PW-200RS POS/ECR INTERFACE

1. POS/ECR INTERFACE

1.1 POS/ECR Interface

PW-200RS POS/ECR Version can
interface with most POS/ECRs by selecting TYPE 0 to TYPE 6.
(TYPE 0, 2, 4, 5, 6)

1.2 POS/ECR Type Selection

(1) Make sure that power is OFF . While pressing the [Tare] key, and turn on the power.
then current POS/ECR type is shown on the display as “1 00”.
POS/ECR-TYPE 0.

(2) If you want to change POS/ECR type then press 'TARE' key to change
POS/ECR Type.

(3) To save current POS/ECR type, press the [UNIT] key.

Table 1

DISPLAY	MENU	Description / RS-232C Serial
“1 00”	POS/ECR -TYPE 0	Most P.O.S, ECRs and Some TEC P.O.S System / 9600 Baud rate, 7 Data bit, Even Parity, 1Stop bit
“1 02”	POS/ECR -TYPE 2	SHARP ER-Axxx, ER-A450T, New SANYO ECRs using RS-232 and others /9600 Baud rate, 7 Data bit, Even Parity, 1Stop bit
“1 04”	POS/ECR -TYPE 4	CRS, NCR2170 and Many other ECRs,Most P.O.S Software / 9600 Baud rate, 7 Data bit, Even Parity, 1Stop bit
“1 05”	POS/ECR -TYPE 5	NCI Genral, SAMSUNG SPS-300, ER-900, Most P.O.S Software / 9600 Baud rate, 7 Data bit, Even Parity, 1Stop bit
“1 06”	POS/ECR -TYPE 6	SAMSUNG ER-670, ER-5100, SPS-520, Most P.O.S Software / 9600 Baud rate, 8 Data bit, Non Parity, 1Stop bit

2. INTERFACE WITH EXTERNAL DEVICE

2.1 INTERFACE with RS-232C

PC or ECR, D-SUB 9 pin(Female)		PW-200RS POS/ECR Version, RS232C Cable 9 pin(Male)
Pin 2 (RXD)	-------------------	Pin 2 (TXD)
Pin 3 (TXD)	-------------------	Pin 3 (RXD)
Pin 5 (GND)	-------------------	Pin 5 (GND)

2.1.1 TYPE-0 INTERFACE

→ Most P.O.S Systems, POS/ECRs and some TEC P.O.S Systems

1) PROTOCOL.

EXTERNAL DEVICE		SCALE (PW-200RS POS/ECR Version)
<ENQ>	------------→	Initiate communication
	←------------	<ACK> : Acknowledge the request of weight data
<DC2>	------------→	Request of weight data
•••		Inquiry
	←------------	<STX> : Start Transmission
	←------------	<ID> : Scale type identifier
	←------------	<W5> : Weight data
	←------------	<W4> : Weight data
	←------------	<W3> : Weight data
	←------------	<W2> : Weight data
	←------------	<W1> : Weight data
	←------------	<BCC> : Block Check Character
	←------------	<ETX> : End Transmission

i> Scale Type Identifier

2kg -> G (47H)	-
5kg -> H (48H)	5lb -> K (4BH)
6kg -> C (43H)	-
10kg -> I (49H)	10lb -> L (4CH)
15kg -> A (41H)	15lb -> F (46H)
20kg -> J (4AH)	20lb -> M (4DH)
25kg -> P (50H)	-
30kg -> B (42H)	30lb -> D (44H)
-	50lb -> N (4EH)
60kg -> O (4FH)	60lb -> E (45H)

ii> Block Check Character
: <BCC> has all data bytes except <STX> and <ETX> through exclusive OR(XOR).

* Parity Bit : Even

- Data Byte : STX><ID><W5><W4><W3><W2><W1><BCC><ETX>

▶ Response time: Typ. 50ms, Max. 150ms

2.1.2 TYPE-2 INTERFACE

: Discontinual RS-232C Interface
→ SHARP ER-AXXX, ER-A450T, New SANYO ECRs using RS-232C, TOLEDO 3213 etc

1) PROTOCOL.

POS/ECR SCALE(PW-200RS POS/ECR Version)

Command ----------→
<W>

←---------- Response

<STX> XXXXXX <CR> : weight data (lb, oz, g, kg)
Error message : <STX>?<status byte><CR>

STATUS BYTE

PARITY BIT	ALWAYS==1		ZERO		MINUS	OVERLOAD	MOTION
Bit 7	Bit 6	Bit 5	Bit 4	Bit3	Bit 2	Bit 1	Bit 0

cf) W : 57H (ASCII code)
STX : 02H (ASCII code)
CR : ODH (ASCII code)

Ex) Weight : 12.34 lb

```
POS/ECR      SCALE
 W<57H>      ------>
             <------  <02H><30H><30H><31H><32H><33H><34H><0DH> : ASCII code
                        STX   0    0    1    2    3    4    CR
```

Ex) Weight : 423.5 oz

```
POS/ECR    SCALE
W<57H>     ------>
           <------  <02H><30H><30H><34H><32H><33H><35H><0DH>  : ASCII code
                      STX   0    0    4    2    3    5    CR
```

▶ Response time: Typ. 50ms, Max. 150ms

3.1.1 TYPE-4 INTERFACE

→ CRS, NCR2170 and Many other ECRs, Most P.O.S Software
/ 9600 Baud rate, 7 Data bit, Even Parity, 1Stop bit

