SEKONIC

OPTICAL
MARK READER

OMR Command
Reference Manual

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1 Introduction

This document explains the logical interface between Sekonic's Optical Mark Reader (OMR) and the host computer ("host") to which the OMR is connected.

The OMR is a device that reads marks off of documents and outputs them as data under the direction of a host.

The action request from the host is called a "Command", and the response of the OMR is called a Response".

2 Hardware Interface

Sekonic's OMR SR-3500/SR-6000/SR-6500/SR-1800/SR-3500 HYBRID

/SR-6500 HYBRID/SR-11000 utilizes a USB 2.0 communication interface.

(1) USB :USB 2.0
(2) Transfer Speed :12M bps(fullSpeed)
480M bps (HighSpeed)
(3) OMRconnector :Series'B'
(4) Transfer :Bulk
(5) End point :1(IN)
MAX packet Full Speed(64byte)
High Speed(512byte)
2(OUT)
Max Packet Full Speed(64byte)
High Speed(512byte)
(6) Vendor ID :VID_0A41
(7) Product ID : following table

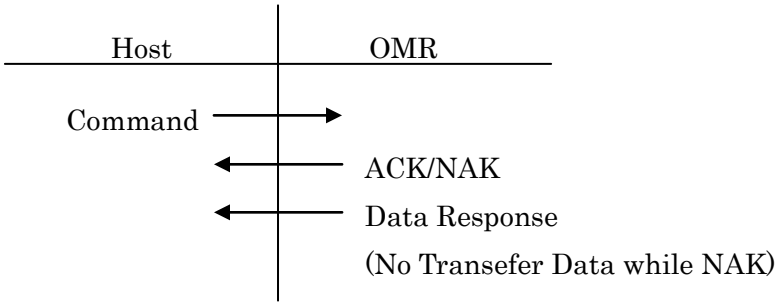
Machine Name	Product ID	Remarks
SR-3500/6000/6500	PID_1004	-
SR-1800	PID_1008	-
SR-3500 HYBRID /SR-6500 HYBRID	PID_1009	Image reading function model
SR-11000	PID_100A	Continuous-process function model

3 Basic Communication Protocol

The basic communication protocol between host and OMR is one-to-one control; one response is transmitted against one request as illustrated in Figure 1.

For an ACK response, the OMR first completes the transaction which the command calls for, and then sends its result as a data response.

For a NAK response, the OMR does not send a data response.



<Figure 1 Basic Command Protocol>

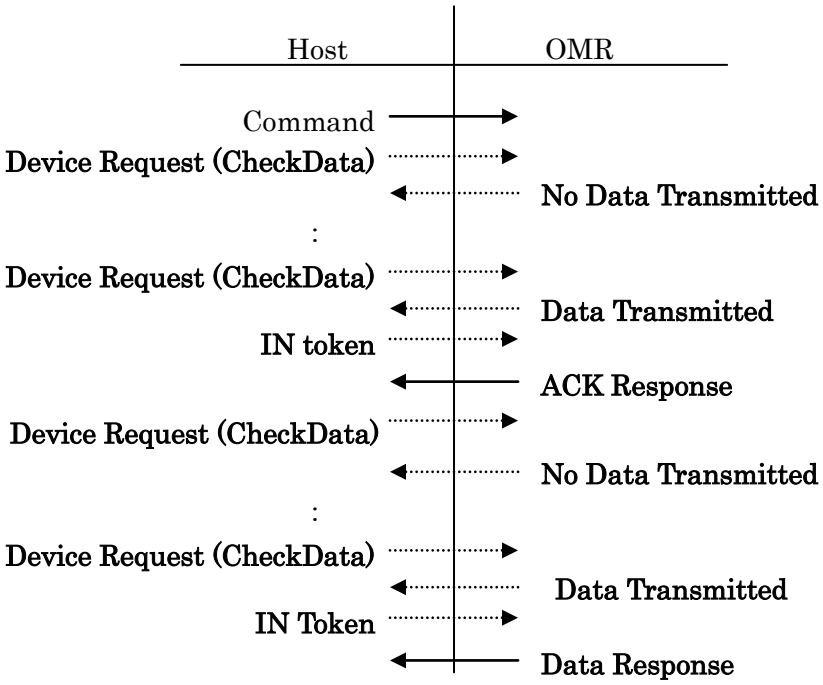
<Definition of completed command transaction >

1) Setting parameters
   When the main / scanning / option parameters of each unit have been properly set.
2) Action command
   When the requested action has been completed.
3) Writing into memory
   Saving parameters : when parameters have been written into memory.
   Saving data into firmware : when firmware has been rebooted. However, the data response is transmitted just before data is written into memory .
4) Data request:
   When transmission data has been generated.

