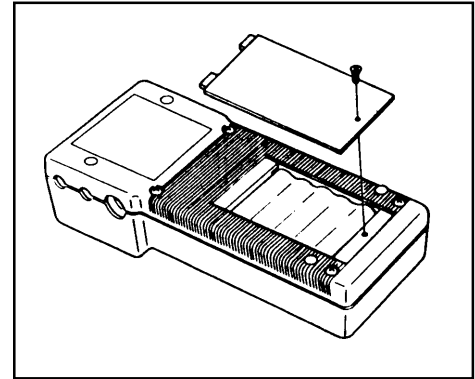


**DANGER**

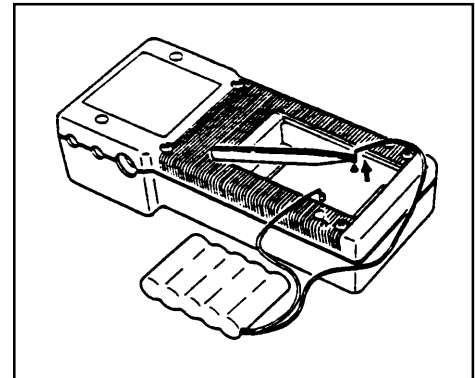
Do not attempt to replace the battery in hazardous area.

To replace the battery, use the following procedures.

- (1) Remove the battery cover from the rear of HHC.



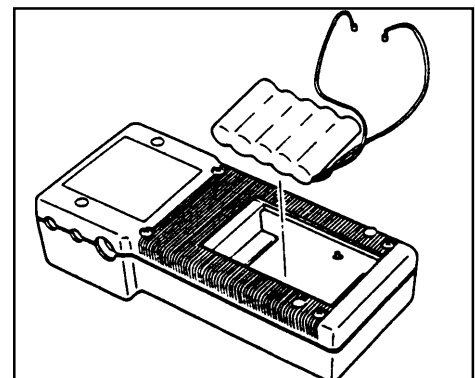
- (2) Pull out the battery cord using a tweezers. Care should be taken when it is pulled out to prevent damage to the connectors.



- (3) Remove the battery.



After the battery is removed, be sure not to short the battery cord (red/black).

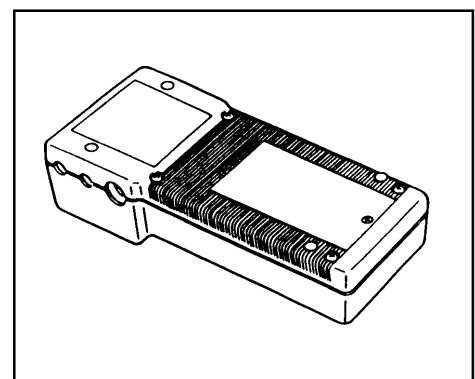


- (4) To load the battery, use the same procedures in reverse order.



When connecting the battery cord, make sure that the polarity is correct.

The contact pin of the battery cord must be inserted firmly into the pin on the FXW printed circuit board.



# APPENDIX 1. SPECIFICATION SHEET

This communicator is a handy type battery-powered setter/indicator used for easy communications between FCX series "smart" transmitters/electromagnetic flowmeters and the operator.

## FEATURES

### 1. Simple operation

Owing to use of a large LCD (16 digits × 4 lines), setting and its change can easily be made in an interactive mode.

### 2. Applicable to every "smart" type

This communicator is usable for every "smart" type of FCX series transmitter and electromagnetic flowmeter.

### 3. Operable online

4 to 20mA DC field signal remains unaffected by connection of this communicator.

### 4. An abundance of protective functions

The communicator is standard-provided with transmitter error diagnosis function, data-write protection key, battery voltage drop alarm function, automatic power standby function, etc.

### 5. Printer option

A printer can be built in the communicator at option for instant printout of set data.

## SPECIFICATIONS

### Functional specifications

- Applicable device:  
Each "smart" type of FCX, FCX-A/C and FCX-AX series transmitters and electro-magnetic flowmeters
- Transmission signal connection:  
Exclusive cable of about 1 m with a clip at the end
- Transmission line requirements:
  - Line length : 2 km at maximum  
(0.75 to 1.25 mm<sup>2</sup> cable. For 1 km or longer, twisted pair cable need be used.)
  - Load resistance : 250 to 578  $\Omega$  in case of FCX transmitter (including cable resistance at 24V DC)  
250 to 600  $\Omega$  in case of FCX-A/C, FCX-AX transmitter (including cable resistance at 24 V DC)  
250 to 600  $\Omega$  in case of electromagnetic flowmeter
  - Load capacity : 0.22  $\mu$ F max.
  - Load inductance : 3.3 mH max.
  - Separation from power line: 15 cm or more (parallel wiring should be avoided.)
- Display section:  
LCD with 16 digits  $\times$  4 lines
- Operating section:  
Flat keys (32 keys), power switch, set value protection key switch
- Remote function:  
Refer to the tables in page A-4, A-5 and A-6.
- Power alarm function:  
Battery voltage drop is warned by flickering (BAT. ALM) in the display section.
- Data-write protection:  
Change of set value is allowed only through use of the key switch.
- Automatic power standby function:  
HHC automatically enters into standby mode when no key is used for longer than 10 minutes (in data measurement only).
- Power source:  
Built-in nickel-cadmium battery

- Continuously operable time:  
Approx. 24 hours (under standard operating conditions after charging the battery fully)  
In case of intrinsic safety explosion-proof HHC, the operating time is reduced to about a half of the standard time.
- Charging time:  
5 hours
- Printer (option):  
Printout of each remote function item
- Ambient temperature:  
-10 to 50°C
- Storage temperature:  
-20 to 60°C
- Ambient humidity:  
90% RH max.
- Hazardous locations:  
Designed to meet international intrinsic safety standards. Applications have been submitted for the following.

Authorities	
BASEEFA	EEx ia IIC T3, T4
PTB	EEx ib IIC T3, T4
FM and CSA	Class I, Div. 1, Grps A thru. D, T4
RIIS *	i3a G4

Note: \* Approvals with FCX-A/C and FCX-AX series transmitters pending.

