SHARP

Cover your RS !
with the
ER-A550 RS-232C options and peripherals guide

Retail and Financial Systems Division
ER-A550

first edition
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OVERVIEW

The New ER-A550 model ECR offers the Authorized Sharp Dealer a new feature platform that exceeds that of the the ER-3100s. This section of documentation is going to address the RS232 portion of the ER-A550. This mid-ranged ECR introduces a suitable architecture for the hospitality market place. In order to correctly configure your system utilizing the ER-A550's potentials, you must first understand exactly what each option provides.

ER-A550 Options list:

* **ER-A55R1 (installed in I.C. socket #4)**
  Is the control ROM that must be installed when one or both (ER-A5IN and/or ER-A5RS) are installed.

* **ER-A5IN**
  Has three (3) ports defined as follows;

  - 2 ports are used for In/out IRC communications. (DB-9 pin female type)
  - 1 port can be used for RS-232 type communication (DB-9 pin male type)

* **ER-A5RS**
  Has two (2) ports defined as follows;

  - 2 ports can be used for RS-232 type communications. (DB-9 pin male type)

In summary, with the above options installed, along with IRC, the ER-A550 can have a maximum of three (3) RS-232 type ports at any one time. The RS-232 type ports can be designated for use with one of the following peripherals and should be taken into consideration when configuring the ER-A550 model ECR.

RS-232 type options:

* **Scale.**
* **Coin Dispenser.**
* **ER-02RP serial remote printer.**

Note: The ER-02RP kitchen printer is one-to-one for each ER-A550 unless third party offerings are installed.

* **Print "All data" function.**
* **Host P.C. communications.**

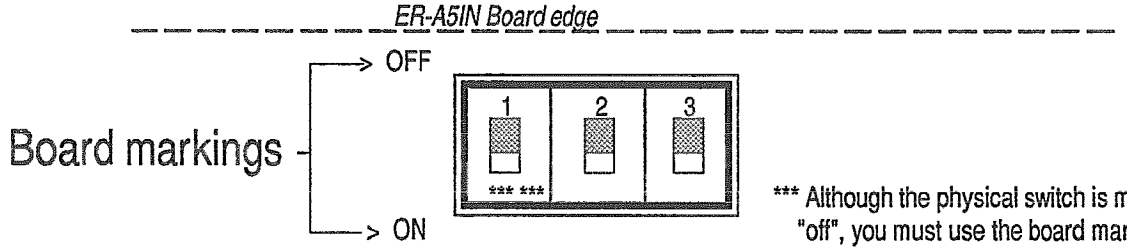
RS-PORT CHANNEL NUMBER ASSIGNMENT

Although you are capable of assigning RS-port channel numbers to each RS-type peripheral, the physical port(s) on the ER-A550 option boards must be assigned their respective numbers through dipswitch settings for each RS port. Please note these switch settings and the cautions listed below for the ER-A550 option boards.

Caution !!! - *Options should be installed with the AC power removed.*
- *When setting the channel numbers for the RS ports of the ER-A5IN and the ER-A5RS,* ***DO NOT set any two ports amongst these boards with the same channel number.***

ER-A5IN board (RS-port):

Switch arrangement:



*** Although the physical switch is marked "off", you must use the board markings when selecting a switch to be placed in the "on" position.

Switch settings:

The RSCN connector channel number is set by arranging the switches on SW-2:

#1	#2	#3	Channel # designation
off	off	off	invalid
on	off	off	Channel-#1
off	on	off	Channel-#2
on	on	off	Channel-#3
off	off	on	Channel-#4
on	off	on	Channel-#5
off	on	on	Channel-#6
on	on	on	Channel-#7

RS-PORT CHANNEL NUMBER ASSIGNMENT

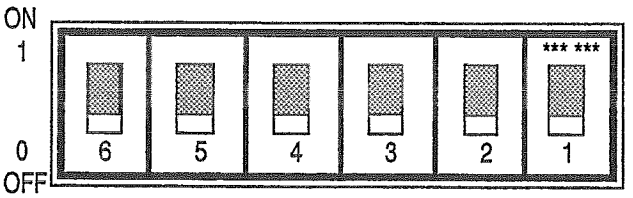
Caution !!! *- Options should be installed with the AC power removed.*
- When setting the channel numbers for the RS ports of the ER-A5IN and the ER-A5RS, ***DO NOT set any two ports amongst these boards with the same channel number.***

ER-A5RS board:

The RSCN -1 and RSCN -2 connector channel numbers are set by arranging the switches on SW-1. The SW-1 is a six (6) switch bank. Switches 1 thru 3 control the channel number designation for the RSCN-1 RS-port and switches 4 thru 6 control the channel number assignment for the RSCN-2 RS-port.

Switch arrangement:

ER-A5RS Board edge



*** Although the physical switch is marked "off", please refer to the illustration when selecting a switch to be placed in the "on" position.

Switch settings:

RSCN-2

#6	#5	#4	Channel # designation
off	off	off	invalid
off	off	on	Channel-#1
off	on	off	Channel-#2
off	on	on	Channel-#3
on	off	off	Channel-#4
on	off	on	Channel-#5
on	on	off	Channel-#6
on	on	on	Channel-#7

RSCN-1

#3	#2	#1	Channel # designation
off	off	off	invalid
off	off	on	Channel-#1
off	on	off	Channel-#2
off	on	on	Channel-#3
on	off	off	Channel-#4
on	off	on	Channel-#5
on	on	off	Channel-#6
on	on	on	Channel-#7

Table of contents

Programming principles

This document is designed and written to help you learn the SRV and PGM mode presets associated to the RS-232C features of the ER-A550. Please read the following pages which include extensive cross references between the SRV and PGM mode jobs.

SRV mode

The service mode procedures with each RS-232 option section are listed in "bullet" statement fashion and relate directly to the option being discussed. For a complete detailed explaination of all the SRV mode job options, please refer to the ER-A550 SRV Mode Sales Training Manual.

PGM mode

The PGM-1 mode jobs are 4-digit jobs that begin with a "1" (ie., 1110, 1211, etc.). PGM-2 programming jobs are those 4-digit jobs that begin with any other number than "1" (ie., 2118, 2218, 6510, etc.). You may enter PGM-1 jobs while the mode key is placed in the PGM-2 position. You can not enter PGM-2 jobs while the mode key is in the PGM-1 position.

Except where otherwise noted, the programming entry sequence is the same as that of previous Sharp ECRs. When entering the option selections for PGM jobs, it is necessary to enter trailing zeroes to obtain the correct settings.

The PGM mode section of this document is detailed and should provide you the necessary information to successfully install and operate the RS-type peripherals available for the ER-A550 model ECR. You should refer to the standard operations manual for further details regarding the standard PGM job selections for the ER-A550.