4 Notices Regarding USBcommunication

4.1 Vendor Defined Device Request (CheckData)

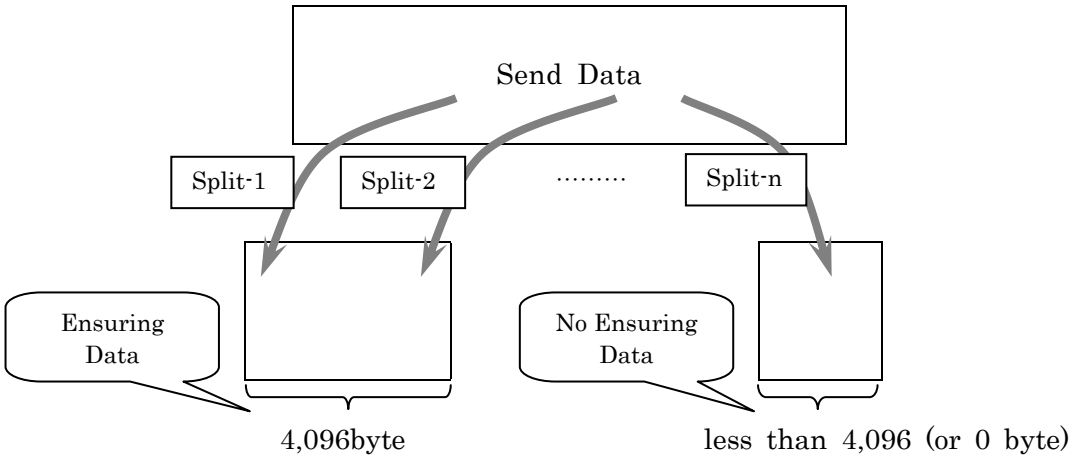
When using a USB to transmit an ACK/NAK response or data response the user must first ascertain whether or not there is Bulk IN transmission data from the OMR to the host by using a vendor defined device request (CheckData).



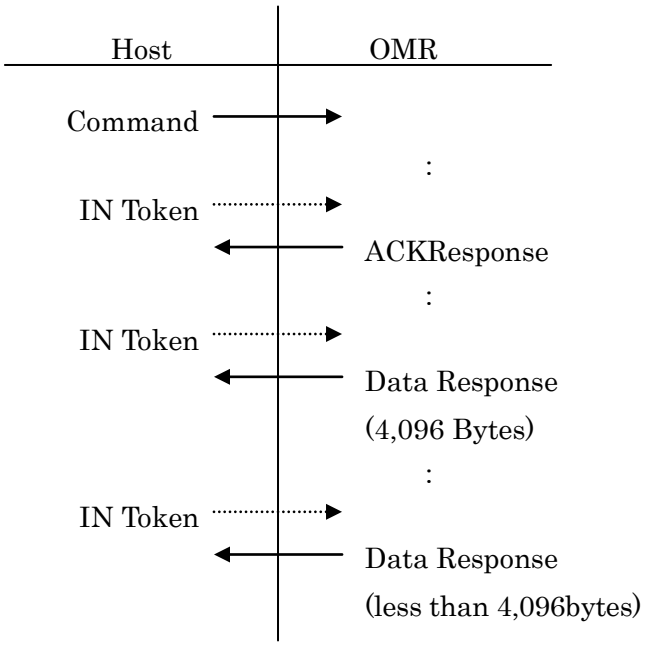
<Figure 2 Notices Regarding USB communication>

4.2 Transmission (Split) Large Volume Data

The maximum packet size of data transmitted from the OMR to the host is 4,096 bytes.
Data larger than 4,096 bytes is transmitted in separate packets. When the host receives 4,096 bytes of data, it needs to issue an "IN token" again in order to read the ensuing split data. When the host receives 0 bytes or less than 4,096 bytes data, the transmission is complete because there is no ensuing data.



<Figure 3 Split Large Volume Data>



<Figure 4 Transmission Large Vloume Data>

5 Basic Command Format

Following are the "Basic Command Formats" for sending commands from the host.
The OMR recognizes all the data sent from the host as commands.

Size			Code	Remarks
2	DAT	CMD	**H	Code (Command Code) to control the OMR. For details, refer to each Command(Command Code)
			**H	
0~n		PRM	**H	(Parameter) to indicate details of the Command For details, refer to each command(Parameter)
			:	
			**H	

(1) DAT (Data)

The DAT area includes the command codes and parameters.
Only this DAT area should be transmitted as commands.

(2) CMD

The command should be built in a combination of upper case alphabetic characters from "A"(41H) to "Z"(5AH).

(3) PRM

In case parameters are divided into multiple items, a comma ","(2CH) should be placed in between the parameter items. The parameters can be omitted, depending on the nature of commands.

Examples:

1) In the case of PRM1= "123", PRM2= "ABC", PRM3= "45", the command can be described as PRM= "123,ABC,45"
2) If PRM1 is to be omitted from the command shown in 1), the command can be described as PRM= ",ABC,45"
3) If PRM2 is to be omitted from the command shown in 1), the command can be described as PRM= "123,,45"
4) If PRM3 is to be omitted from the command shown in 1), the command can be described as PRM= "123, ABC"
5) If PRM1 and PRM2 are to be omitted from the command shown in 1), the command can be described as PRM= ",,45"
6) If PRM1 and PRM3 are to be omitted from the command shown in 1), the command can be described as PRM= ",ABC"
7) If PRM2 and PRM3 are to be omitted from the command shown in 1), the command can be described as PRM= "123"

6 Basic Response Format

Following are the descriptions for the "Basic Response Format" in which the data is transmitted from the OMR.

6.1 ACK/NAK Response

The response format used when a command has been correctly received is as listed below.

Size			Code	Remarks
1	DAT	ACK	06H	Acknowledgement of Command (Acknowledge)

If command incorreectly

Size			Code	Remarks
1	DAT	NAK	15H	Negative Acknowledgement of Command (Negative Acknowledge)
1		ERR	**H	(Error information) to indicate the reception error Refer to (2) ERR for details (Error)

(1) DAT (Data)

The DAT area includes ACK or NAK and the error information.

