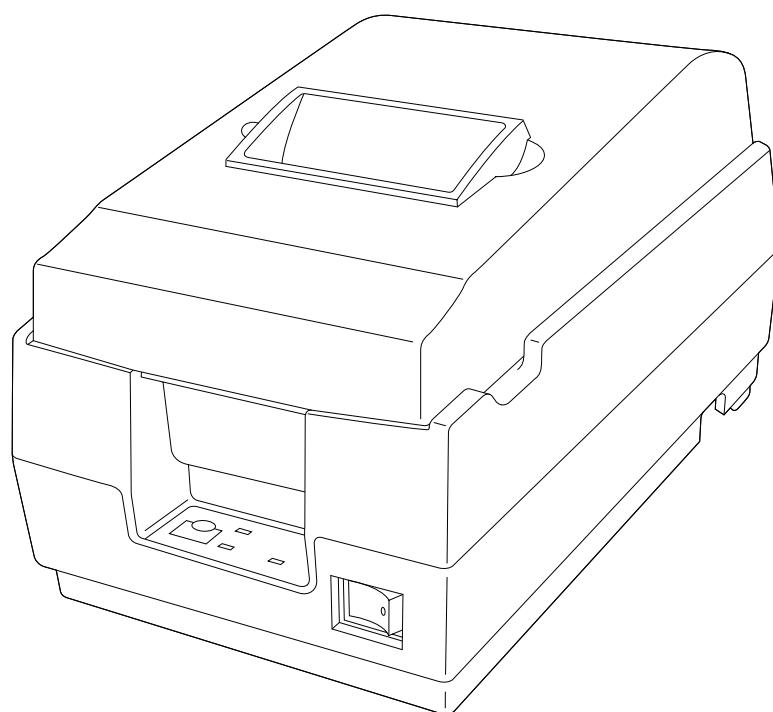


# TECHNICAL MANUAL

(without price)

## EXTERNAL PRINTER MODEL UP-250

FEB. 2000



**CASIO**®

# **CONFIDENTIALITY AGREEMENT**

**BY USING THIS DOCUMENT, YOU AGREE TO ABIDE BY THE TERMS OF THIS AGREEMENT. PLEASE RETURN THIS DOCUMENT IMMEDIATELY IF YOU DO NOT AGREE TO THESE TERMS.**

1. This document contains confidential, proprietary information of CASIO or its affiliates. You must keep such information confidential. If the user is a business entity or organization, you must limit disclosure to those of your employees, agents and contractors who have a need to know and who are also bound by obligations of confidentiality.
2. On the earlier of (a) termination of your relationship with CASIO, or (b) CASIO's request, you must stop using the confidential information. You must then return or destroy the information, as directed by CASIO.
3. If a court, arbitrator, government agency or the like orders you to disclose any confidential information, you must immediately notify CASIO. You agree to give CASIO reasonable cooperation and assistance in resisting disclosure.
4. You may use confidential information only for the purpose of operating or servicing the products to which the document relates, unless you obtain the prior written consent of CASIO for some other use.
5. CASIO warrants that it has the right to disclose the confidential information.  
CASIO MAKES NO OTHER WARRANTIES CONCERNING THE CONFIDENTIAL INFORMATION OR ANY OTHER INFORMATION IN THE DOCUMENT, INCLUDING (WITHOUT LIMITATION) ANY WARRANTY OF TITLE OR NON-INFRINGEMENT. CASIO has no liability for loss or damage arising from or relating to your use of or reliance on the information on the document.
6. You may not reproduce, store or transmit the confidential information in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise) without the prior written permission of CASIO.
7. Your obligations under this Agreement are in addition to any other legal obligations. CASIO does not waive any right under this Agreement by failing to exercise it. The laws of Japan apply to this Agreement.

## **FCC CLASS A**

### **FCC Compliance Statement**

#### **For American Users**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

#### **WARNING**

The connection of a non-shielded printer interface cable to this printer will invalidate the FCC Verification of this device and may cause interference levels which exceed the limits established by the FCC for this equipment.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

#### **FOR CANADIAN USERS**

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

#### **GEREÄUSCHPEGEL**

Gemäß der Dritten Verordnung zum Gerätesicherheitsgecsetz (Maschinenlärminformations- Verordnung-3. GSGV) ist der arbeitsplatzbezogene Geräusch-Emissionswert kleiner als 70 dB(A) (basierend auf ISO 7779).

