SW ECR PROTOCOL

1. ECR INTERFACE

1.1 ECR Interface

SW ECR Version can interface with most ECRs by selecting TYPE 0 to TYPE 6.
(TYPE 0, 2, 4, 5, 6)

1.2 ECR Type Selection

(1) Make sure that power is OFF . While pressing the [ZERO] key, and turn on the power. The display will show "U SEt". Press the [ZERO] And then current ECR type is shown on the display as “TYP 6”.
(2) If you select ECR type 5, press the [TARE] key until the display shows it. (Refer to Table 1.)
(3) To save current ECR type, press the [ZERO] key. The display will show "AP OF". Press the [ZERO] key again.

Table 1

	MENU	Description
		RS-232 Serial
	ECR-TYPE 0	Most P.O.S, ECRs and Some TEC P.O.S System
	ECR-TYPE 1 (SW not use)	
	ECR-TYPE 2	SHARP ER-Axxx, ER-A450T, New SANYO ECRs using RS-232 and others
	ECR-TYPE 3 (SW not use)	Most P.O.S System
	ECR-TYPE 4	CRS, NCR2170, SAMAUNG ER-5100, ER5115 and Many other ECRs
	ECR-TYPE 5	NCI General. SAMSUNG ER-5100 Most P.O.S Software
	ECR-TYPE 6	SAMSUNG ER-670
	ECR-TYPE7 (SW not use)	SAMSUNG ECR(SPAIN)

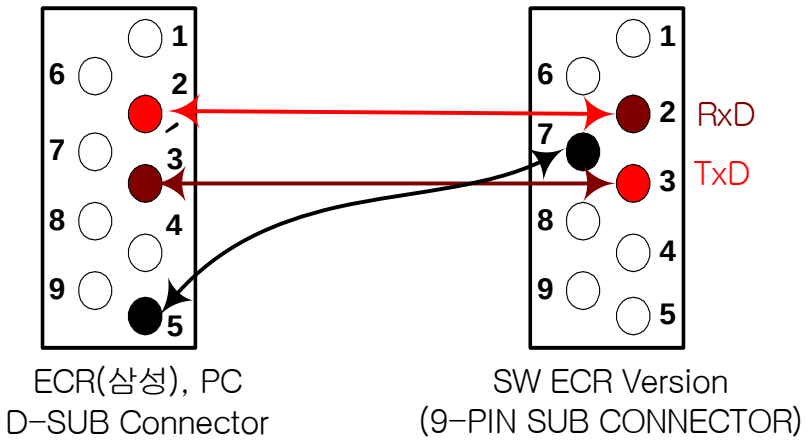
※ Serial Communication

→ 9600 Baud rate, 7 Data bit, Even Parity, 1 Stop bit

(TYPE-6: 9600 Baud rate, 8 Data bit, None Parity, 1 Stop bit)

2 INTERFACE WITH EXTERNAL DEVICE

2.1 INTERFACE with RS-232C



➔ 7-BIT ASCII code

➔ Even parity

➔ 1 stop bit

➔ 9600 baud rate

2.1.1 TYPE-0 INTERFACE

➔ Most P.O.S Systems, ECRs and some TEC P.O.S Systems.

1) PROTOCOL

EXTERNAL DEVICE SCALE(SW ECR Version)

<ENQ> -- ----------→ Initiate communication

<DC2> -- ----------→ Request of weight data

←---------- < ACK> : Acknowledge the 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

: Disco ntinual RS-232C Interface

➔ SHARP ER-AXXX, ER-A450T, New SANYO ECRs using RS-232,TOLEDO 3213 etc.

1) PROTOCOL

ECR SCALE(S W ECR Version)

Command ---------- →

<W>

←---------- R esponse

<STX> XXXXX <CR> : weight data (kg, lb, oz)

Error message : <S TX>?<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

ECR SCALE

W<57H> -- ----→

←------ <02H><30H><31H><32H><33H><34H><0DH> : ASCII code

STX 0 1 2 3 4 CR

Ex) Weight : 423.5 oz

ECR SCALE

W<57H> -- ----→

←------ <02H><30H><31H><32H><33H><34H><0DH> : ASCII code

STX 4 2 3 5 0 CR

※Response time: Typ. 50ms, Max. 150ms

3.1.1 TYPE-4 INTERFACE

➔ NCI ECR(NCR2170), SAMSUNG ER-5100,ER-5115, CRS .etc

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 = T wo status Characters

i> S tatus 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. 100ms, Max. 300ms

3.1.2 TYPE-5 INTERFACE

➔ NCI GENERAL , SAMSUNG ER-5115, ER-5100 and Most P.O.S Software

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 = T wo status Characters

i> S tatus 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> W eight Data Decimal point (Type 4, 5)

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

※Response time: Typ. 100ms, Max. 300ms

3.1.3 TYPE-6 INTERFACE

- ➔ 8 Data bit
- ➔ Non eparity
- ➔ 1 stop bit
- ➔ 9600 baud ate
- ➔ SAMSUNG ECR (ER-670)

1> PROTOCOl

EXTERNAL DEVICE SCALE(SW ECR Version)

<ENQ> ----- -------→ Initiate communication

←---------- < ACK> : Acknowledge the request of weight data

<DC1> or <DC2> --- ---------→ DC1 : For Weight Data

DC2 : For All Data **(SW NOT USE)**

←---------- S end Data Block

1> The Data Trains

1. “DC1”

SOH	STX	STA	SIGN	W5	W4	W3	W2	W1	W0	UN1	UN0	BCC	ETX	EOT
Command DA		TA BLOCK										Command		

- Rema rk

- 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 (Kg ,Lb,oz)
- BCC : BLOCK CHECK CHARACTER

※Response time: Typ. 50ms, Max. 150ms