Scale

Purpose:

In those environments that offer food items priced by weight, the is possible to automate key operations through the interfacing of the ER-A550 with a serial scale. The advantage that the ER-A550 has is that when a PLU item is placed on the keyboard and selected as scale type entry "compulsory", it is not necessary to use the [Scale] key in order to ring-up the item placed on the scale. A simple depression of the direct PLU weighs and records the price as programmed.

Hardware requirements

- ER-A550 ECR.
- ER-A55R1 control ROM
- ER-A5IN when IRC is part of the configuration.
- ER-A5RS when any other RS-232 function is required.
- Both the ER-A5IN and ER-A5RS when IRC and two or more RS-232 functions required.
- Serial Scale.
- Scale Cable. (procured locally)

Note: After the installation of the ER-A55R1, a master reset is required.

SRV mode programming

903-B	- Symbol of ER-A550 print for Scale entries	"Kg"/"LB"	1/0
903-C	- Scale entry is through the scale interface	yes/no	4/0
	- Entry of Tare table number allowed	yes/no	2/0
	- Decimal places of scale weight input	three (3) / two (2)	1/0
906-D	- Fractional quantity entries allowed	yes/no	1/0
945-C	- Channel number assignment for Scale		0-7
950	- Key Function #69 must be placed on the keyboard.		

Scale

PGM mode reference

Job #	Description
2110	- Department scale programming.
2210	- PLU scale programming.
2231	- Range PLU scale programming.
2618	- Tare table weight programming.

2110 DEPT. SCALE PROGRAMMING

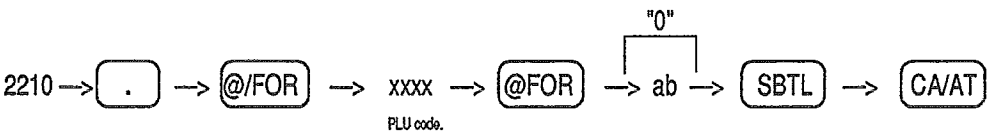
xx = Department code (1-99)

a =	(not used)		
b =	Item validation compulsory	yes/no	1/0
c =	Tare table number assignment		0-9
d =	Scale entry allowed	yes/no	1/0
e =	SIF / SICS / Normal		2/1/0
f =	Bottle return / Hash / Normal		2/1/0
g =	Amount entry type open & preset / preset / open / inhibited		3/2/1/0

MRS = 0000001

Scale

2210 PLU SCALE PROGRAMMING

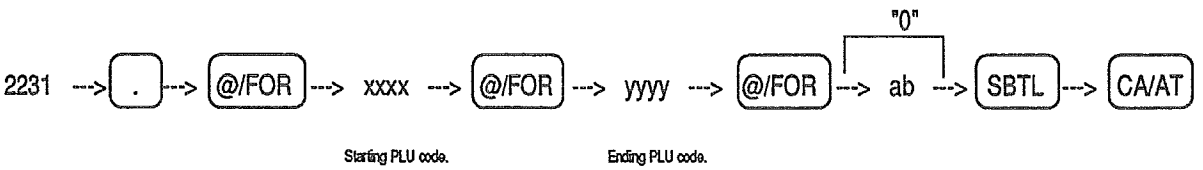


xxxx: PLU code (1-9999)

a = Tare table number assignment.
b = Scale entry is compulsory / allowed / inhibited 2/1/0

MRS = 00

2231 RANGE PLU SCALE PROGRAMMING



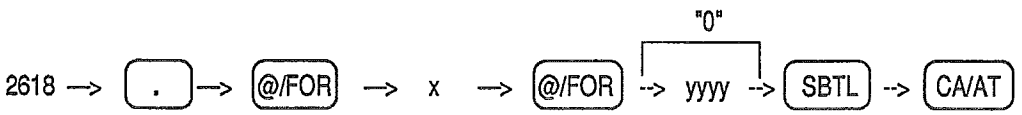
xxxx: Starting PLU code (1-9999)
yyyy: Ending PLU code (1-9999)

a = Tare table number assignment.
b = Scale entry is compulsory / allowed / inhibited 2/1/0

MRS = 00

Scale

2618 TARE TABLE PROGRAMMING



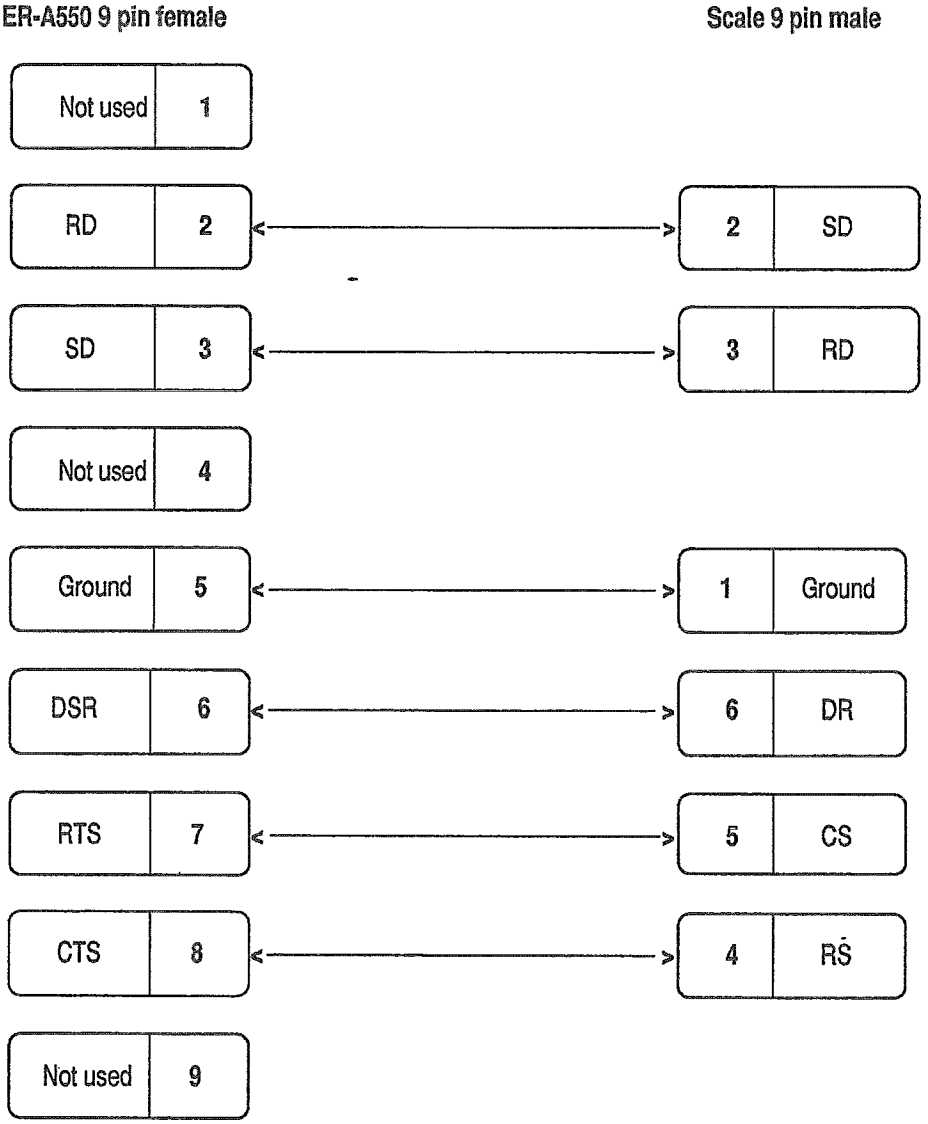
x = Tare table no. (1-9)

yyyy = Weight. (0 - 9999)

MRS = 0000

Note: SRV mode programming will determine the placement of the decimal point.