### Performance specifications

- Charger power source:  
100/115/230V AC,  $\pm 10\%$ , 50/60Hz (as specified)
- Battery life:  
Approx. 24 hours (under standard operating conditions without option after full charging of battery)

Construction and material
---------------------------

- Material : Polycarbonate
- Finish color : Gray
- Dimensions (H × W × D): 55 × 98 × 223 mm (without printer)
- Mass : Approx. 500 g (without printer)

**Remote function (in combination with FCX, FCX-A/C or FCX-AX transmitter)**

No.	Item	Display	Setting	Description
1	Tag No.			Alphanumerics within 26 digits
2	Type			Type of transmitter
3	Serial No.		-	Serial No. of transmitter
4	Engineering value unit			Setting of engineering value unit
5	Range limit		-	Display of maximum range value
6	Measuring range			Setting and change of measuring range
7	Damping			Settable within range of 0 to 38.4 sec.
8	Output mode			Selection of linear or output mode
9	Burnout direction			Output direction at error
A	Input adjustment			Adjustment of input value
B	Output adjustment	-		Setting of fixed current output and 4mA/20mA adjustment
C	Data measurement		-	Display of data
D	Self-diagnosis		-	Detection of error in transmitter and amplifier sections
E	Printer function		-	Printout
F	External switch lock function	-	-	External locking of zero and span adjustment
G	Scale range setting of built-in digital indicator			Setting of display value corresponding to 4mA or 20mA output
H	Programmable linearization function		H	14 point, 15 trend line program compensation
I	Rerange(Set LRV/URV calibration)			Input/output adjustment setting (application to level guage)

Note) • FXW prior to version 5.2 does not support No. H and No. I.

- FXW prior to version 5.2 does not support the change of burnout current value in No. 9.

**Remote function (in combination with electromagnetic flowmeter)**

No.	Item	Display	Setting	Description
1	Tag No.			Alphanumerics within 26 digits
2	Type			Type of flowmeter
3	Serial No.		-	Serial No. of flowmeter
4	Diameter unit			Engineering unit of detector diameter
5	Diameter		-	Nominal diameter of detector
6	Units of flow rate or flow velocity			Unit of flow rate or flow velocity in measuring range
7				Unit of flow-rate time in measuring range
8	Flow rate and flow velocity span			Each full scale of flow rate and flow velocity in measuring range
9	Damping			Settable within range of 0 to 60 sec.
10	Output low-cut			Zero locking of output at low flow rate
11	Unit of integration constant			Unit of integration quantity per pulse
12	Integration constant			Integration quantity per pulse
13	Integration pulse width			Pulse width 30 or 100ms
14	Integration low-cut			Omission of integration at low flow rate
15	Integration normal/reverse			Flow direction for integration
16	Integration preset value		-	Reset value of integration pulse
17	Integration presetting			Presetting of integration at HHC
18	Range selection			Selection of single range or multi-range
19	Units of flow rate or flow velocity in 2nd range			Unit of flow rate or flow velocity in second range
20				Unit of flow-rate time in second range
21	2nd-range flow rate (velocity) span			Full scale of flow rate (flow velocity) in second range
22	Range select hysteresis			Hysteresis occurring at changeover of measuring range
23	Status function			Setting of status function
24	Rate limit value			Spike noise cutting
25	Rate limit time			Active duration of rate limit
26	Flow direction			Selection of flow direction
27	Burnout direction			Output direction at error
28	Empty detection			Detection of liquid discharge from piping
29	Exciting frequency		-	Exciting frequency of detector coil

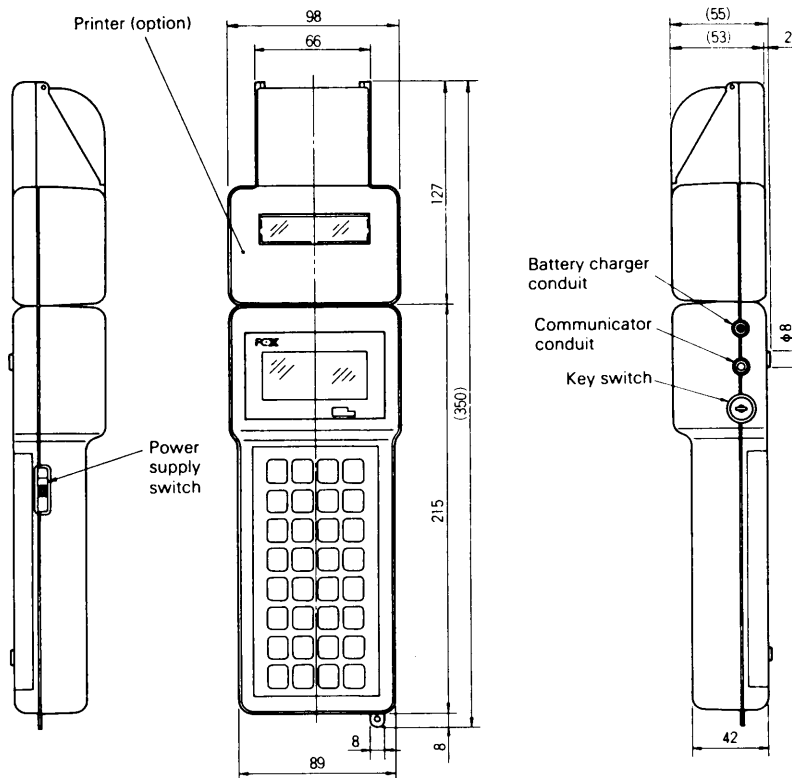
No.	Item	Display	Setting	Description
30	Amplifier factor			Converter's specific constant
31	Detector factor			Detector's specific constant
32	Kind of flowmeter-side display			Kind of display (% , real scale, etc.)
33	Flowmeter-side flow rate display factor, or full scale display			Unit and minimum digit of flow rate display, or display full scale
34	Flowmeter-side integration display factor			Unit and minimum digit of integration display
35	2nd-range flow rate display factor, or full scale display			Unit and minimum digit of flow rate display in second range, or display full scale
36	Zero adjustment	-	-	Zero adjustment at HHC
37	Fixed value output, 4mA/20mA calibration			Setting of fixed current output and 4mA/20mA adjustment
38	HHC measured value display			Kind of display on HHC
39	Self-diagnosis			Diagnosis of flowmeter error
40	Print	-	-	Printout
41	Flowmeter-side zero adjustability			Selection of zero adjustability on flowmeter side