Only this data area should be transmitted as the ACK/NAK response.

(2) ERR

The error information is as listed below:

ERR	Description	Details	Actions
'0' (30H)	During Panel Operation	Command is received while display is in the Menu mode	Panel mode should be Normal Mode
'5' (35H)	Command Error	Unspecified Command is received	Check Command code
'6' (36H)	Parameter Error	Unspecified Parameter is received	Check Parameter
'7' (37H)	OMR is in operation		Send the command after OMR operation

6.2 Data Response

The basic format for the data response is as listed below:

Size			Code	Remarks
2	DAT	RES	**H **H	The code in response to the command. (Response Code)
2		ST1	**H **H	It indicates the OMR status (front side status). Refer to “14. Status information ” for details.(Status 1)
2		ST2	**H **H	It indicates the OMR status (back side status). Refer to “14. Status information ” for details.(Status 2)
0~n		RED	**H : **H	It indicates the details of the Response (Response Data). Refer to each command for details.(Response Data)

(1) DAT (Data)

The DAT area is comprised of the Response Code, Front Side Status, Back Side Status, and Response Data.

Only this DAT area should be transmitted as the Data Response.

(2) RES

This code should be the same as the command code processed. Refer to “5 Basic Command Format”.

(3) ST1

For units handling both sides, the errors created only on the backside should be included in the backside status output. Refer to “14. Status information ”.

(4) ST2

For units handling only one side, this should be fixed as “invalid”. (Invalid code: “@@”(40H40H))

Refer to “14. Status information ”.

(5) RED

In case the response data is divided into multiple data blocks, a comma “,”(2CH) should be placed in between the response data blocks.

7 Response timeout

The interval of response from OMR to host is as listed below

【The Intervals while receiving responses】

Response	interval	Condition(Start)	Condition(Finish)
ACK/NAK Response	within200ms	After send command	Receive the 1byte
Data Response	Refer to the below	After receive ACK/NAK	Receive the 1byte

Table1 The list of Data response interval

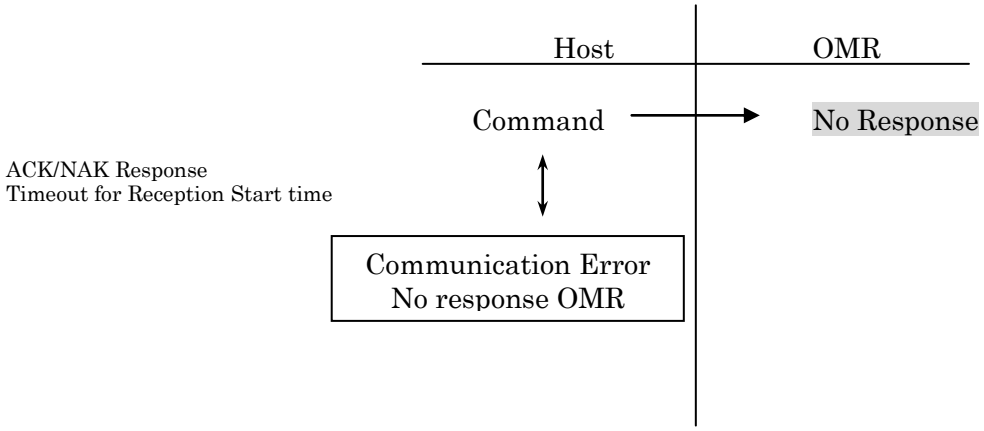
No.	Command	time (sec)		Remarks
		MAX	Normal	
1	SET Command	5.2	0.5	
2	Software reset	18.2	1.7	
3	Reading(mark)	24.7	2~5	ADF mode
4	Reading(Mark+image)	10.4	0.1	Response1
5		29.9	0.7~5	Response1-2
6		11.7	0.1	Response2-3
7	Continuous-process	5.2	0.1	To response 1
8		23	0.7 to 9	Response 1- (The 2nd and subsequent sheets will be Response 3) To response 2
9		5.2	0.1	Response 2- To response 3
10		10.4	0.3	Response 3- To response 4
11	Hopper Operation	6.5	2	
12	Eject	6.5	1~2	
13	Initialize	11.7	1	
14	Cancel Error	5.2	0.8	
15	Data Request command	10.4	0.3	

8 Abnormal Process in the Communication Protocol

8.1 Abnormal Process in the host

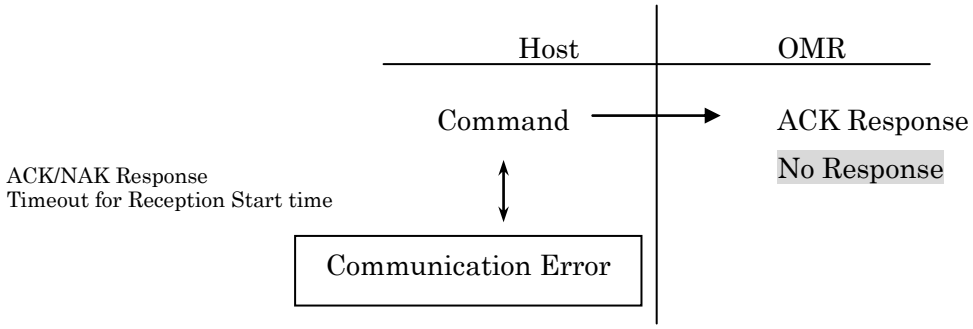
(1) The ACK/NAK response is not transmitted.