Scale


ER-A550 9 pin female
Scale 9 pin male
Not used 1
RD 2
2 SD
SD 3
3 RD
Not used 4
Ground 5
1 Ground
DSR 6
6 DR
RTS 7
5 CS
CTS 8
4 RS
Not used 9

ER-02RP

Purpose:

In those environments that require food preparation, it is possible to instruct the kitchen personnel with the use of the ER-02RP. Remember that the ER-02RP is a one-to-one interface and can not be shared by multiple ER-A550s even when IRC is installed.

Hardware requirements

- ER-A550 ECR.
- ER-A55R1 control ROM
- ER-A5IN when IRC is part of the configuration.
- ER-A5RS when any other RS-232 function is required.
- Both the ER-A5IN and ER-A5RS when IRC and two or more RS-232 functions required.
- ER-02RP cable. (procured locally)
- ER-02RP.

Note: After the installation of the ER-A55R1, a master reset is required.

ER-02RP switch settings

1) Remove the two (2) screws which secures the bottom panel to expose the ER-02RP's pwbs.

2) Set the switches as follows:

DS-1

off	off	off	off	off	off	off	off	off	off
1	2	3	4	5	6	7	8	9	10

DS-2

on	off	off	on	off	off	off	off
1	2	3	4	5	6	7	8

DS-3 *1

off	off	off	off	on	on	on	off
1	2	3	4	5	6	7	8

*1 =

5 thru 7 on	= 9600 bps
5 off, 6&7 on	= 4800 bps
6 off, 5&7 on	= 2400 bps
5&6 off, 7 on	= 1200 bps
7 off, 5&6 on	= 600 bps
5&7 off, 6 on	= 300 bps
6&7 off, 5 on	= 150 bps
5,6&7 off	= 110 bps

ER-02RP

SRV mode programming

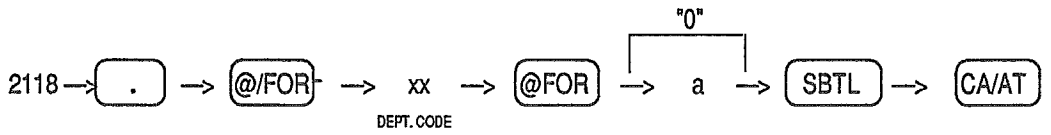
918-A	- Output Promo set type PLUs to the ER-02RP	yes/no 1/0
918-B	- PLUs print in "red" at the ER-02RP when price is 0.00	yes/no 2/0
918-C	- Dept./PLU alpha text prints in double size at the ER-02RP	yes/no 1/0
926-A	- Send "last item void" data to the ER-02RP - Send "past item void" data to the ER-02RP in red	no/yes 2/0 no/yes 1/0
926-B	- Send "refund" data to the ER-02RP in red	no/yes 2/0
946-D	- RS-port channel no. assignment for the ER-02RP	0-7
971	- Memory file group # 12 (Register buffer) - Memory file group # 13 (KP buffer)	

PGM mode reference

Job #	Description
2118	- Department print station assignment.
2218	- PLU print station assignment.
6412	- ER-02RP transmission baud rate.
6510	- Enable ER-02RP transmission
6550	- ER-02RP printer print format.
6410	- Kitchen printer preset reading.

ER-02RP

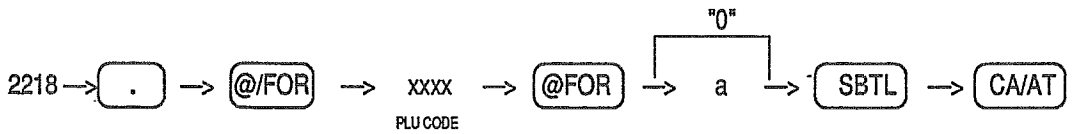
2118 PROGRAMMING OF DEPARTMENTS



xx: Department Code (01 to 99 max)
a: Receipt / Kitchen printer / No output = 2 / 1 / 0

MRS = 0

2218 PROGRAMMING OF PLU'S

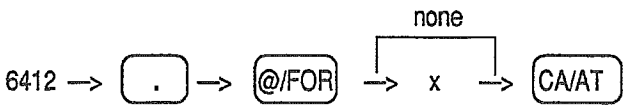


xxxx: PLU Code (0001 to 9999 max)
a: Receipt / Kitchen printer / No output = 2 / 1 / 0

MRS = 0

ER-02RP

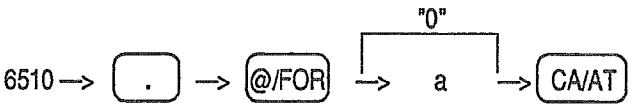
6412 TRANSMISSION BAUD-RATE



x = 5 : 9600 bps
x = 4 : 4800 bps
x = 3 : 2400 bps
x = 2 : 1200 bps
x = 1 : 600 bps
x = 0 : 300 bps