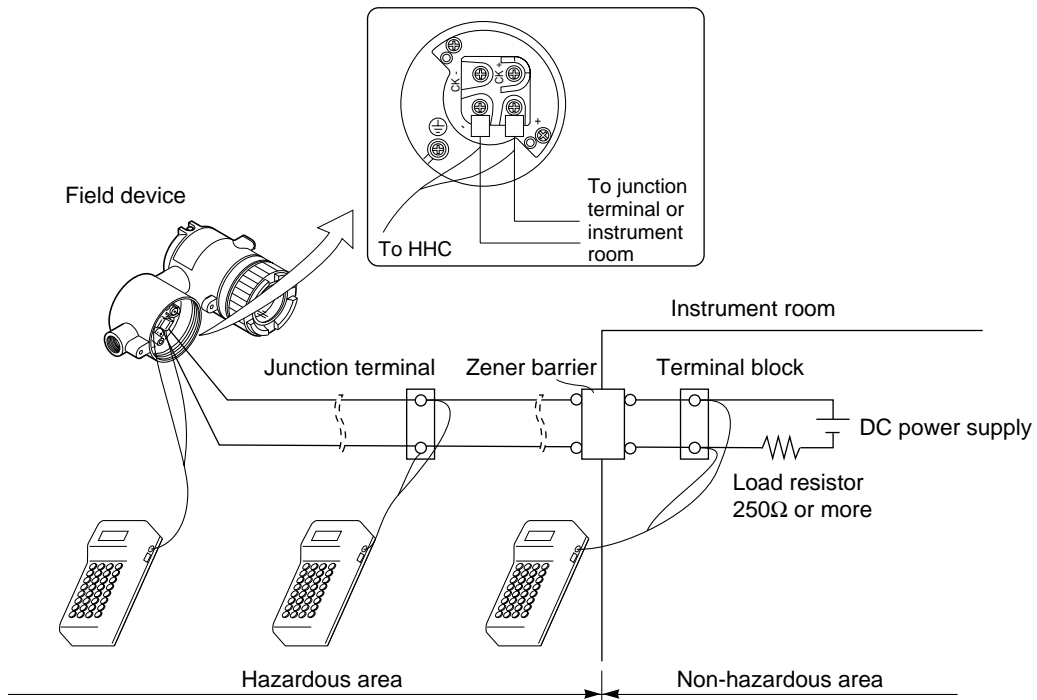
## CODE SYMBOLS

1	2	3	4	5	6	7	8	9	10	Description	
F	X	W					1	-	A	2	
			1								<b>Printer</b> Without
			2								With (explosion-proof structure unavailable)
				0							<b>Charger</b> Without
				1							100V AC, 50/60Hz
				2							115V AC, 50/60Hz
				3							230V AC, 50/60Hz
					A						<b>Explosion-proof structure for hazardous locations</b> Without
					C						Intrinsic safety explosion-proof (JIS) Note
					H						Intrinsic safety explosion-proof (FM)
					J						Intrinsic safety explosion-proof (CSA)
					K						Intrinsic safety explosion-proof (BASEEFA)
					L						Intrinsic safety explosion-proof (PTB) Note Note: Approvals with FCX-A/C and FCX-AX transmitters pending.
						Y					<b>Carrying case</b> Without
						A					With
								A			<b>Application</b> General
									2		<b>Use</b> FCX , FCX-A/C and FCX-AX series transmitter and electromagnetic flowmeter

OUTLINE DIAGRAM (Unit: mm)



CONNECTION (Example: Transmitter)



**! DANGER** When using flame-proof transmitter, do not connect HHC to the transmitter terminal and junction terminal in hazardous area.

## APPENDIX 2. HAZARDOUS LOCATION INSTALLATION INFORMATION

This appendix contains one table and four drawings that present installation instruction for the FCX-A/C Series Transmitter in a hazardous location. Refer to these figures when installing or servicing a transmitter mounted in a hazardous location.

**Table 1 BASEEFA Certificate numbers of FCX-A/C series transmitter**

Item	Certificate number
Transmitter Intrinsically Safety	Ex95D2444
Transmitter Type N	Ex95Y4446X
FXW Intrinsically Safety	Ex90C2370X
FXE Intrinsically Safety	Ex93C2154
System Intrinsically safety	Ex95D2445
Transmitter Flameproof	FCX-A: Ex96Y1003
	FCX-C: Ex96Y1002

