

SFG PRICE COMPUTING SCALE

RS-232C SERIAL INTERFACE

OP-03

INSTRUCTION MANUAL

AND
A&D Company, Limited

WM:PD4000191A



Contents

Introduction	2
Internal Circuit.....	2
Installation (OP-03)	3
Output Mode	4
Key Trigger Mode	4
Command Mode	6
Stream Mode	7
Label Printer Mode	8
Format description	8
RS-232C Baud Rate/Character Bit/Parity Bit	9
Price Computing Scale "F" Functions	10
"F" Function Mode	10
Setting "F" Functions	11



Introduction

THANK YOU FOR YOUR A&D PURCHASE

This manual will tell you in simple language how this option works and how to get the most out of it in terms of performance.

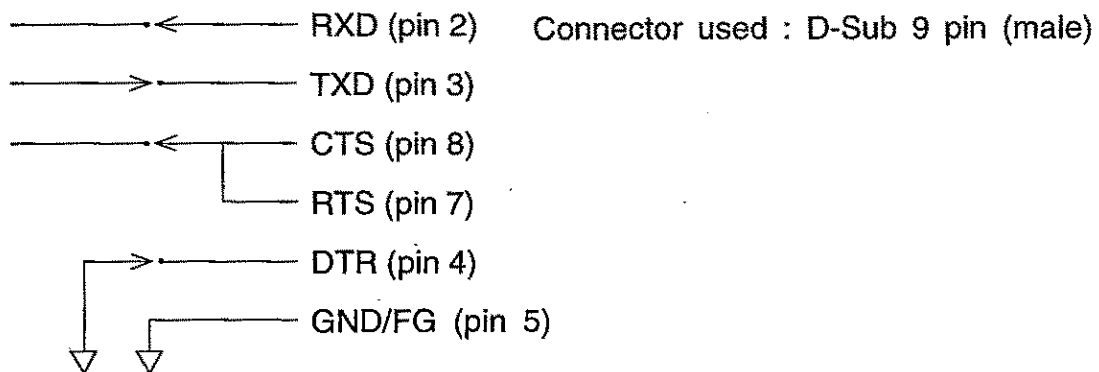
OP-03 RS-232C is the serial interface to connect the price computing scale to a cash register, to a personal computer, or to a label printer.

Before use, set the desired output mode in the price computing scale "F" functions mode.



Internal Circuit

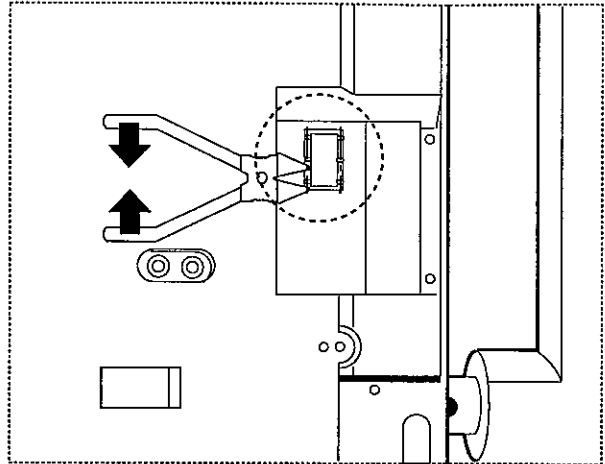
Price computing scale internal circuit



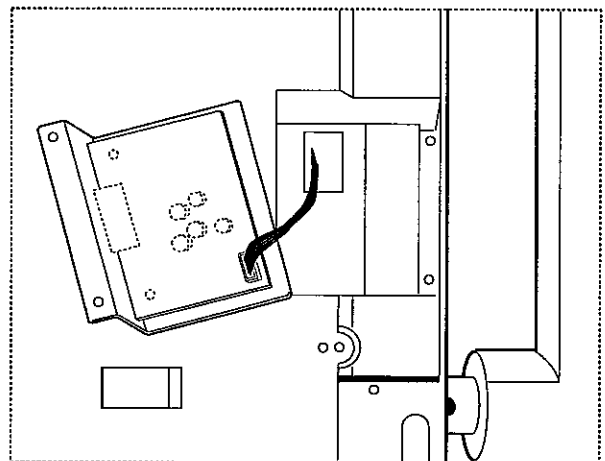


Installation(OP-03)

- (1) Turn the price computing scale to expose the bottom. Cut off the connector cover using a pair of nippers.