MRS = 5

6510 ENABLE ER-02RP TRANSMISSION

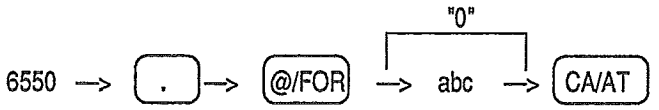


a: Data transmission Enable/Disable = 1 / 0

MRS = 0

ER-02RP

6550 ER-02RP PRINT FORMAT

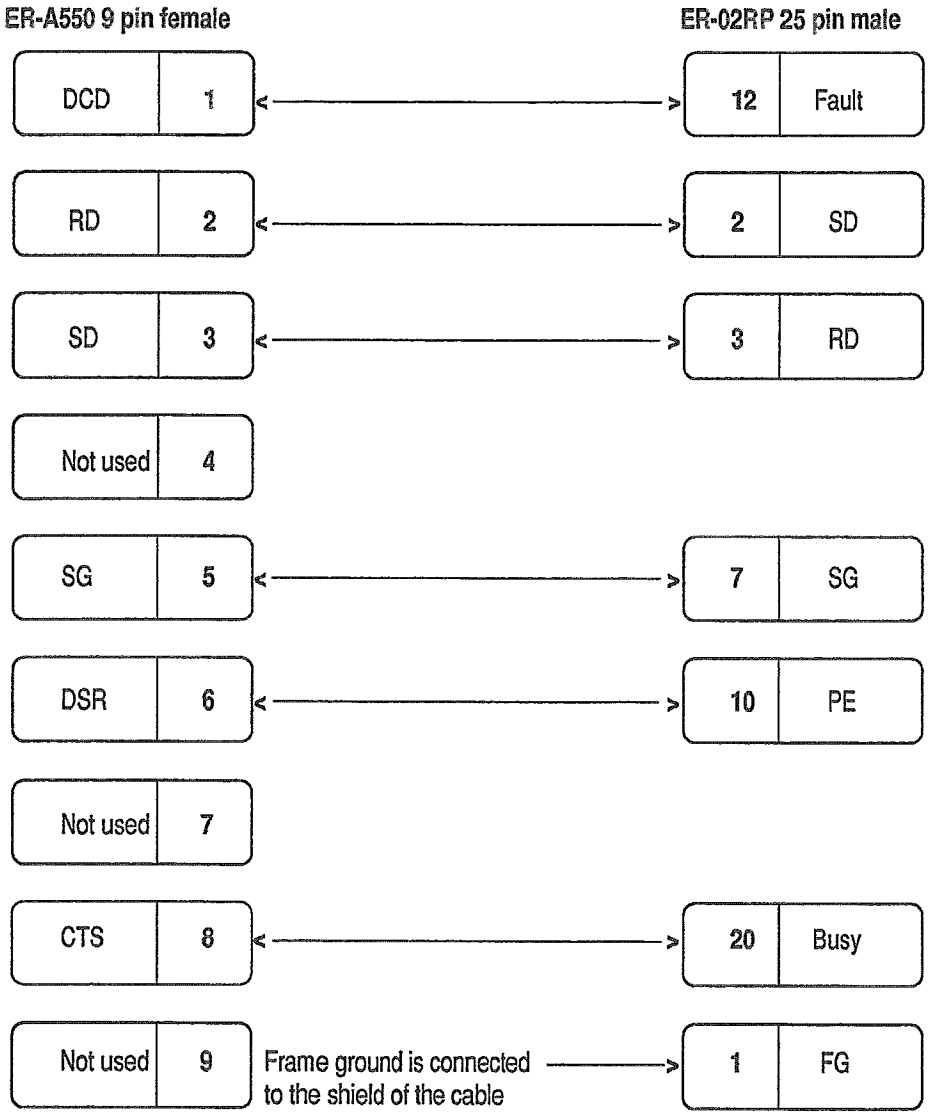


a = Skipping of Dept./PLU code	yes/no	1/0
b = Skipping of the unit price	yes/no	1/0
c = Skipping printing of the amount	yes/no	1/0

MRS = 000

6410 ER-02RP PRESETS READING

ER-02RP



Recommended cabling distances

Data rate	Cable length
9,600 bps	7.5 meters
4,800 bps	15 meters
2,400 bps	30 meters
1,200 bps	60 meters

Coin Dispenser

Purpose:

In those environments that require fast customer through-put, it is possible to speed up the line by eliminating the handling of coinage with the addition of the coin dispenser. The coin dispenser can also be justified by the money saved from inaccurate counting of coins in giving back customer change.

Hardware requirements

- ER-A550 ECR.
- ER-A55R1 control ROM
- ER-A5IN when IRC is part of the configuration.
- ER-A5RS when any other RS-232 function is required.
- Both the ER-A5IN and ER-A5RS when IRC and two or more RS-232 functions required.
- Coin Dispenser.
- Cable *1.

*1 - For the Telequip model coin dispenser, the cable is already provided.
- You must mention when ordering a Telequip model coin dispenser that it is for interfacing with the Sharp model ER-A550 to insure that the baud rate is set properly. (9600 bps)

Note: After the installation of the ER-A55R1, a master reset is required.

SRV mode programming

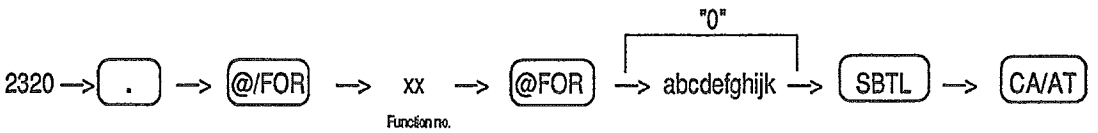
945-D	- RS-port channel no. assignment for the coin dispenser	0-7

PGM mode reference

Job #	Description
2320	- Media key programming.
2510	- Cashier drawer assignment.

Coin Dispenser

2320 MEDIA KEY PROGRAMMING



xx:	Function no.	50 = Cash
		51 = Cash-2
		65 = Charge-1
		67 = Charge-2
		69 = Charge-3
		71 = Charge-4
		73 = Charge-5
		75 = Charge-6
		77 = Charge-7
		79 = Charge-8
		81 = Check

a: (Not used)		
b: Footer print	yes/no	1/0
c: Non-add code compulsory	yes/no	1/0
d: * Change enabled	no/yes	1/0
e: Validation compulsory	yes/no	1/0
f: Tax-4 deleted	yes/no	1/0
g: Tax-3 deleted	yes/no	1/0
h: Tax-2 deleted	yes/no	1/0
i: Tax-1 deleted	yes/no	1/0
j: * Drawer opens	no/yes	1/0
k: Amount tender is compulsory	yes/no	1/0

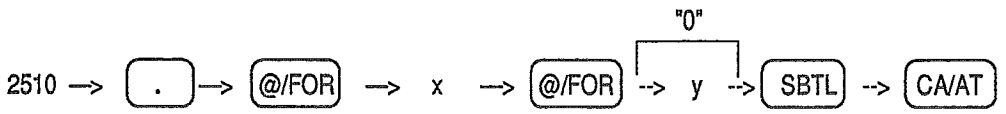
MRS = 00000000000

* These options must be allowed in order for the coin dispenser to issue coin change.

Note: When split tendering between cash and charge type media, the cash entry must be the last entry in order for the coin dispenser to issue change.