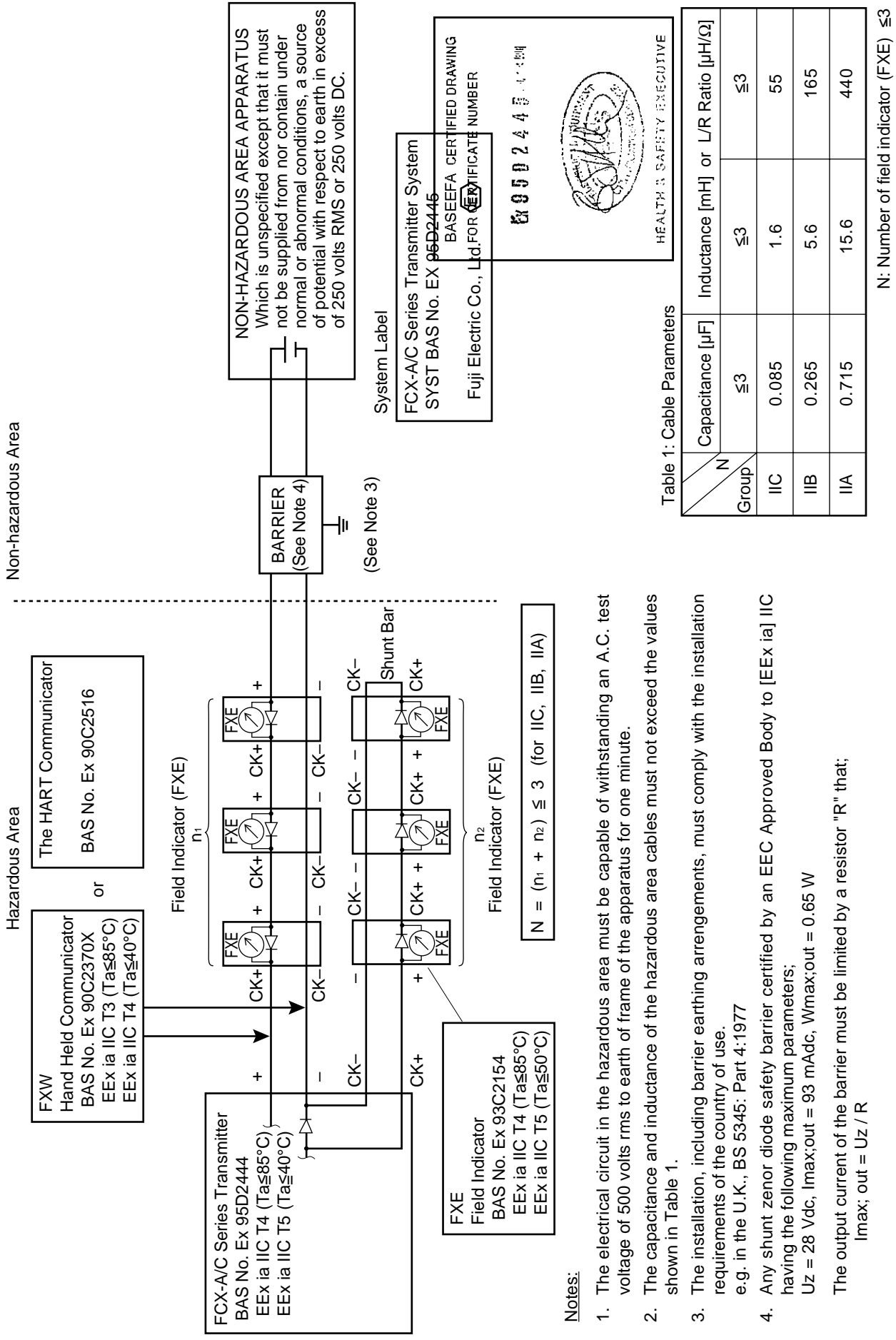
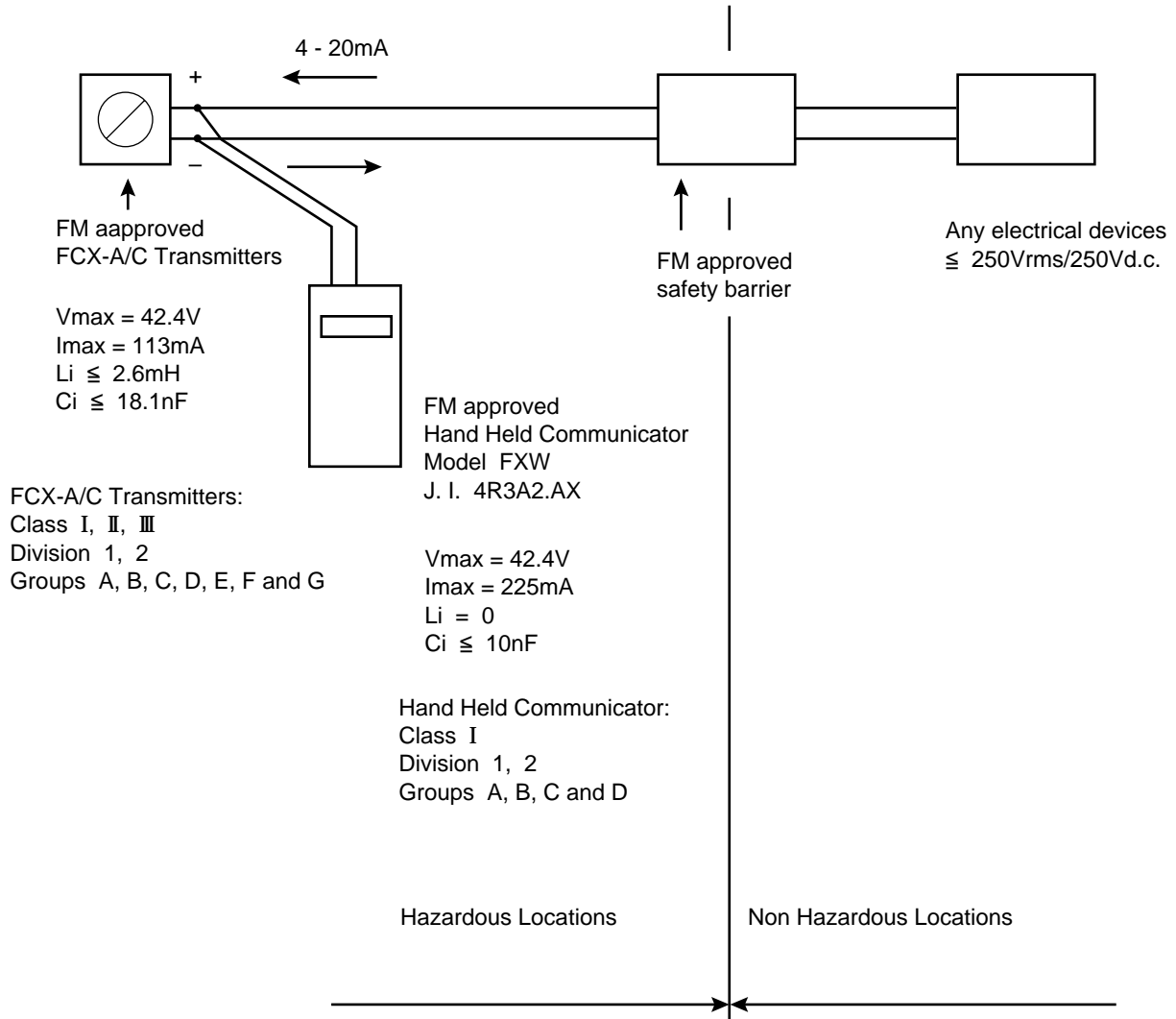