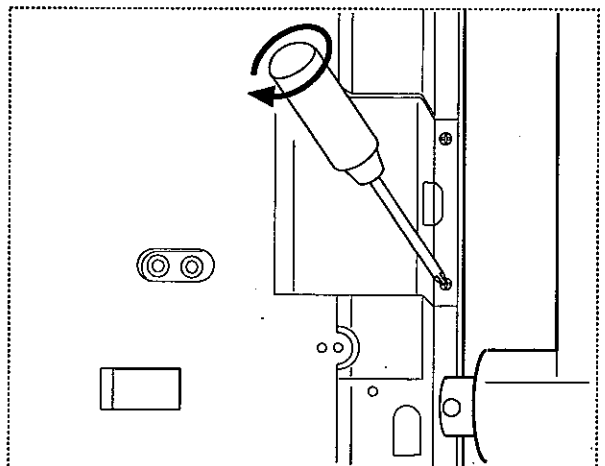


- (2) Connect the RS-232C to the price computing scale with the cable provided.



- (3) Secure the RS-232C to the price computing scale with the screws provided.

Screws provided:
M3 X 8 self tapping screws 2pcs





Output Mode

The price computing scale is provided with four output modes; Key Trigger Mode, Command Mode, Stream Mode, and Label Printer Mode.



Key Trigger Mode

When the [*] key on the price computing scale is pressed, data is output one time in the format specified by the "F" function output mode. Data is output only during the weighing operation.

[Output format]

Three output formats are available.

Output format 1 (F3=0):Price/Weight/Unit Price

SOH	STX	P7	P6	P5	P4	P3	P2	P1	P0	ETX	BCC
-----	-----	----	----	----	----	----	----	----	----	-----	-----

Price

STX	STA	SIGN	W5	W4	W3	W2	W1	W0	UN1	UN0	BCC	ETX
-----	-----	------	----	----	----	----	----	----	-----	-----	-----	-----

Weight

STX	U7	U6	U5	U4	U3	U2	U1	U0	ETX	BCC	SOH
-----	----	----	----	----	----	----	----	----	-----	-----	-----

Unit Price

Output format 2 (F3=1) :PLU number/Price

STX	41h	32h	M4	M3	M2	M1	M0	P5	P4	P3	P2	P1	P0	C	ETX
-----	-----	-----	----	----	----	----	----	----	----	----	----	----	----	---	-----

Output format 3 (F3=4) :With delay time

(This is for a printer that doesn't have a memory buffer.)

Output format 3 (F3=5) :Without delay time between data

(This is for a printer that has a memory buffer.)

Please use a printer that can print more than 25 characters on one line. (An A&D printer AD-8120 can be connected to the SF/SG.)

(1) Single transaction

1234567890123456789012345

kg	\$/ kg	\$
12. 345	1000. 00 =	12345. 00
kg	\$ /100g	\$
12. 345	100. 00 =	12345. 00
Qty	\$	\$
5 @	100. 00 =	500. 00

Weigh 12.345 kg and press [*].

Weigh 12.345 kg and press [*].

Enter a unit price, press [X],
press [5] and press [*].

(2) Using with a totaling function

1234567890123456789012345

kg	\$/ kg	\$
5. 00	2. 00 =	10. 00
4. 00	5. 00 =	20. 00
5. 00	3. 00 =	15. 00
	ERROR -	15. 00
6. 00	3. 00 =	18. 00
Qty	\$	\$
5 @	100. 00 =	500. 00
kg	\$/ kg	\$
6. 00	1. 23 =	7. 38
	TOTAL	555. 38
	TENDERED	600. 00
	CHANGE	44. 62

Weigh 5 kg and press [M+].