In case the ACK/NAK response is not transmitted after the command transmission, up to three retries should be performed before deciding that communication with the OMR cannot be established.



(2) The Data Response is not transmitted.

When the Data Response is not transmitted after receiving the ACK, an error is declared at that point.

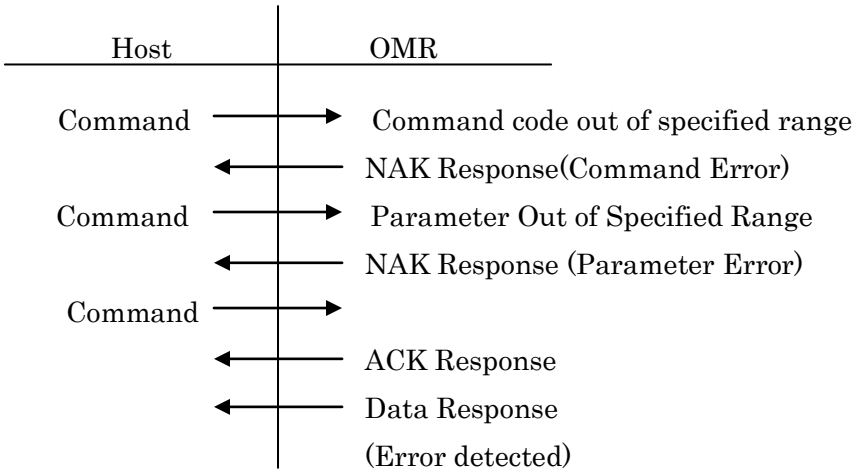


8.2 Abnormal Process in the OMR

(1) When a command is in error

When the received command or parameter is out of the specified range, NAK response should be transmitted.

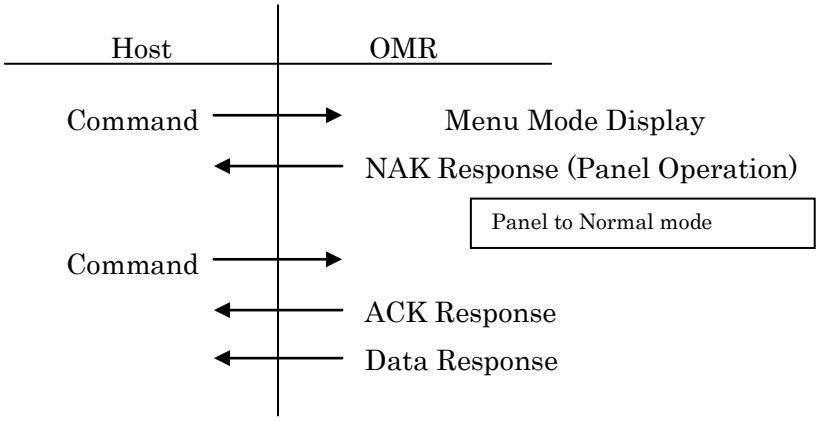
(error contents should be displayed on the LCD)



(2) When a command is received while the OMR is in panel operation

When a command is received while the OMR is in the menu mode display mode, NAK response should be transmitted. (The error contents should not be displayed on the LCD. No status report should be given.)

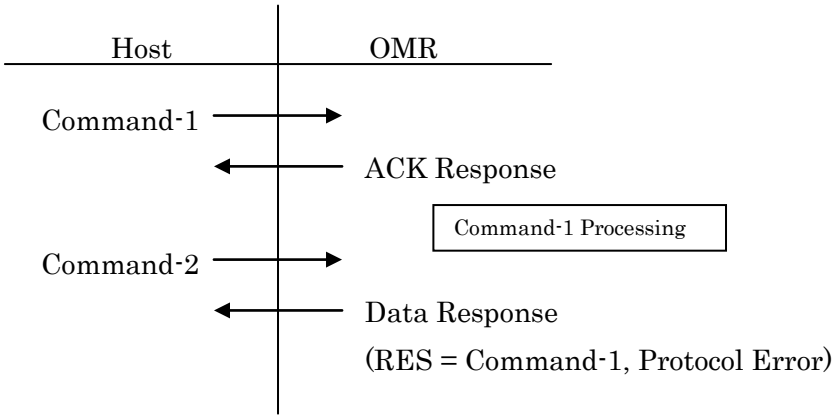
When the panel operation is switched to the "Normal Mode," the OMR becomes available for command processing.



(3) When a command is received while another command is being processed.

In such a case where a command is received while another command is being processed, no response should be transmitted for the command. The host should transmit the next command only after completing the reception of the Data Response.