Figure 1. FCX-A/C Series transmitter, Intrinsically Safe Installation for BASEEFA

INSTALLATION INSTRUCTIONS



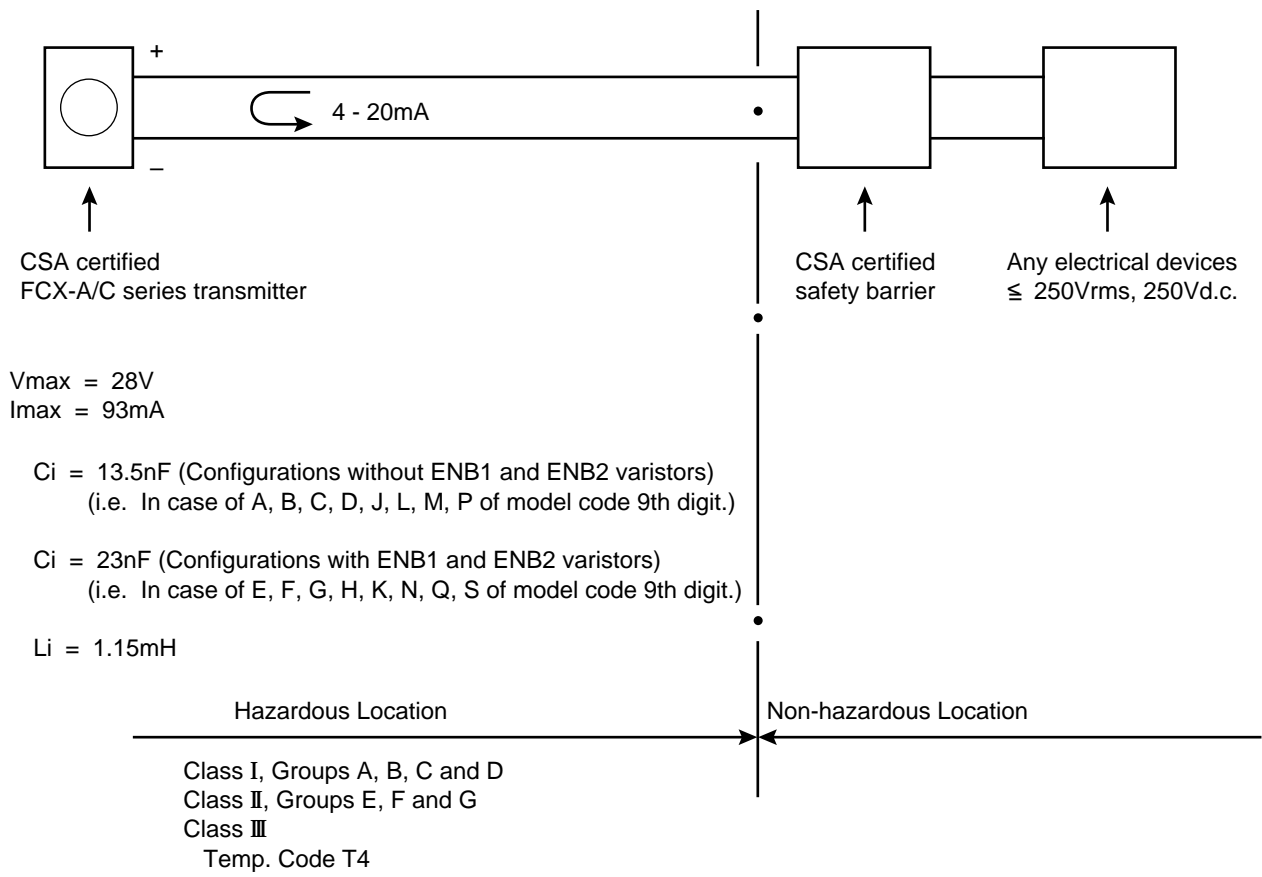
Notes:

- 1) Maximum wiring length between transmitter and safety barrier shall be decided so that interconnection conditions under entity concept are met.
- 2) Hand Held Communicator, Model FXW may be connected at any points between transmitter and safety barrier, provided that the Hand Held Communicator is the FM approved models.
- 3) Installation must be performed in accordance with the National Electrical Code and ISA/ANSI RP12.6.
- 4) For Class II and Class III an approved seal must be used to maintain intrinsic safe circuit integrity.
- 5) No revision without prior FMRC approval.

Figure 2. FCX-A/C Series transmitter, Intrinsically Safe Installation for FM

# INSTALLATION INSTRUCTIONS

(FCX-A/C Transmitter – Intrinsically Safe, Entity for Hazardous Location)



**Notes:**

1. Barriers must be installed in accordance with manufacturer's instructions.
2. Barrier parameters must meet the following requirements:
  - $V_{oc} \leq V_{max}$
  - $I_{sc} \leq I_{max}$
  - $C_a \geq C_i + C_{cable}$
  - $L_a \geq L_i + L_{cable}$
3. Maximum non-hazardous area voltage must not exceed 250Vrms.
4. Installation must be performed in accordance with Canadian Electrical Code, Part I.
5. The ambient temperature is permitted from 10°C to 40°C.

**Figure 3. FCX-A/C Series transmitter, Intrinsically Safe Installation for CSA**

## LIST OF APPLICABLE BARRIERS

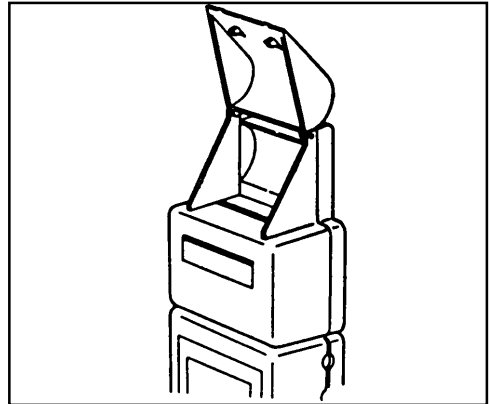
(Used in the loop with FCX-A/C transmitter and/or FXW communicator for parametric system approval)