Weigh 4 kg and press [M+].

Weigh 5 kg and press [M+].

Press [MODE] & [CE]. (Cancel the last entry.)

Weigh 6 kg and press [M+].

Enter a unit price, press [X], press [5]
and press [M+]. (Non-weighed article)

Weigh 6 kg and press [M+].

Press [MODE] to show total amount.

Enter the money received and press [CHANGE],
then press [*] (Total amount is cleared.)

If [*] is pressed while showing TOTAL amount,
TOTAL amount is printed and cleared.



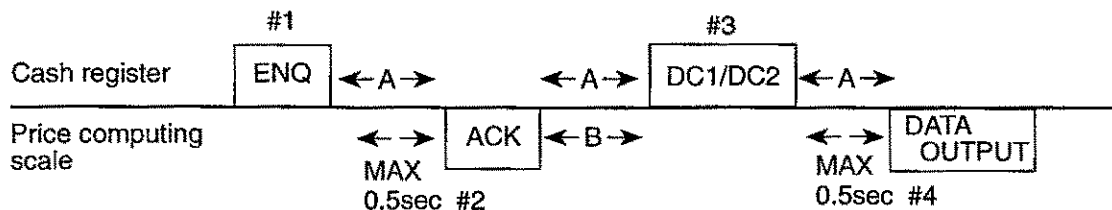
Command Mode

When the price computing scale receives the command to request data from cash register (or from the personal computer), data is output one time in the format as required.

[Command list]

ENQ : "05h"
DC1 : "11h"
DC2 : "12h"
ACK : "06h"

[Communication protocol]



#1: The cash register sends the "ENQ" command.

#2: The price computing scale sends "ACK" in response to "ENQ".

#3: The cash register sends "DC1/DC2", the command to request data.

#4: The price computing scale outputs data as requested in response to "DC1/DC2".

Notes *The price computing scale ignores any command other than those listed above if received. Any command received in the duration indicated by <A> will be ignored. The duration of is approximately three seconds. If the price computing scale does not receive "DC1/DC2" within three seconds, it will be in the state waiting for "ENQ".*

The maximum time the price computing scale needs to send back a command in response to the command received is 0.5 second.

The price computing scale responds to a command only during the weighing operation.

[Output format]

Two output formats are available.

Output format 1 (F3=2) :Weight

SOH	STX	STA	SIGN	W5	W4	W3	W2	W1	W0	UN1	UN0	BCC	ETX	EOT
-----	-----	-----	------	----	----	----	----	----	----	-----	-----	-----	-----	-----

Output format 2 (F3=2) :Price/Weight/Unit Price

SOH	STX	P7	P6	P5	P4	P3	P2	P1	P0	ETX	BCC
-----	-----	----	----	----	----	----	----	----	----	-----	-----

Price

STX	STA	SIGN	W5	W4	W3	W2	W1	W0	UN1	UN0	BCC	ETX
-----	-----	------	----	----	----	----	----	----	-----	-----	-----	-----

Weight

STX	U7	U6	U5	U4	U3	U2	U1	U0	ETX	BCC	SOH
-----	----	----	----	----	----	----	----	----	-----	-----	-----

Unit Price

[Data requesting command]

DC1:Outputs data in output format 1.

DC2:Outputs data in output format 2.



Stream Mode

Data is output at a constant rate of one time per second. Data is output regardless of the weight value status, but only during the weighing operation.

[Output format]

Output format (F3=3) :Price/Weight/Unit Price

SOH	STX	P7	P6	P5	P4	P3	P2	P1	P0	ETX	BCC
-----	-----	----	----	----	----	----	----	----	----	-----	-----

Price

STX	STA	SIGN	W5	W4	W3	W2	W1	W0	UN1	UN0	BCC	ETX
-----	-----	------	----	----	----	----	----	----	-----	-----	-----	-----

Weight

STX	U7	U6	U5	U4	U3	U2	U1	U0	ETX	BCC	SOH
-----	----	----	----	----	----	----	----	----	-----	-----	-----

Unit Price



Label Printer Mode

When the [✳] key on the price computing scale is pressed, data is output one time in the format specified by the "F" function output mode. Data is output only during the weighing operation.