Coin Dispenser

2510 CASHIER DRAWER ASSIGNMENT



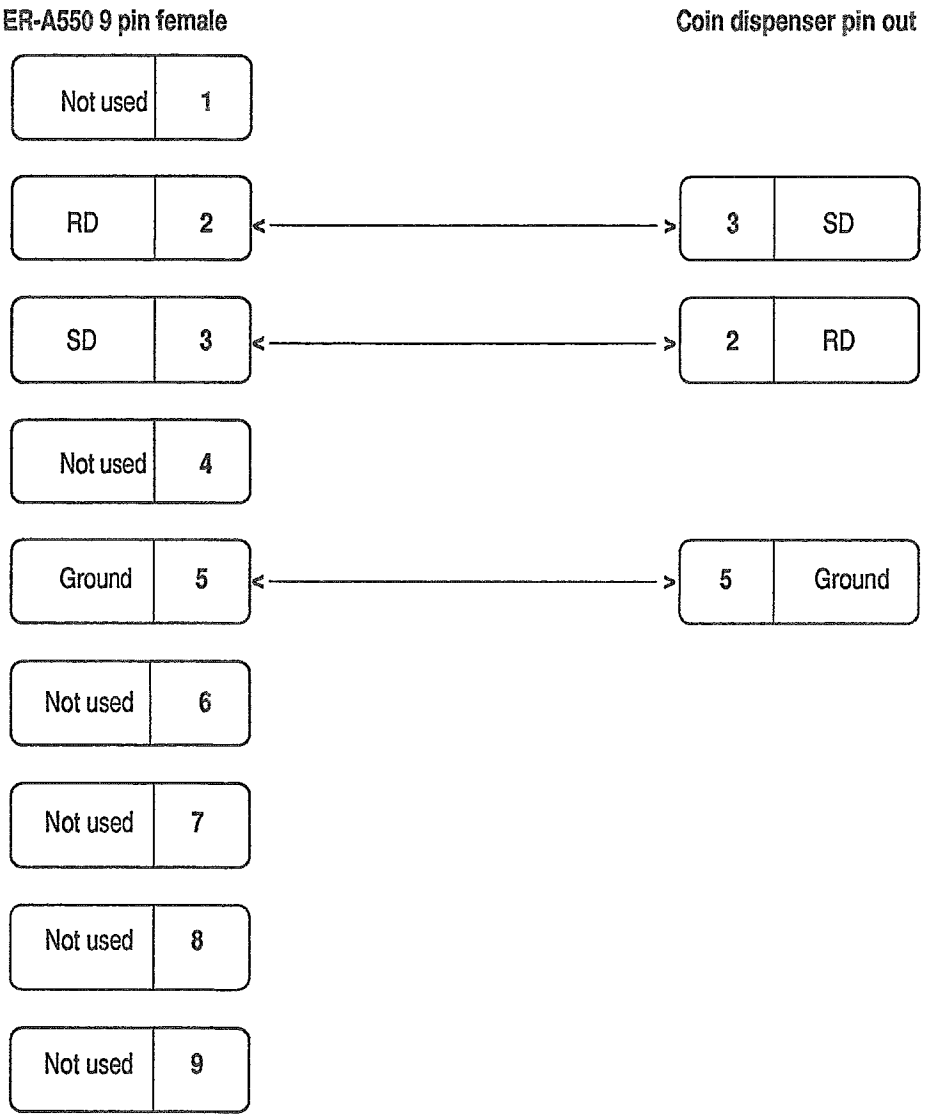
x = Cashier no. (1-4)

y = Drawer no. (1-4)

MRS = 1

Note: A drawer must be assigned to the cashier in order for the coin dispenser to issue change.

Coin Dispenser



Print data

Purpose:

For those environments where it is necessary to capture "realtime" statistics for food cost analysis, the ER-A550 offers the "print all-data" function as part of the RS-232C platform. This function is commonly used by third party developers for such peripherals as surveillance monitor systems and backroom electronic journal processing. The ER-A550 SRV and PGM mode selections will be decided upon by the third party company responsible for the RS type peripheral. This section will simply list the applicable programming options that are of concern.

Hardware requirements

- ER-A550 ECR.
- ER-A55R1 control ROM
- ER-A5IN when IRC is part of the configuration.
- ER-A5RS when any other RS-232 function is required.
- Both the ER-A5IN and ER-A5RS when IRC and two or more RS-232 functions required.
- Cable. (specifications may vary by the third party developer)

Note: After the installation of the ER-A55R1, a master reset is required.

SRV mode programming

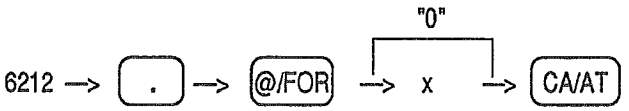
945-B - RS-port channel no. assignment for online communication 0-7

PGM mode reference

Job #	Description
6212	- Enable print data transmission.
6213	- Programming of print data start / end codes.
6220	- Print data programming.
6210	- Print data preset reading.

Print data

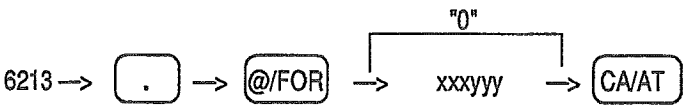
6212 TRANSMISSION BAUD RATE



x = 5 : 9600 bps
x = 4 : 4800 bps
x = 3 : 2400 bps
x = 2 : 1200 bps
x = 1 : 600 bps
x = 0 : 300 bps

MRS = 5

6213 START / END CODE PROGRAMMING

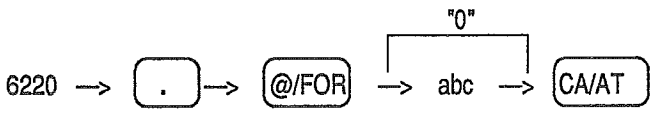


xxx:	Start code	(127 is maximum)
yyy:	End code	(127 is maximum)