MAKER	MODEL	GAS GROUPS	MAX. OUTPUT VOLTAGE	REFERENCE (CERTIFICATE/FILE No.)	INSTALLATION DRAWING
MEASUREMENT TECHNOLOGY LTD.	MTL728-	A, B, C, D	28V	LR36637-14	TC 420111 or TC 420026
	MTL702+	A, B, C, D	25V	LR36637-16	
	MTL705+	A, B, C, D	28V	LR36637-14	
	MTL787S+	A, B, C, D	28V	LR36637-20	
	MTL706+	A, B, C, D	28V	LR36637-26	
	MTL3041	A, B, C, D	28V	LR36637-18	
	MTL3046B	A, B, C, D	28V	LR36637-47	
	MTL4041	A, B, C, D	28V	LR36637-49	
PEPPERL & FUCHS	KHD3-ICR/Ex120-200	A, B, C, D	20V	LR65756-8	TC 420112 or TC 420118
	KHD3-ICR/Ex130-200	A, B, C, D	26V		
	KHD2-ICV/Ex130-205	A, B, C, D	26V		
	KHD2-ICV/Ex130-210	A, B, C, D	26V		
	KHD3-IST/Ex1	A, B, C, D	26V		
	KHD3-ISV/Ex1	A, B, C, D	26V		
	KHD2-IST/Ex11	A, B, C, D	26V		
	KHD2-ISV/Ex11	A, B, C, D	26V		
	Z428/Ex	A, B, C, D	28V	LR65756	
	Z528/Ex	A, B, C, D	28V		
	Z488/Ex	A, B, C, D	28V		
	Z488/Ex-R	A, B, C, D	28V		
	Z588/Ex-R	A, B, C, D	28V		
	Z487/Ex	A, B, C, D	28V		
R. STAHL INC.	9001/51-280-091-14	A, B, C, D	28.4V	Application Data book ST44	TC 420115 or TC 420029
	9001/01-280-100-10	A, B, C, D	28.5V		

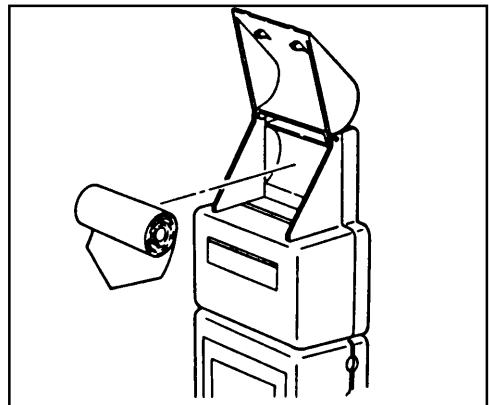
**Figure 4. FCX-A/C Series transmitter, Barrier Selection for CSA Intrinsically Safe**

## APPENDIX 3. SETTING OF PRINTER ROLL PAPER

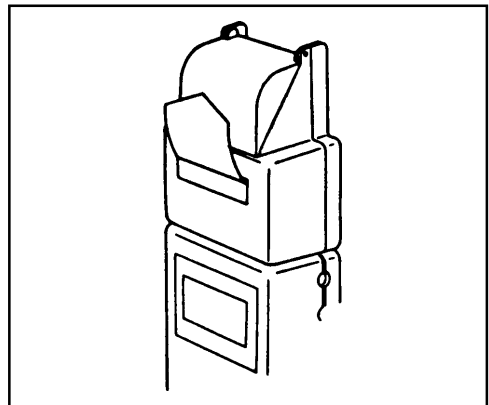
- (1) Open the cover of the printer case.



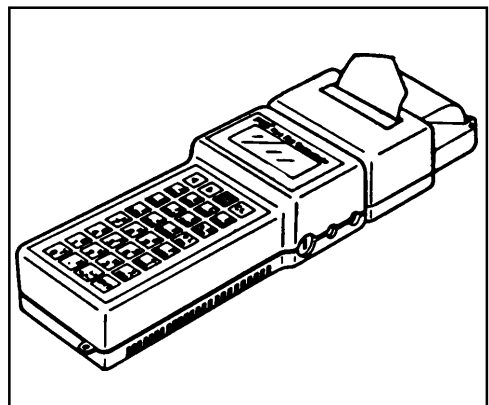
- (2) Place a roll paper in the printer case.  
Cut the end of the roll paper to form a triangle for easy setting to the cutting side.



- (3) Tighten the cover and insert the roll paper through the slit on top of the printer until it reaches the cutting side.



- (4) Turn ON the power switch.  
Press the  <sub>INC</sub> key to feed the roll paper. The paper is fed while the  <sub>INC</sub> key is kept pressed.





## APPENDIX 4. PARTS LIST

Thank you for your purchase of Fuji's product.

This parts list covers such parts that are considered as necessary for maintenance about the standard specifications of this product. Please read this list when you request a part of this product for supplementary use or other.

### [EXPLANATION OF DESCRIPTION]

1. Item No. : Number described in each block diagram. Item No. (1 to 99) coincides with item No. (1 to 99) in the parts list.
2. Parts No. : Parts are supplied in the unit of this number (\*ZZPFXW1-A010 to ZZPFXW1-Z99Z).  
Parts are beyond the limits of parts No. in default.
3. Quantity : Quantity of parts in each block diagram.

### [DESCRIPTION OF ABBREVIATIONS]

◆AR : as required ◆ass'y : assembly ◆pc : piece

### [ORDERING A METHOD MAINTENANCE PARTS]

Specify the following items when ordering of this product.

- Product type
- Parts number
- Parts name
- Quantity

We would like to inform you that we will check the specifications (scale length, measuring range, etc.) as required for the purpose of correctly arranging the requested parts, provided that if a part having optional specifications is requested, you are requested to inform us of product type, manufacturing date, instrument number (serial number), specification (scale range, measuring range, etc.), parts name, and quantity, referring to the type nameplate of the product. If the part's name is unknown, show us its schematic diagram of the part of a sample, if possible.

