



PD-II PROTOCOL MANUAL



1. ECR INTERFACE

1.1 ECR Interface

PD-II can interface with most ECRs by selecting TYPE 0 to TYPE 6.

1.2 ECR Type Selection

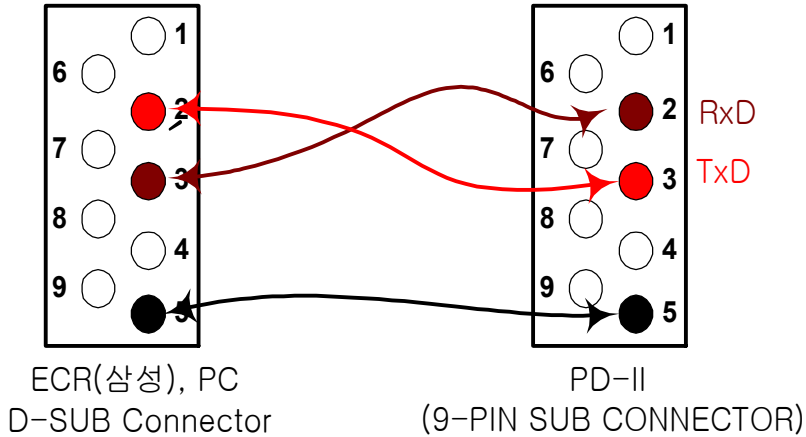
- (1) Make sure that power is OFF. While pressing TARE key, turn on the power. “EcrSEt” is shown on the display. And then current ECR type is shown on the display as “tYPE-2.
- (2) If you select ECR type 5, press the TARE key until the display shows it. (Refer to Table 1.)
- (3) To save current ECR type, press the ZERO key.

Table 1

	MENU	Description	
		RS-232 Serial	Serial Communication
	ECR-TYPE 0	Most P.O.S, ECRs and Some TEC P.O.S System	9600 Baud rate, 7 Data bit Even Parity, 1 Stop bit
	ECR-TYPE 1		
	ECR-TYPE 2	SHARP ER-Axxx, ER-A450T, New SANYO ECRs using RS-232 and others	
	ECR-TYPE 3	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-TYPE 7	SAMSUNG ECR(SPAIN)	
	ECR-TYPE 8	SAMSUNG(PORTUGAL)	
	ECR-TYPE 9	Sharp UP-700	2400 Baud rate, 7 Data bit Odd 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-2 INTERFACE

: Discontinual RS-232C Interface

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

1) PROTOCOL

ECR

SCALE(PD-II)

Command ----->

<W>

←----- Response

<STX> 0XXXX <CR> : lb weighing mode

or <STX> XXXXX <CR> : kg weighing mode

Error message : <STX>?<status byte><CR>

Ex)

Weight : 12.34 lb

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ECR                SCALE
W<57H>  ----->
          <-----><02H><30H><31H><32H><33H><34H><0DH> : ASCII code
                STX  0   1   2   3   4   CR
                <02H><30H><30H><30H><30H><30H><0DH> : ASCII code
                STX  0   0   0   0   0   CR
          <-----><02H><3FH><44H><0DH>
                STX  ? MINUS CR
  
```

2) TRANSMISSION PROCEDURE

- (1) PD-II sends data to External Device whenever weight is changed after receiving <W> signal from the External Device.
- (2) PD-II stops sending data when receives <CR> signal from the External Device.

External Device

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<W>  ----->
          <-----> DATA (If weight is changed)
          <-----> DATA (If weight is changed)
<CR>  ----->          Stop transmitting data
  
```

2.1.3 TYPE-0 and TYPE-1 INTERFACE

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

1) PROTOCOL

EXTERNAL DEVICE	SCALE(PD-II)
<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

41H = 15 kg	44H = 30 lb
43H = 6 kg	46H = 15 lb
NA = 3 kg	NA = 6 lb
42H = 25 kg	45H = 50 lb