MRS = 002013

Print data

6220 PRINT DATA PROGRAMMING

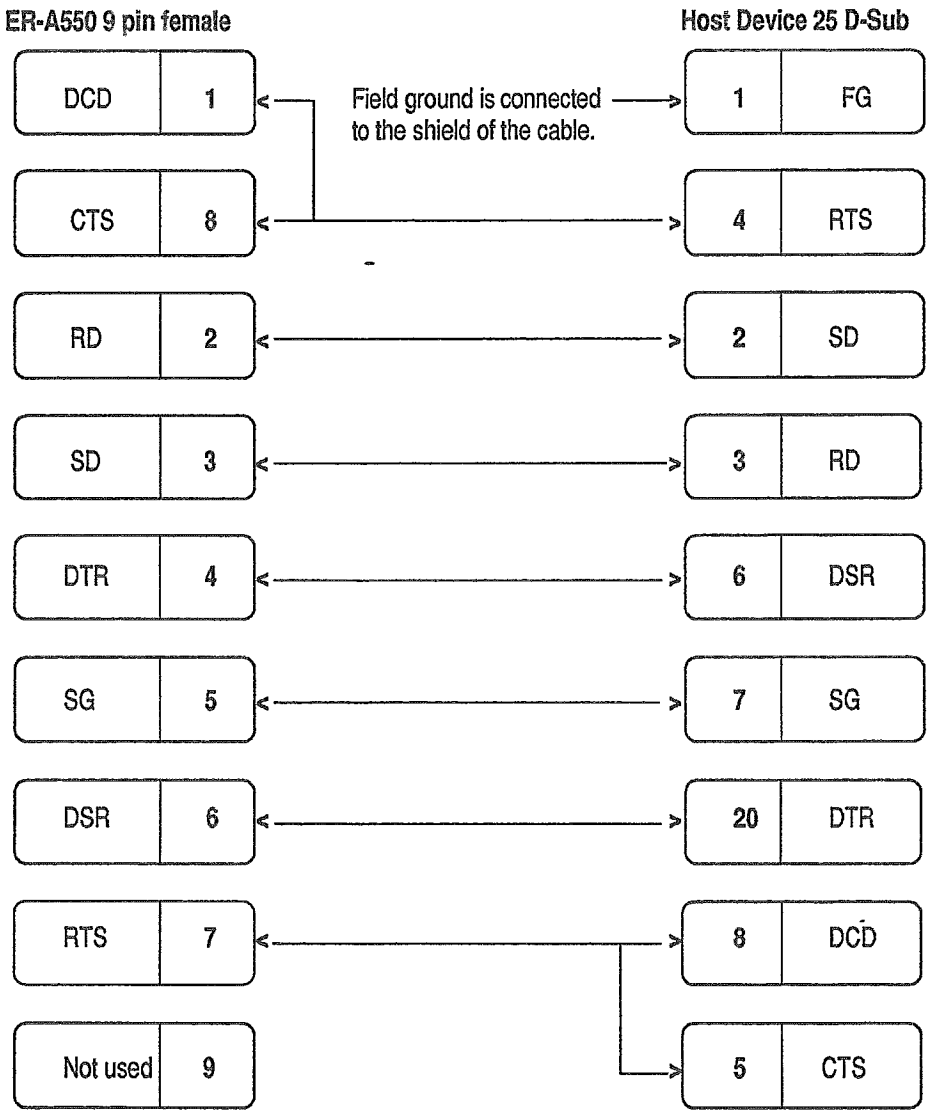


a = Sensing of the DR signal	no/yes	1/0
b = Sensing of the CS signal	no/yes	1/0
c = Send print data	yes/no	1/0

MRS = 000

6210 PRINT DATA PRESETS READING

Print data


ER-A550 9 pin female
Host Device 25 D-Sub
DCD 1
CTS 8
RD 2
SD 3
DTR 4
SG 5
DSR 6
RTS 7
Not used 9
Field ground is connected to the shield of the cable.
1 FG
4 RTS
2 SD
3 RD
6 DSR
7 SG
20 DTR
8 DCD
5 CTS

Online ---> Host P.C.

Purpose:

The RS-232C interface option for the ER-A550 offers the performance of online communication directly to a host P.C. or via a modem to the host P.C. The function of online facilitates uploading and downloading of ECR data, remote job entries, and electronic mail. This function is developed by third party developers who will dictate the necessary configurations and programming steps for their software packages. This section will simply list the applicable programming options that are of concern.

Hardware requirements

- ER-A550 ECR.
- ER-A55R1 control ROM
- ER-A5IN when IRC is part of the configuration.
- ER-A5RS when any other RS-232 function is required.
- Both the ER-A5IN and ER-A5RS when IRC and two or more RS-232 functions required.
- Cable. (specifications may vary by the third party developer)

Note: After the installation of the ER-A55R1, a master reset is required.

SRV mode programming

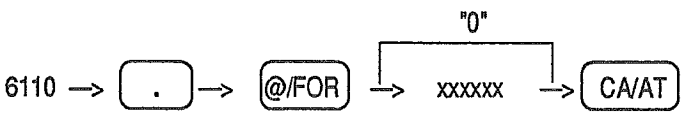
926-C	- Enable Open/Close store for IRC master and Online standalone	yes/no	4/0
	- Send modem AT command string with PGM job # 500	yes/no	2/0
	- Send modem AT command string with PGM job # 501	yes/no	1/0
945-A	- RS-port channel no. assignment for online communication		0-7

Online ---> Host P.C.

PGM mode reference

Job #	Description
6110	- Terminal number programming.
6111	- Modem control programming.
6112	- Transmission baud rate programming.
6113	- Programming of the start/end codes.
6130	- AT command string programming for PGM job # 500.
6131	- AT command string programming for PGM job # 501.
6110	- Online preset reading.
6130	- AT command string preset reading.

6110 TERMINAL NUMBER SETTING

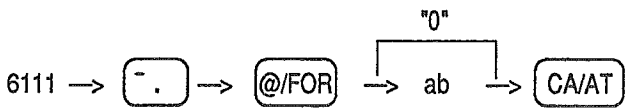


xxxxxx = Terminal number (0 to 999999)

MRS = 000001

Online ---> Host P.C.

6111 MODEM CONTROL PROGRAMMING



a = Sensing of the CI signal	yes/no	1/0
b = Transmission line form is	half duplex / full duplex	1/0

MRS = 00

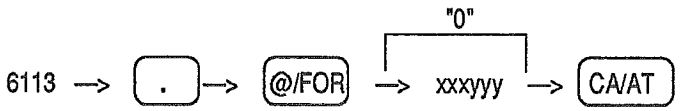
6112 TRANSMISSION BAUD RATE

x = 5 : 9600 bps
x = 4 : 4800 bps
x = 3 : 2400 bps
x = 2 : 1200 bps
x = 1 : 600 bps
x = 0 : 300 bps

MRS = 5

Online ---> Host P.C.

6113 START / END CODE PROGRAMMING

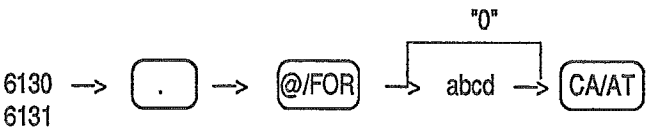


xxx: Start code (127 is maximum)

yyy: End code (127 is maximum)

MRS = 002013

6130/6131 AT COMMAND STRING (PGM JOB 500 & 501)



a = AT command; (&C1) / (&C0) 1/0

b = AT command; (&D2) / (&D1) / (&D0) 2/1/0

c = AT command; (&J1) / (&J0) 1/0

d = AT command; (S0 = n) 0-9

MRS = 0000

Online ---> Host P.C.