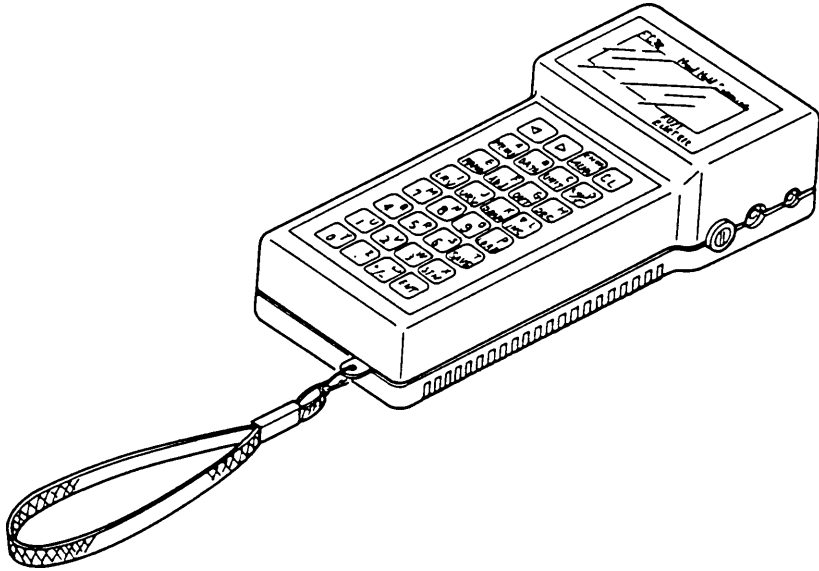
### [INQUIRY ABOUT PARTS]

If any question arises about parts, contact your nearest service representative.

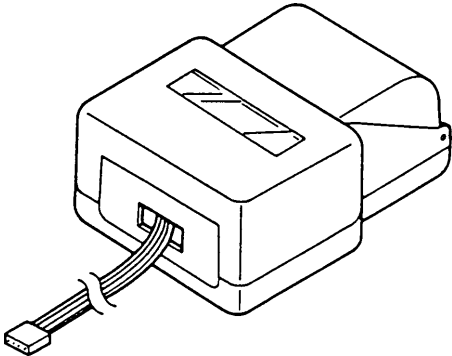
If you have purchased a part, irrespective of Fuji Electric Co., and maintained or repaired your instrument, Fuji Electric Co. will not be responsible for any resultant defect if the product does not fully display its specified functions.

# CONTENTS

BLOCK A

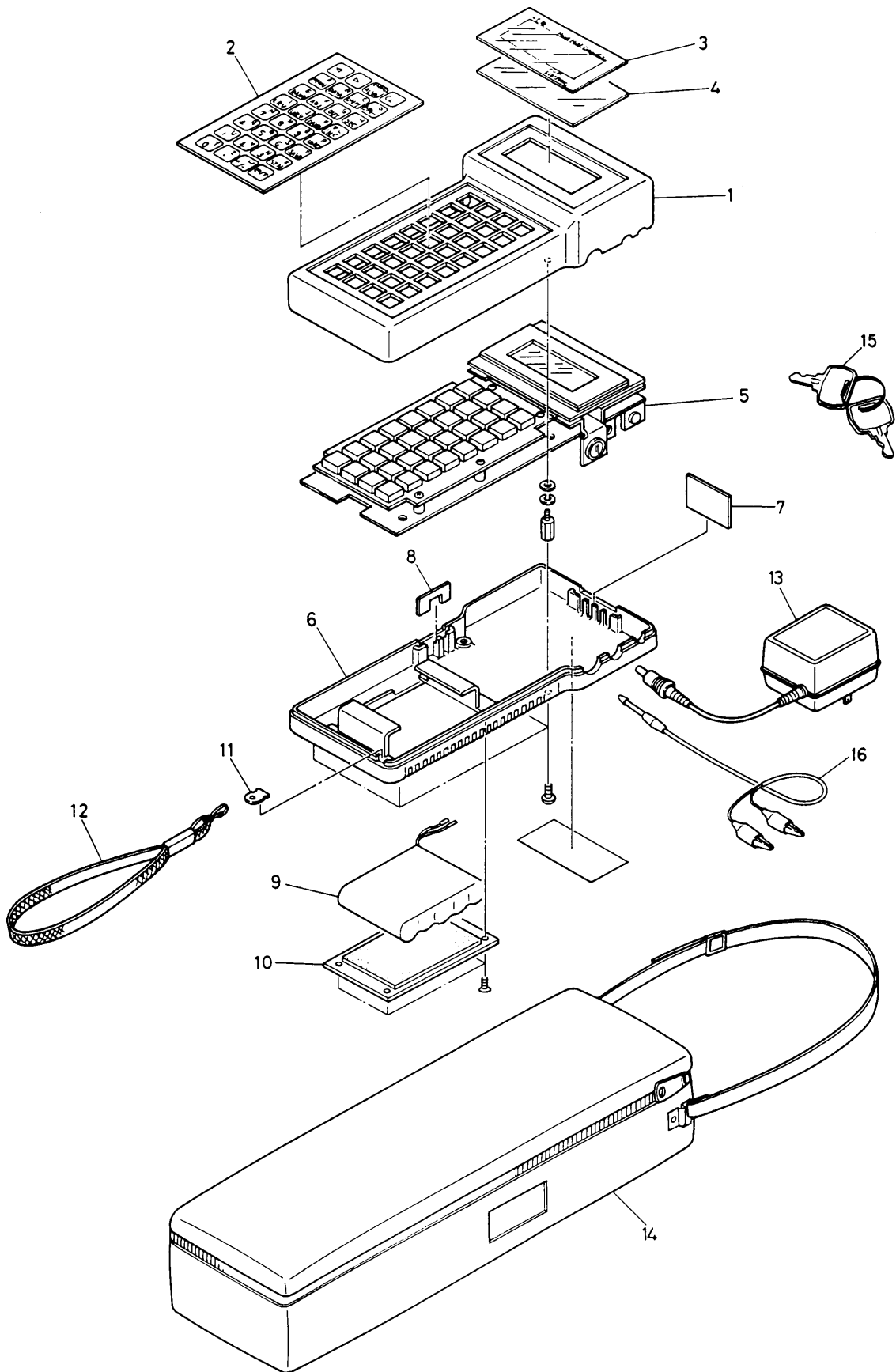


BLOCK B



BLOCK	Name of block	Page
BLOCK A	Main ass'y	A-18 to A-19
BLOCK B	Printer ass'y (Option)	A-20 to A-21