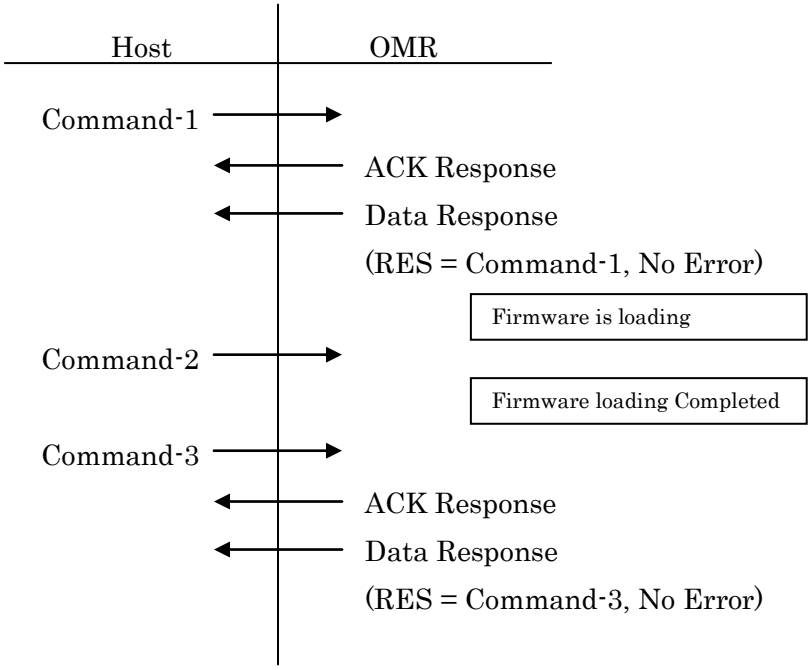
The next command should not be transmitted before the data reception becomes available.



(4) When a command is received while the OMR is loading the firmware

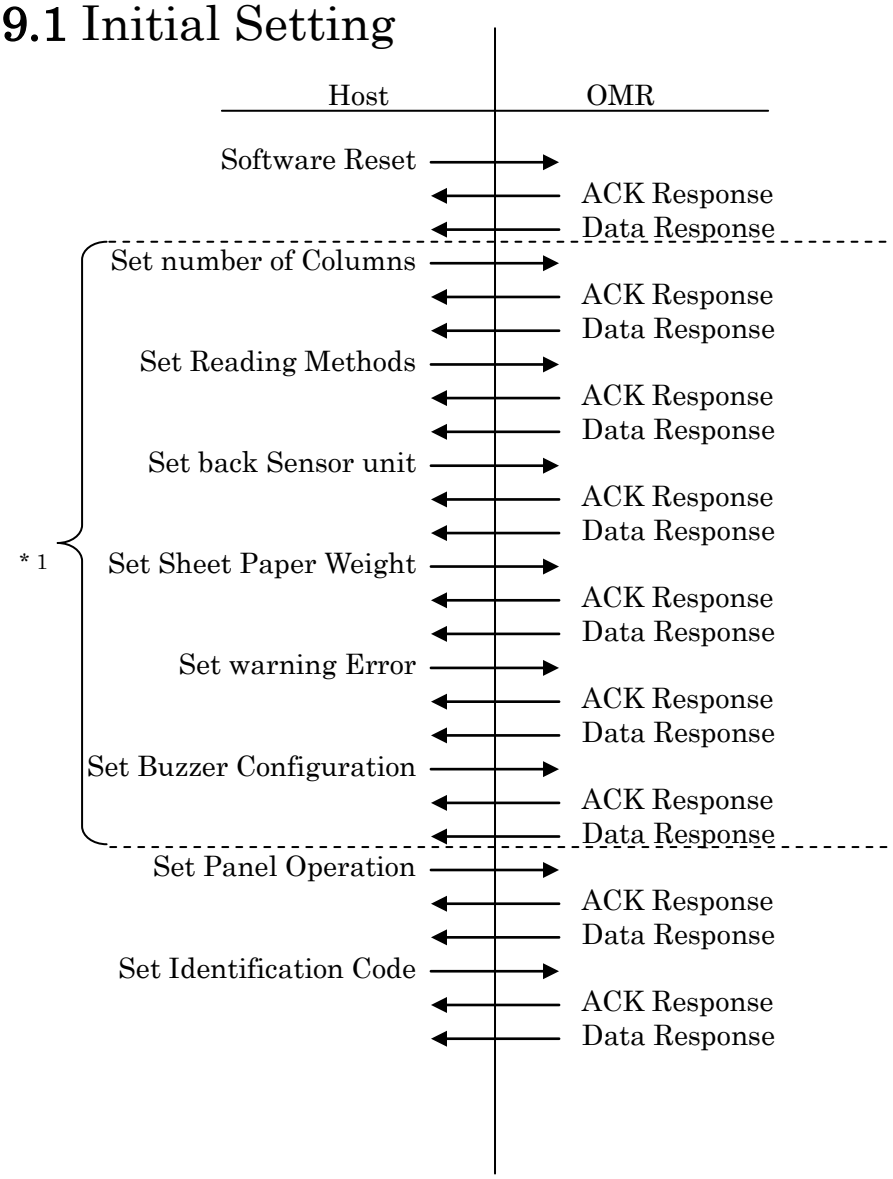
When a command is received while the OMR is loading the firmware, no error detection should be made for the command.

The host should transmit the next command only after the firmware loading is complete.