6110 ONLINE PRESETS READING

6110 --> [@/FOR] --> [CA/AT]

6130 AT COMMAND PRESETS READING

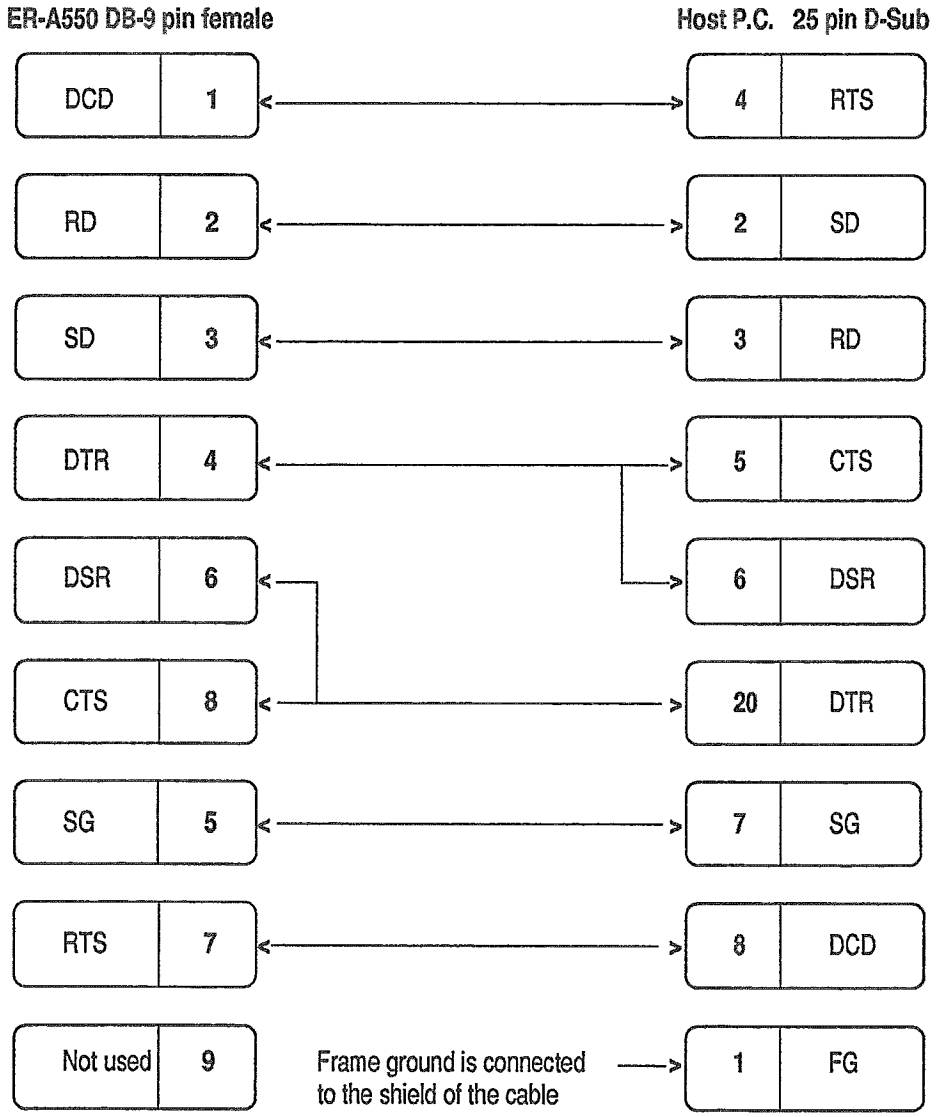
6130 --> [@/FOR] --> [CA/AT]

Online ---> Host P.C.