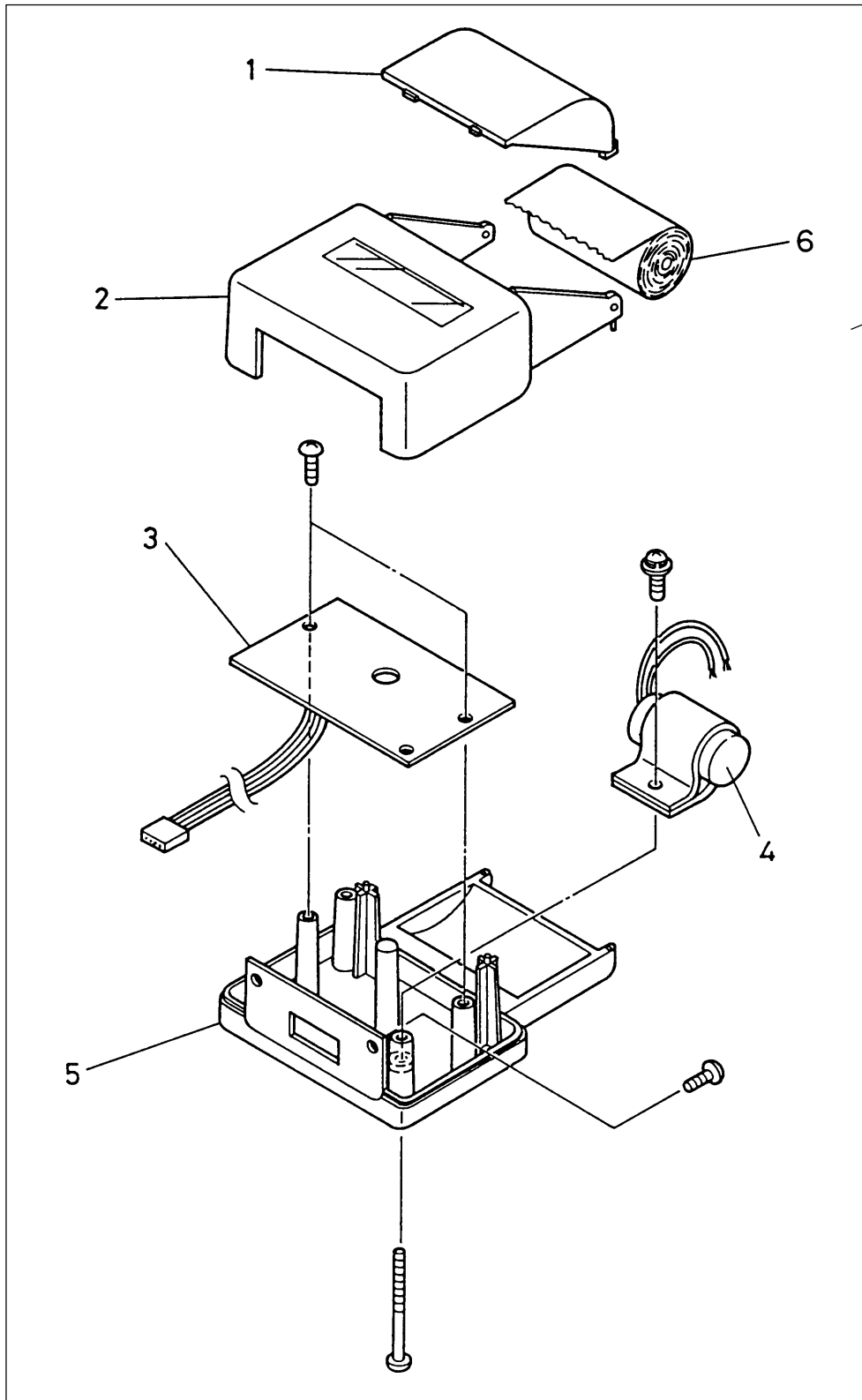
# BLOCK A Main ass'y



### BLOCK A Main ass'y

Item No.	Parts No.	Part Name	Q'ty	Remarks
1	* ZZPFWX1-A010	Upper case	1	
2	* ZZPFWX1-A020	Indicating sheet	1	
3	* ZZPFWX1-A030	Make-up board	1	
4	* ZZPFWX1-A040	Board	1	
				*5      6
5	* ZZPFWX1-A050	P.C.B. ass'y	1	0, 1, 2, 3      A
	* ZZPFWX1-A051	P.C.B. ass'y	1	0, 1, 2, 3      C, H, J, K, L
6	* ZZPFWX1-A060	Down case	1	
7	* ZZPFWX1-A070	Partition board	1	
8	* ZZPFWX1-A080	Display board	1	
9	* ZZPFWX1-A090	Battery unit ass'y	1	
10	* ZZPFWX1-A100	Case ass'y	1	
11	* ZZPFWX1-A110	Mounting board	1	
12	* ZZPFWX1-A120	Strap	1	
				*5
13	* ZZPFWX1-A130	Battery charger	1	1      100V AC
	* ZZPFWX1-A131	Battery charger	1	2      115V AC
	* ZZPFWX1-A132	Battery charger	1	3      230V AC
				*7
14	* ZZPFWX1-A140	Carring case	1	A
15	* ZZPFWX1-A150	Key	2	
16	* ZZPFWX1-A160	Communication cable	1	

# BLOCK B Printer ass'y (option)



### BLOCK B Printer ass'y (option)

Item No.	Parts No.	Part Name	Q'ty	Remarks
1	* ZZPFXW1-B010	Cover	1	
2	* ZZPFXW1-B020	Printer upper case	1	
3	* ZZPFXW1-B030	P.C.B. unit	1	
4	* ZZPFXW1-B040	Condenser ass'y	1	
5	* ZZPFXW1-B050	Printer down case	1	
6	* ZZPFXW1-B060	Paper	1	
10	* ZZPFXW1-B100	Printer ass'y	1	

The logo for Fuji Electric, featuring the word "FUJI" in a bold, sans-serif font above the word "ELECTRIC" in a similar font, both in white on a black background.

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