9 Details of the Communication Protocol

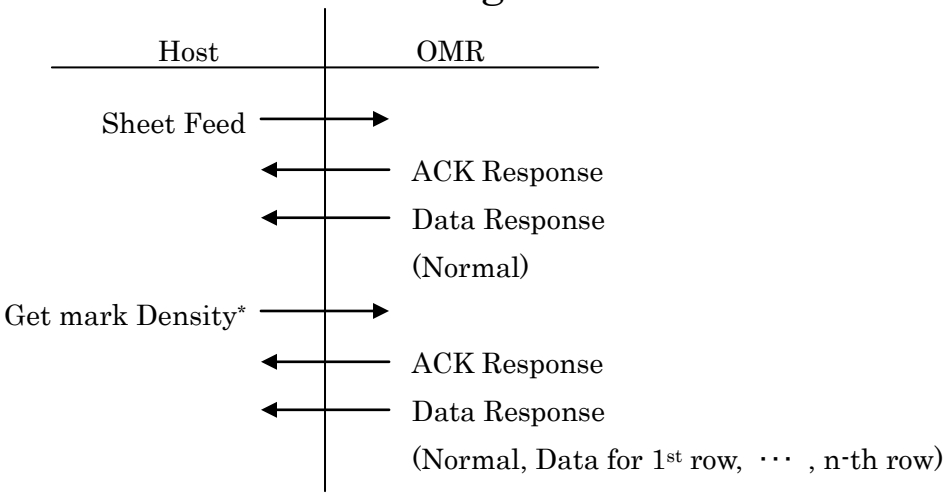
9.1 Initial Setting



*1 Should be omitted when it is set through the panel operation.

9.2 Sheet reads

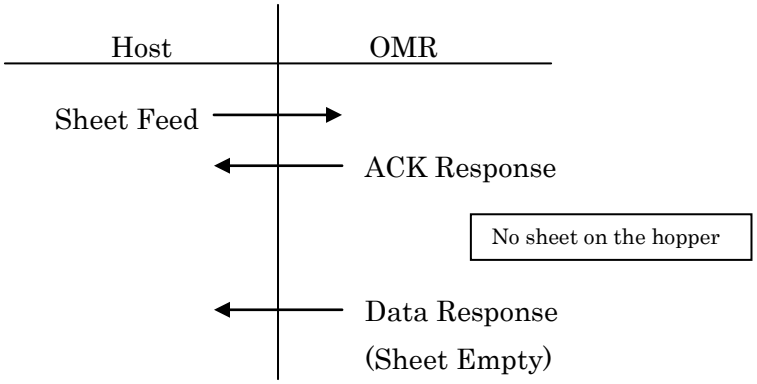
9.2.1 Normal Sheet Reading



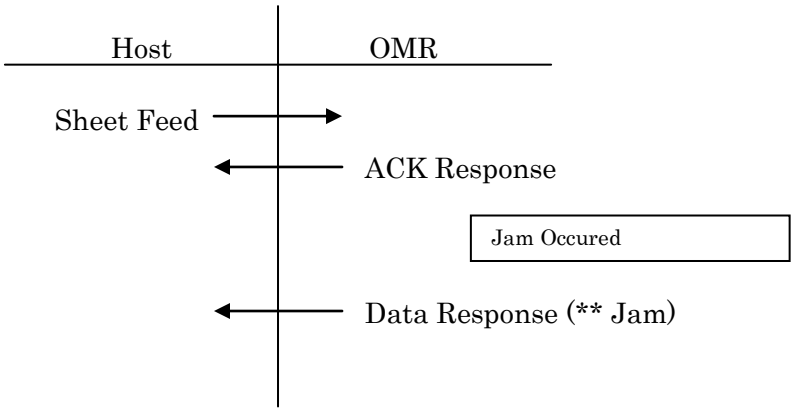
* The data should be only for the specified side. Refer to “13.1 Get Mark Density [MD]” for details.

9.2.2 Errors During the Sheet Reading

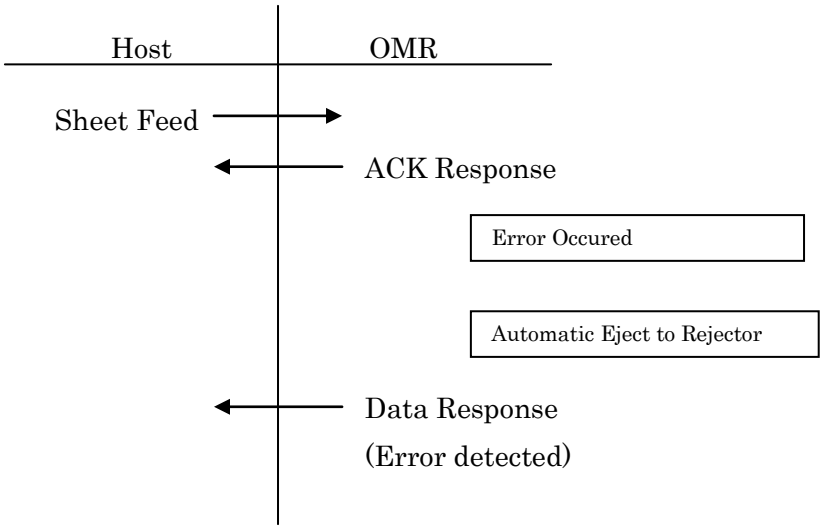
(1) When no sheets are placed on the hopper (Automatic feed mode)