# Introduction

PU-250 Series (Type B) printers are one-station printers for ECR and POS use that can print the results of weighing or measuring. The main features of the PU-250 Series (Type B) printers are the following:

High-speed printing through logic-seeking control

Excellent reliability and long life resulting from the use of two stepping motors, one for moving the carriage and one for paper feeding

Flexible paper feed setting permits printing in accordance with any user-defined format

Command protocol based on ESC/POS, a widely used standard

Built-in drawer kick-out interface provides capability to drive two drawers

Selectable character fonts (7 x 9, 9 x 9)

Semi-automatic paper loading capability

AC adapter (included) provides compact power supply

Compact and light in weight

Automatic Status Back (ASB) function to automatically send printer status changes

Auto-cutter equipped

Two-color printing: black and red are selectable.

## Notes and Cautions



### Note:

Notes have important information and useful tips on the operation of your printer.

### **⚠ CAUTION:**

Cautions must be observed to avoid damage to your equipment.

## CONTENTS

<b>Chapter 1 Features and General Specifications .....</b>	<b>1</b>
<b>Features .....</b>	<b>2</b>
Printing Specifications .....	2
Character Specifications .....	3
Paper .....	4
Auto-cutter .....	5
Paper Roll Supply Device .....	5
Receive Buffer .....	5
Electrical Specifications .....	5
Ribbon Cassette .....	5
External Dimensions and Weight .....	6
Environmental Specifications .....	6
Reliability .....	7
Safety Standards .....	7
Printer Installation Position .....	7
<b>Hardware Configuration .....</b>	<b>8</b>
<b>Main Unit Specifications .....</b>	<b>9</b>
Paper Feed Motor .....	9
Carriage Motor .....	9
Print Head Unit .....	9
Home Position Sensor .....	9
Paper End Detector .....	10
Paper Roll Near-end Detector (Optional) .....	10
<b>Connectors .....</b>	<b>10</b>
Interface Connector .....	10
Power Supply Connector .....	11
Drawer Kick-Out Connector .....	11
<b>Interface .....</b>	<b>13</b>
RS-232 Serial Interface .....	13
RS-485 Serial Interface (option) .....	16
IEEE 1284 Parallel Interface .....	16
<b>Buttons and Switches .....</b>	<b>19</b>
Power Switch .....	19
Panel Button .....	19
DIP Switches .....	20
<b>Panel LEDs .....</b>	<b>22</b>
<b>Self-test .....</b>	<b>22</b>
<b>Error Processing .....</b>	<b>23</b>
Printer Operation When an Error Occurs .....	23
Data Receive Error .....	23
<b>Buffer Full Printing .....</b>	<b>23</b>
<b>Detectors and Printing .....</b>	<b>23</b>
<b>Hexadecimal Dump .....</b>	<b>24</b>
Performing a Hexadecimal Dump .....	24
<b>Options .....</b>	<b>24</b>
External Power Supply PS-170 .....	25

## **Chapter 2 Mechanism Configuration and Operating Principles ..... 26**

<b>Printer Mechanism Operating Principles .....</b>	<b>26</b>
Print mechanism unit .....	27
Print head unit movement .....	28
Wire movement when a single dot is printed .....	28
Printing a character (9x9 font) .....	29
Paper Feed Mechanism Unit .....	30
Paper loading (semi-automatic loading) .....	31
Paper feeding .....	31
Ribbon Feed Mechanism Unit .....	32
Ribbon feeding .....	33
Detection Mechanism Unit .....	34
Home position detection mechanism .....	34
Paper detection mechanism .....	35
Paper roll near-end detection mechanism (optional) .....	35
Auto-cutter mechanism .....	35
<b>Ribbon Switch Mechanism Unit .....</b>	<b>36</b>
Switching from Black to Red .....	36
Releasing from Red to Black .....	36
<b>Electrical Circuitry Operating Principles .....</b>	<b>37</b>
Hardware Configuration .....	37
<b>Principles of Operation .....</b>	<b>41</b>
Power Supply Circuitry .....	41
Control Circuitry .....	42
CPU .....	43
Various detector circuits .....	46
Host interface circuit .....	47
Drawer kick-out drive circuit .....	47
DIP switch read circuit .....	48
<b>Printer Mechanism Driver Circuits .....</b>	<b>50</b>
Print head driver circuit .....	50
Paper feed motor driver circuit .....	51
Carriage motor driver circuit .....	51
Auto-cutter driver circuit .....	52