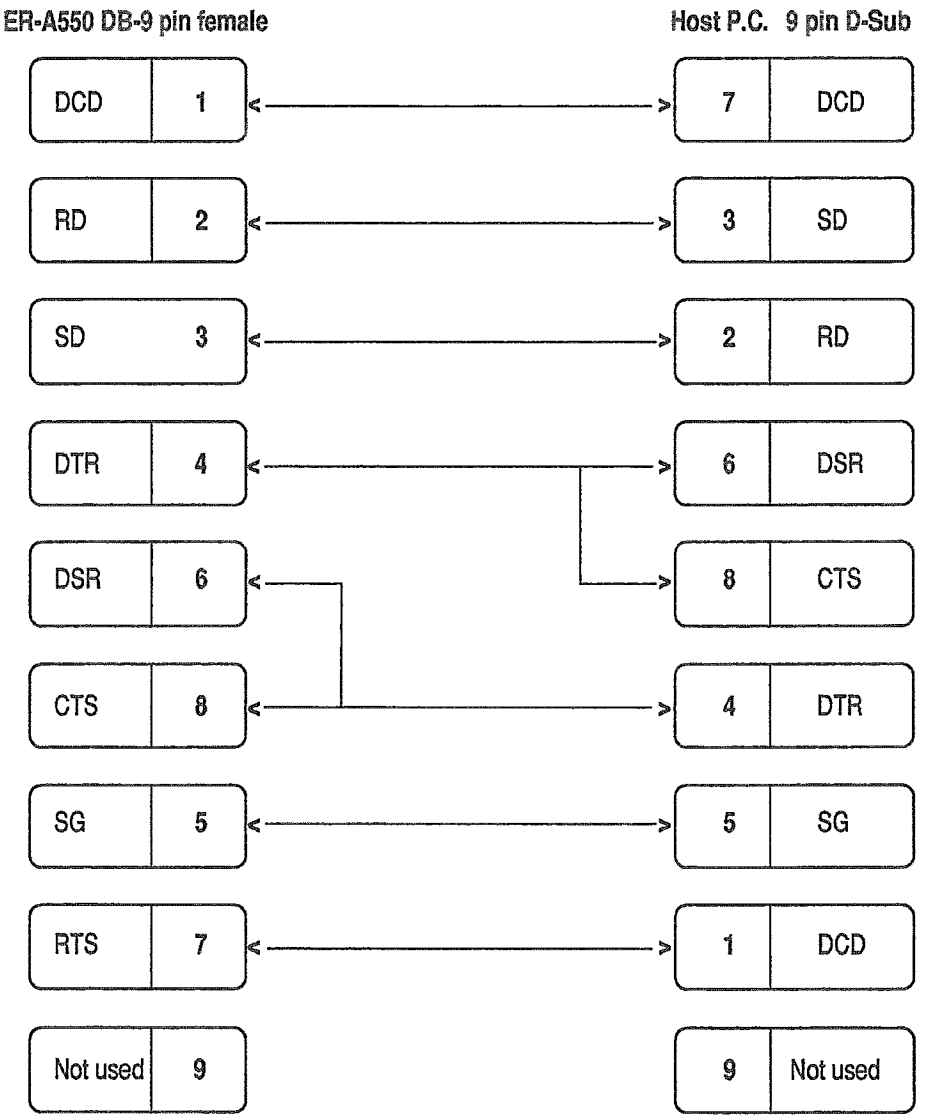
500 OPEN STORE

501 CLOSE STORE

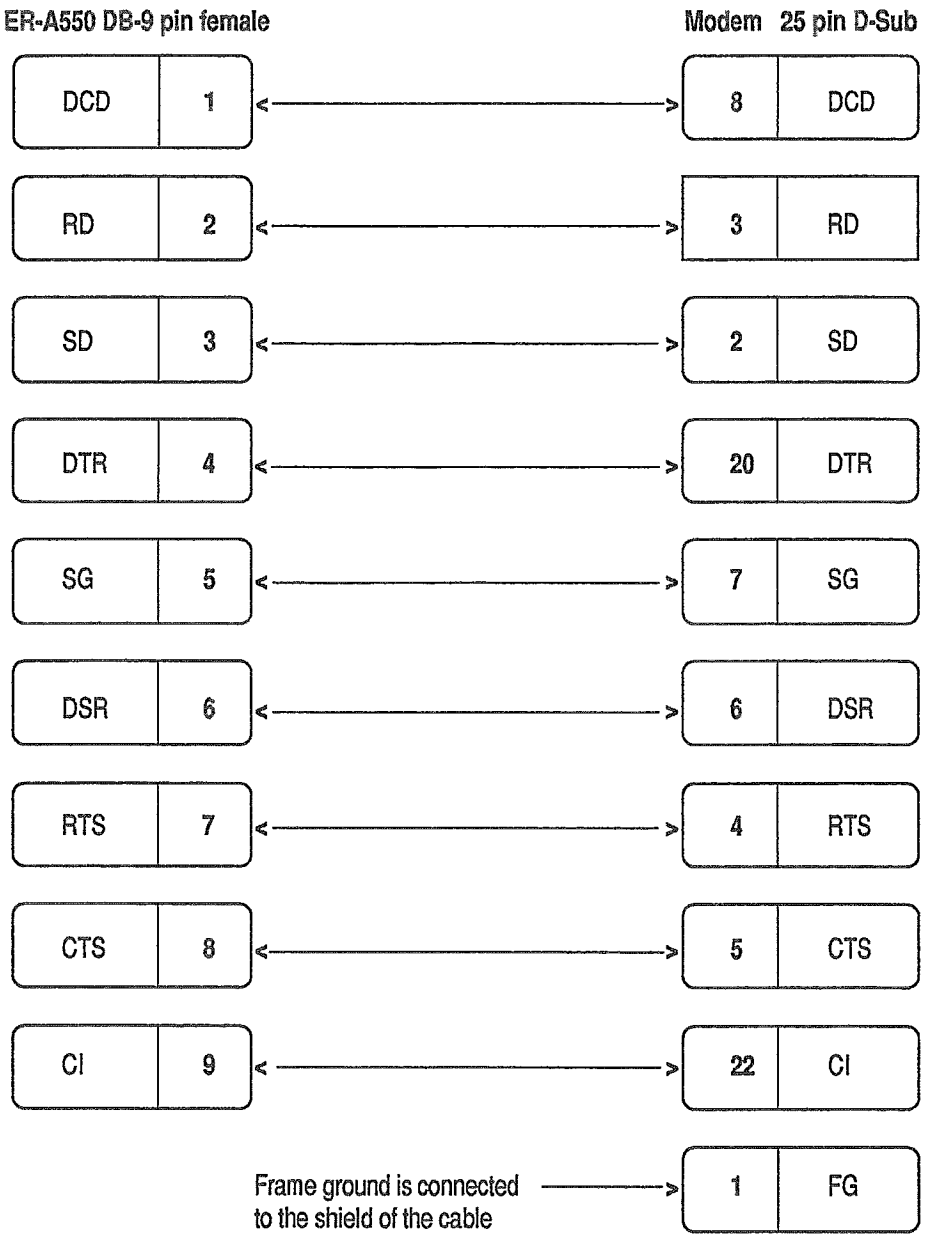
Online ---> Host P.C.



Online ---> Host P.C.



Online ---> Host P.C.



Online ---> Host P.C.

Hayes modem AT command table

Command	Contents	PGM-2 setting
&Cn	Carrier detect control	preset allowed (n = 0/1)
&Dn	Data Terminal Ready control	preset allowed (n = 0/1)
&Jn	Phone jack interface	preset allowed (n = 0/1/2)
&G0	No guard tone	Fixed
E0	Disable character echo-in command state	Fixed
H0	Go on hook (hang up)	Fixed
Q1	Modem does not return result code	Fixed
X0	Enable features represented by result codes 0 - 4	Fixed
S0=n	Select ring to answer on	preset allowed (n = 0 - 9)
&W0	Save storable parameters of active configuration as user profile 0.	Fixed
&Y0	Disable long space disconnect	Fixed

* Please refer to each modem's user manual for the applicable AT commands.

Online ---> Host P.C.

Online status error codes

Error codes Type	Detail	Type error	Description
00	00	Normal end	
01	01	Data check error	Command field error. --> The command data of the parameter packet was incorrect.
	04		Received FDS packet size error. --> The size of the received FDS packet was incorrect.
	05		Received data packet size error. --> The size of the received data packet was incorrect.
	06		Unknown text data was received. --> The received data contained characters other than "0 - 9", or "A - F".
	07		File type error. --> Received data on dept. or PLUs with information about their types was different from the one in the ECR.
	10		Undefined file (or RAM table number) was received. --> The file no. or RAM table no. in the received FDS packet was wrong.
02	00	RS-232C transmission error.	"Time-out" error or "Retry over" error.
	01		Line has been dis-connected.
	02		ER-off error. --> Device power-off has occured.
	03		DR-off error. --> The DR signal is not sensed.

(continued on next page)

Online ---> Host P.C.

Online status error codes

Error codes Type	Detail	Type error	Description
02	04	RS-232C transmission error (cont.)	CD-off error at receiving sequence. --> The CD signal is off.
	05		CD-on error at transmission sequence. --> The CD signal is on.
	06		CS-off error at transmission sequence. --> The CS signal is off.
	07		Time out error at receiving of data. --> Retry over error at transmission of data.
03	00	RS-232C transmission protocol error.	The following error occurs: 1) When receiving parameter text, EOT was received. 2) While processing of uploaded data, something other than EOT was received. 3) EOT was received after NAK was sent.
04	01	File access error.	Command error.
	02		Specified file did not exist.
	03		Specified block did not exist.
	04		Specified record did not exist.
	05		File full error.
	06		File type error.
	07		Area over error.
	11		File creation or deletion error.

(continued on next page)

Online ---> Host P.C.

Online status error codes

Error codes Type	Detail	Type error	Description
05	00	Inline error	For details, refer to the list of inline error codes.
	01		SRV job 899 memory full error. --> When execution of SRV 899 was performed, a memory full error occured.
06	00	Parameter error.	The format of the parameter packet was wrong.
	01		The contents of parameter-1 was wrong.
	02		The contents of parameter-2 was wrong.
	03		The contents of parameter-3 was wrong.
	04		The contents of parameter-4 was wrong.
	05		The contents of parameter-5 was wrong.
	11		Specified job did not exist. (X / Z)
	13		Range specification error. (X / Z) --> The programming of the range specification, group no., etc. were not adequate.
	21		Specified job was not executable. --> The job was programmed to inhibit its performance by PGM mode programming.
	22		Specified file did not exist upon down-load. --> When a certain job was performed, the file which was necessary for it was not created at the ECR.
	23		Range specification error upon down-load. --> Programming of range specification for the start and end codes was not adequate.

Online ---> Host P.C.

Inline error status code for each satellite

Code	Description
00	Normal ending.
11	Power-off error.
12	Busy error.
13	Line error.
21	Memory full error.
22	Non-reset error when downloading.
23	Non-reset error for X / Z report job number.
24	Type error when downloading.