(2) When the sheet is jammed

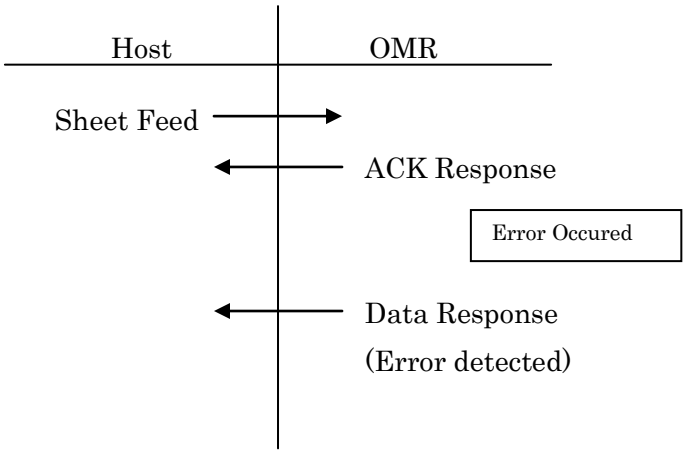


(3) When the automatic sheet eject is in error*



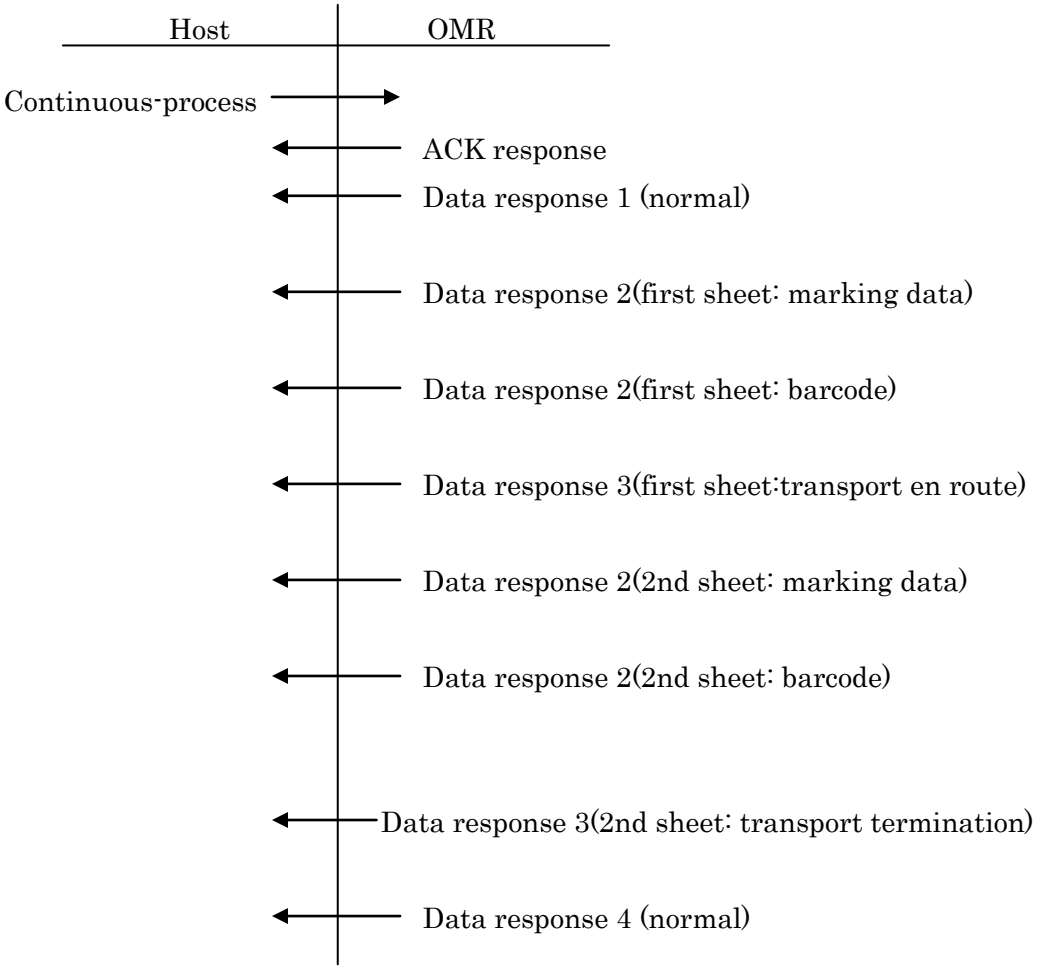
* Automatic sheet eject is in error refer to " 11.5 Set Warning Errors [WE]" for details.

(4) When other errors



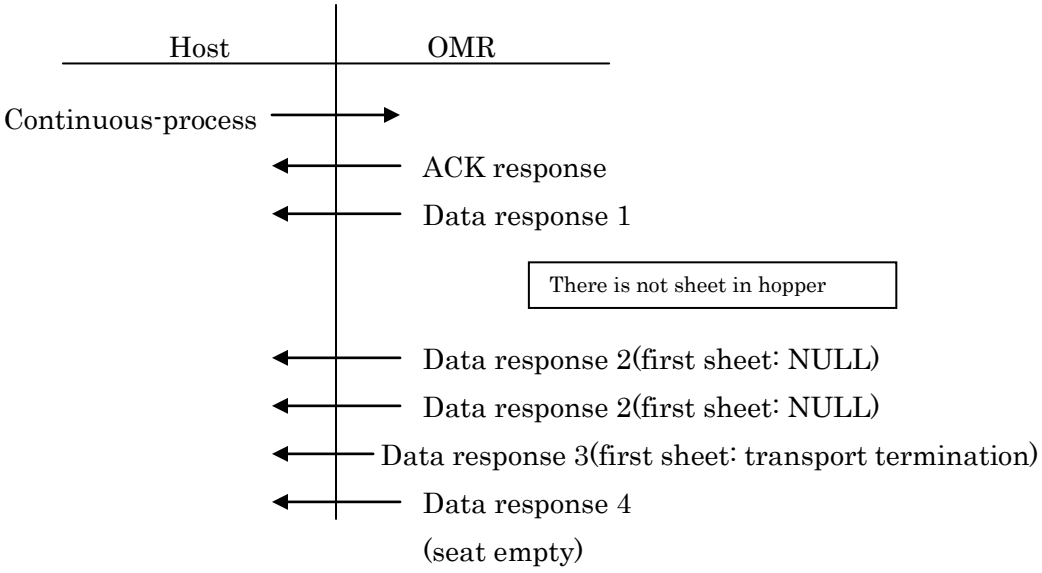
9.3 Sheet reads(only continuous-process, SR-11000)