## **Chapter 3 Handling and Maintenance ..... 53**

<b>Handling Precautions .....</b>	<b>53</b>
Storage Precautions .....	53
Use Precautions .....	53
Paper Handling Precautions .....	53
Ribbon Cassette Handling Precautions .....	54
<b>Replacing the Paper Roll .....</b>	<b>54</b>
<b>Replacing the Ribbon Cassette .....</b>	<b>57</b>
<b>Removing Jammed Paper .....</b>	<b>60</b>
<b>Using the Power Switch Cover .....</b>	<b>64</b>
<b>Inspection and Maintenance .....</b>	<b>65</b>
<b>Cleaning .....</b>	<b>66</b>

<b>Lubricants .....</b>	<b>66</b>
Standard Lubrication .....	66
Lubricants .....	66
Lubrication Points .....	67
<b>Tool List .....</b>	<b>67</b>
<b>Chapter 4 Troubleshooting .....</b>	<b>68</b>
<b>Self-test .....</b>	<b>68</b>
Initiating the Self-test .....	68
Self-test Standby .....	68
Ending the Self-test .....	68
<b>Troubleshooting Flowchart .....</b>	<b>69</b>
<b>Troubleshooting Tables .....</b>	<b>76</b>
<b>Error Types and Countermeasures .....</b>	<b>82</b>
<b>Chapter 5 Disassembly, Assembly, and Adjustment .....</b>	<b>87</b>
<b>Small Part Specifications .....</b>	<b>87</b>
<b>Disassembly .....</b>	<b>88</b>
Removing the fuse .....	88
Removing the print head unit .....	89
Removing the auto-cutter .....	91
Removing the main circuit board assembly .....	92
<b>Sub-assembly A .....</b>	<b>94</b>
Paper feed frame unit assembly .....	94
<b>Main Assembly 1 .....</b>	<b>98</b>
Ribbon switch lever, ribbon release spring, ribbon release lever, ribbon intermediate gear, ribbon transmission gear, ribbon take-up assembly, and ribbon drive plate assembly .....	98
<b>Main Assembly 2 .....</b>	<b>100</b>
Tension plate assembly .....	100
<b>Main Assembly 3 .....</b>	<b>100</b>
Paper feed frame assembly .....	100
<b>Main Assembly 4 .....</b>	<b>101</b>
Carriage motor assembly .....	101
<b>Main Assembly 5 .....</b>	<b>102</b>
Carriage sub assembly .....	102
<b>Main Assembly 6 .....</b>	<b>103</b>
Carriage shaft assembly .....	103
<b>Main Assembly 7 .....</b>	<b>104</b>
Adjustment roller shaft holder assembly .....	104
<b>Main Assembly 8 .....</b>	<b>105</b>
Carriage guide shaft assembly .....	105
<b>Main Assembly 9 .....</b>	<b>105</b>
Belt tension spring assembly .....	105