[Output format]

Output format (F3=8): PLU number/Unit Price/Weight/Price

STX	MA	M3	M2	M1	M0	U7	U6	U5	U4	U3	U2	U1
U0	STA	SIGN	W5	W4	W3	W2	W1	W0	UN1	UN0	P7	P6
P5	P4	P3	P2	P1	P0	ETX	BCC					



Format description

SOH	:Command	"01h"	
STX	:Command	"02h"	
STA	:Weight value status	Stable="53h"(S)	Unstable="55h"(U)
SIGN	:Weight value polarity	Zero or positive="20h"(SP)	Negative="2dh"(-)
W5-W0	:Weight value	All"46h"(F) when overload	
UN1	:Unit 1	g="20h"(SP) kg="6bh"(K)	lb="6ch"(l)
UN0	:Unit 2	"67h"(g) "67h"(g)	"62h"(b)
BCC	:Parity		even
ETX	:Command	"03h"	
EOT	:Command	"04h"	
Px-P0	:Price		
U7-U0	:Unit Price		
M4-M0	:PLU number	"99999" when PLU numbers are not used.	
C	:Check point(Check digit)		



RS-232C Baud Rate/Character Bit/Parity Bit

Use the price computing scale "F" functions mode to specify baud rate, character bit, and Parity bit. Stop bit is fixed to 1 bit.

[Baud Rate]

Available bits are 600 bps, 1200 bps, 2400 bps, 4800 bps and 9600 bps.

[Character bit/Parity bit]

Available bits are 7 bits/Even and 8 bits/Non parity.



Price Computing Scale "F" Function

Settings are performed in the "F" functions (user) mode.



"F" Function Mode

F1	:Auto display off	0:Yes 1:No
F2	:Changing the setting of "unit price cancellation near zero"	0:Yes 1:Not canceled 2:Cancel
F3	:Output mode	0:Key trigger mode: Output format 1 1:Key trigger mode: Output format 2 2:Command mode 3:Stream mode 4:Key trigger mode: Output format 3 with delay 5:Key trigger mode: Output format 3 without delay 6:Not used 7:Not used 8:Label printer mode
F4	:Baud rate	0:600 bps 1:1200 bps 2:2400 bps 3:4800 bps 4:9600 bps
F5	:Character bit/Parity bit	0:7bit / even 1:8bit / non party
F6 and F7	:Not used	Normally F6=0, F7=1



Setting "F" Functions

While holding down the [ZERO] key, turn on the power switch located on the left side. "F 1-" appears in the unit price display, indicating that the price computing scale is in the "F" functions mode.

Use the following keys as described to specify the desired "F" function number.

[Numeric key pad] :Enters a "F" function number.(Up to two digits)

[*] :Confirms the "F" function number entered. Pressing the [*] key displays "FXX-YY" with the current setting in YY when the correct function number is entered with the numeric key pad; or displays "Err 1" for approximately two seconds and returns to the previous display if a non-existing function number is entered.

[C] :Clears the number entered with the numeric key pad and returns to the previous display.

[MEM] :Writes the settings into EEPROM (memory) and terminates the "F" functions mode.

With "FXX-YY" displayed as described above, set data (YY) for the selected function number (FXX) using the following keys.

[Numeric key pad] :Enters a data number. (Up to two digits)

[*] :Confirms the data number. Pressing the [*] key proceeds to the next setting when the correct data number is entered with the numeric key pad; or displays "Err 2" for approximately two seconds and returns to the previous display if a non-existing data number is entered.

[C] :Clears the number entered with the numeric key pad and returns to the previous display.

[MEM] :Writes the setting into EEPROM (memory) and terminates the "F" functions mode. The [MEM] key is not valid during entering operation with the numeric key pad.

"FXX-" :Indicates the "F" function number.

"FXX-YY" :Indicates the data number.