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>

2.1.4 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

(B) LB = The Characters L and B

- (C) KG = The Characters K and G
- (D) S = The Character S
- (E) 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

2.1.5 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>

- (F) XX.XXX = Weight value
- (G) LB = The Characters L and B
- (H) KG = The Characters K and G
- (I) 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

2.1.8 TYPE-8 INTERFACE

→ SAMSUNG (PORTUGAL)

1) PROTOCOL

<W> ----->

<CR> ----->

..... Inquiry

←----- <LF> XXX.XX KG <CR>

←----- <LF> S00 <CR><ETX>

..... Ib CASE

←----- <LF> XX.XXX KG <CR>

←----- <LF> S b1b2 <CR><ETX>

I> XXX.XX = Weight value

II> KG = The Characters K and G

III> S = The Character S

IV> 00 = <30H><30H>

2.1.9 TYPE-9 INTERFACE

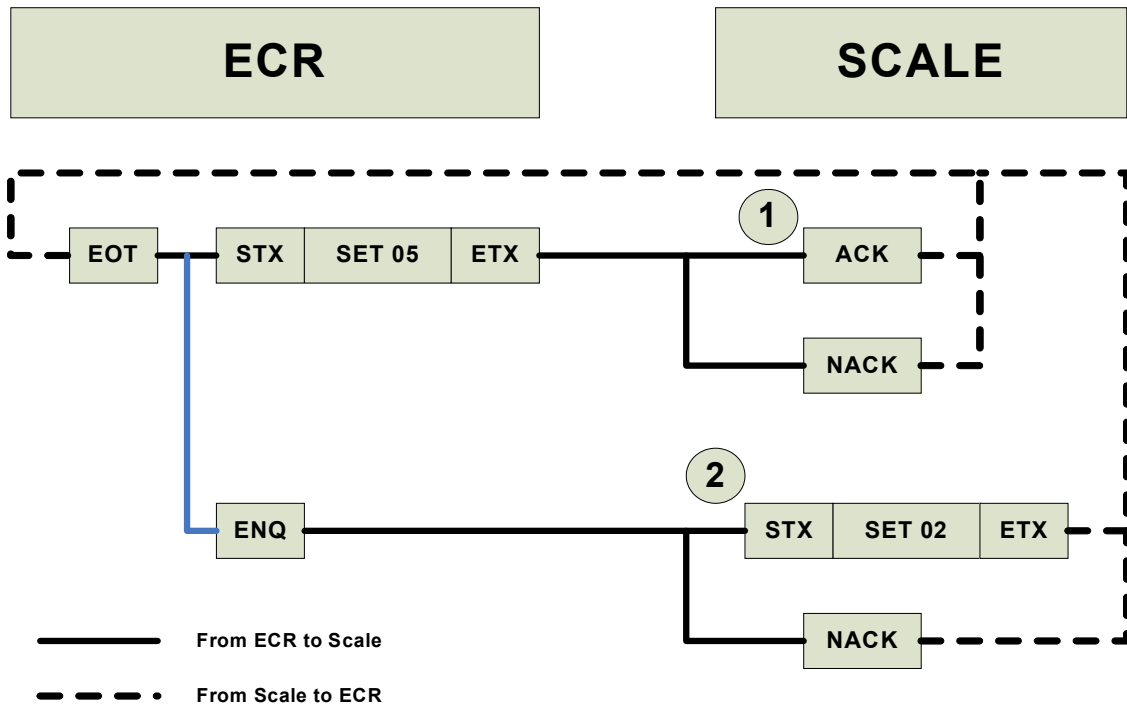
→ Sharp ECR (UP-700)

1) Data format and speed of transmission.

- Speed transmission : 2400bps
- Type of Transmission : asynchronous
- Data format : 7 Bit + Parity
- Parity : Odd
- Stop bits : 1 Bit
- Connection

Scale ECR
 TxD 3 : ----- : 2 RxD
 RxD 2 : ----- : 3 TxD
 GND 5 : ----- : 5 GND

2) Protocol



Communication : ① → ②