<b>Main Assembly 10 .....</b>	<b>106</b>
Sensor assembly .....	106
<b>Main Assembly 11 .....</b>	<b>108</b>
Carriage motor heat sink assembly .....	108
<b>Main Assembly 12 .....</b>	<b>108</b>
Print head FPC assembly .....	108
<b>Main Assembly 13 .....</b>	<b>110</b>
Print head unit .....	110
<b>Main assembly 14.....</b>	<b>111</b>
Left cover fixing plate and right cover fixing plate .....	111
<b>Main Assembly 15 .....</b>	<b>112</b>
Ribbon frame earth plate .....	112
<b>Main Assembly 16 .....</b>	<b>113</b>
Ribbon frame assembly, ribbon frame spring, and ribbon frame fixing plate .....	113
<b>Main Assembly 17 .....</b>	<b>114</b>
Thumb-screw and head cover .....	114
<b>Main Assembly 1 (Case Unit) .....</b>	<b>115</b>
Lower cutter plate assembly .....	115
<b>Main Assembly 2 (Case Unit) .....</b>	<b>116</b>
Upper plate assembly .....	116
<b>Main Assembly 3 (Case Unit) .....</b>	<b>118</b>
Main circuit board assembly .....	118
<b>Main Assembly 4 (Case Unit) .....</b>	<b>119</b>
Inserting the cables .....	119
<b>Main Assembly 5 (Case Unit) .....</b>	<b>120</b>
Lower case assembly .....	120
<b>Main Assembly 6 (Case Unit) .....</b>	<b>121</b>
Manual cutter assembly and auto-cutter fixing plate .....	121
<b>Main Assembly 7 (Case Unit) .....</b>	<b>123</b>
Auto-cutter assembly .....	123
<b>Main Assembly 8 (Case Unit) .....</b>	<b>126</b>
Paper roll receive rollers, upper case, guide roller, and switch panel assemblies .....	126
<b>Main Assembly 9 (Case Unit) .....</b>	<b>128</b>
Interface circuit board assembly and connector plate .....	128
<b>Main Assembly 10 (Case Unit) .....</b>	<b>130</b>
Lower plate, ROM cover, and rubber foot assembly .....	130
<b>Main Assembly 11 (Case Unit) .....</b>	<b>131</b>
Main cover assembly .....	131
<b>Main Assembly 12 (Case Unit) .....</b>	<b>132</b>
Near-end detector assembly (optional).....	132
<b>Adjustment .....</b>	<b>134</b>
Platen gap adjustment .....	134

<b>Appendix .....</b>	<b>135</b>
<b>RS-485 Serial Interface .....</b>	<b>135</b>
<b>Main Circuit Board Parts Layout .....</b>	<b>140</b>
<b>RS-232 Serial Interface Circuit Board Parts Layout .....</b>	<b>141</b>
<b>IEEE 1284 Parallel Interface Circuit Board Parts Layout .....</b>	<b>142</b>
<b>RS-485 Serial Interface Circuit Board Parts Layout .....</b>	<b>143</b>
<b>Main Circuit Board Diagram .....</b>	<b>144</b>
<b>RS-232 Serial Interface Circuit Board Diagram .....</b>	<b>145</b>
<b>IEEE 1284 Parallel Interface Circuit Board Diagram .....</b>	<b>146</b>
<b>RS-485 Serial Interface Circuit Board Diagram .....</b>	<b>147</b>
<b>Printer Mechanism Unit Overall Exploded Diagram .....</b>	<b>148</b>
<b>Case Unit Overall Exploded Diagram .....</b>	<b>149</b>
<b>Printer Mechanism Unit Lubrication Points Diagram .....</b>	<b>150</b>
<b>Case Unit Lubrication Points Diagram .....</b>	<b>151</b>
 <b>Parts List .....</b>	 <b>152</b>
 <b>EXPLODED DIAGRAM FOR TM-U200B/U210B NO.1 .....</b>	 <b>154</b>
 <b>EXPLODED DIAGRAM FOR TM-U200B/U200PB/U210B/U210PB NO.2 .....</b>	 <b>155</b>

This is a “Table of Contents preview” for quality assurance

The full manual can be purchased from our store:

[https://the-checkout-tech.com/manuals/Casio/UP-250 external printer service manual.htm](https://the-checkout-tech.com/manuals/Casio/UP-250%20external%20printer%20service%20manual.htm)

And our free Online Keysheet maker:

<https://the-checkout-tech.com/Cash-Register-Keysheet-Creator/>

[HTTPS://THE-CHECKOUT-TECH.COM](https://THE-CHECKOUT-TECH.COM)