1) PROTOCOL

```
<W>           ------------>
<CR>          ------------>
    ......................................................... Inquiry
              <------------     <LF> XX.XXX lb <CR>
              <------------     <LF> S b1b2 <CR><ETX>
    ......................................................... lb CASE
              <------------     <LF> XX.XXX  kg <CR>
              <------------     <LF> S b1b2 <CR><ETX>
```

(A) XX.XXX = Weight value (Decimal point: variable)
(B) lb = The Characters l and b
(C) kg = The Characters k and g
(D) oz = The Characters o and z
(E) S = The Character S
(F) b1b2 = Two status Characters

i> Status Bytes

Bit7	Parity Bit	Parity Bit
Bit6 0		0
Bit5	1 (Always 1)	1 (Always 1)
Bit4	1 (Always 1)	1 (Always 1)
Bit3 0		0
Bit2 0		0
Bit1	1 = Scale at Zero 0 = Not at Zero	1 = Over Capacity 0 = Not Over Capacity
Bit0	1 = Scale in Motion 0 = Stable	1 = Under Capacity 0 = Not Under Capacity

ii> Simplified Status Codes

B1	B2	STATUS Definition
ASCII Character (ASCII Code)	ASCII Character (ASCII Code)	
0 (30H)	0 (30H)	OK
1 (31H)	0 (30H)	Motion
2 (32H)	0 (30H)	Scale at Zero
0 (30H)	1 (31H)	Under capacity
0 (30H)	2 (32H)	Over capacity

▶ Response time: Typ. 50ms, Max. 150ms

3.1.2 TYPE-5 INTERFACE

→ NCI Genral, SAMSUNG SPS-300, ER-900, Most P.O.S Software /
9600 Baud rate, 7 Data bit, Even Parity, 1Stop bit

1) PROTOCOL

<W> ----------→
<CR> ----------→

..... Inquiry

←---------- <LF> XX.XXX LB <CR>
←---------- <LF> b1b2 <CR><ETX>

..... lb CASE

←---------- <LF> XX.XXX KG <CR>
←---------- <LF> S b1b2 <CR><ETX>

(G) XX.XXX = Weight value (Decimal point: variable)
(H) LB = The Characters L and B
(I) KG = The Characters K and G
(J) OZ = The Characters O and Z
(K) b1b2 = Two status Characters

i> Status Bytes

Bit7	Parity Bit	Parity Bit
Bit6 0		0
Bit5	1 (Always 1)	1 (Always 1)
Bit4	1 (Always 1)	1 (Always 1)
Bit3 0		0
Bit2 0		0
Bit1	1 = Scale at Zero 0 = Not at Zero	1 = Over Capacity 0 = Not Over Capacity
Bit0	1 = Scale in Motion 0 = Stable	1 = Under Capacity 0 = Not Under Capacity

ii> Simplified Status Codes

B1	B2	STATUS Definition
ASCII Character (ASCII Code)	ASCII Character (ASCII Code)	
0 (30H)	0 (30H)	OK
1 (31H)	0 (30H)	Motion
2 (32H)	0 (30H)	Scale at Zero
0 (30H)	1 (31H)	Under capacity
0 (30H)	2 (32H)	Over capacity

iii> Weight Data Decimal point (Type 4, 5)

kg	position	lb	position	oz	position
2 kg	X.XXX	5 lb	X.XXX	80 oz	XX.XX
5 kg	X.XXX	10 lb	XX.XXX	160 oz	XXX.X
10 kg	XX.XXX	20 lb	XX.XX	400 oz	XXX.X
20 kg	XX.XX	50 lb	XX.XX	800 oz	XXX.X
30 kg	XX.XX	60 lb	XX.XX	1000 oz	XXXX.X

▶Response time: Typ. 50ms, Max. 150ms

3.1.3 TYPE-6 INTERFACE

→ SAMSUNG ER-670, ER-5100, SPS-520, Most P.O.S Software
/ 9600 Baud rate, 8 Data bit, Non Parity, 1Stop bit

1> PROTOCOl

EXTERNAL DEVICE		SCALE(PW-200RS POS/ECR Version)
<ENQ>	----------→	Initiate communication
	←----------	<ACK> : Acknowledge the request of weight data
<DC1> or <DC2>	----------→	DC1 : For Weight Data DC2 : For All Data(PW-200RS NOT USE)
	←----------	S end Data Block

1> The Data Trains

1. “DC1

SOH	STX	STA	SIGN	W4	W3	‘.’ (2Eh)	W2	W1	W0	UN1	UN0	BCC	ETX	EOT
Command DA		TA BLOCK										Command		

- Remark

- STA : A WEIGHING STATUS OF THE SCALE
  SCALE IS STABLE →”S”, NOT STABLE → “U”

- SIGN : SIGN OF THE WEIGHT DATA
  ZERO AND POSITIVE WEIGHT → “ “ , NEGATIVE WEIGHT → “-“ OVER LOAD → “F”

- W5 THROUGH W0 → WEIGHT DATA
  BUT ALL “F” WHEN THE SCALE IS PUT ON OVER LOAD.

- UN1 THROUGH UN0 → UNIT OF WEIGHT (lb, oz, g, kg)

- BCC : BLOCK CHECK CHARACTER

▶ Response time: Typ. 50ms, Max. 150ms