9.3.1 Normal Sheet Reading

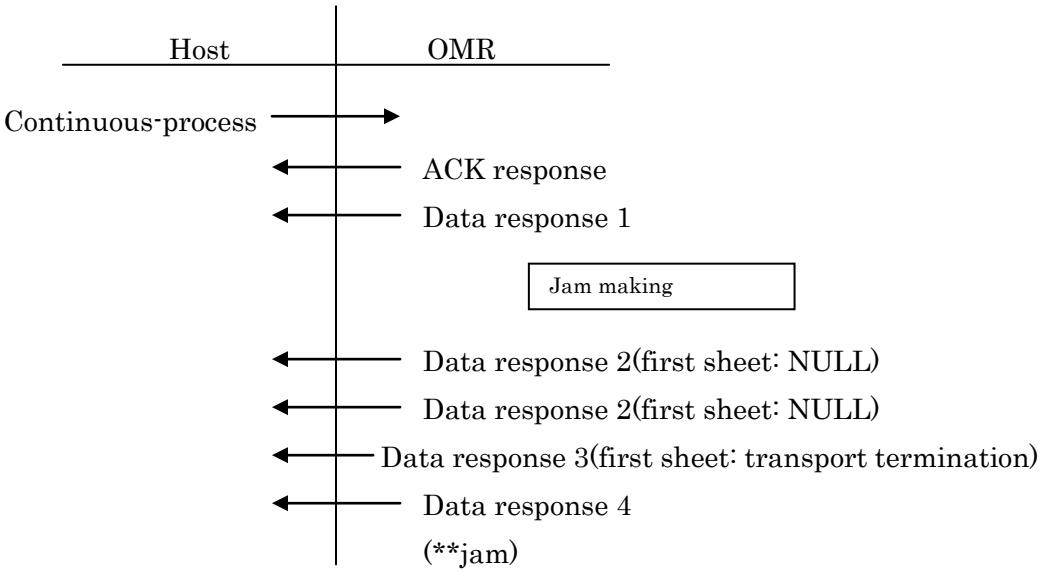


9.3.2 Errors During the Sheet Reading

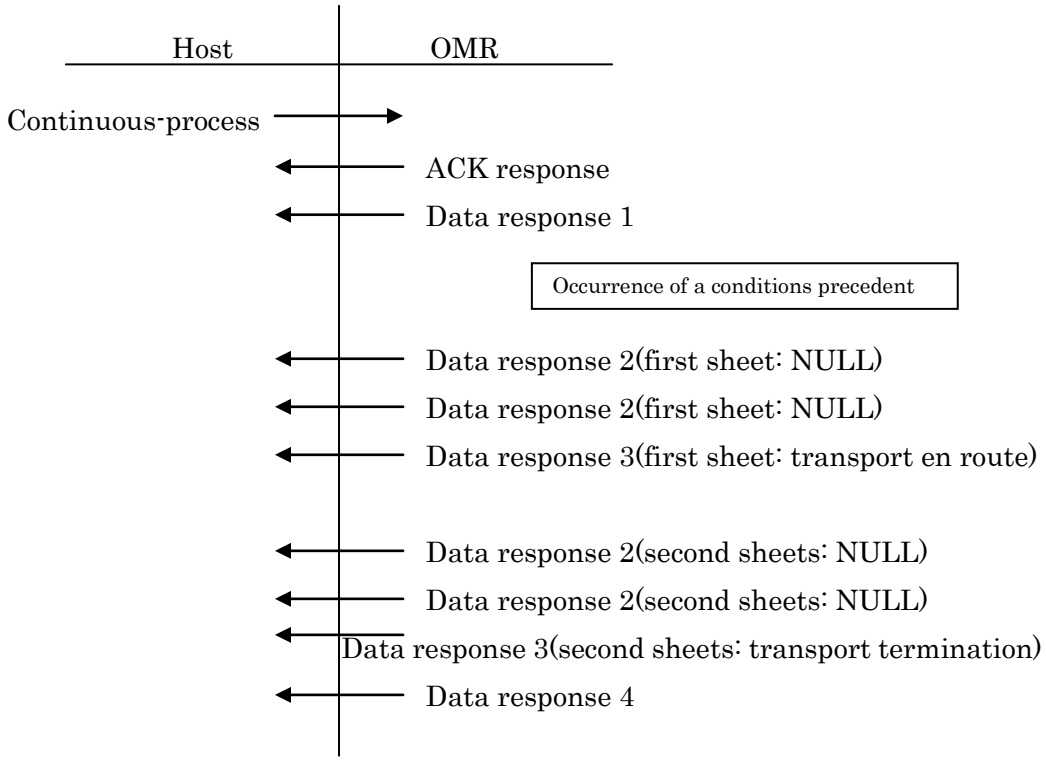
(1) If there is not sheet in hopper,(automatic feed mode)



(2) When jam making or covers open

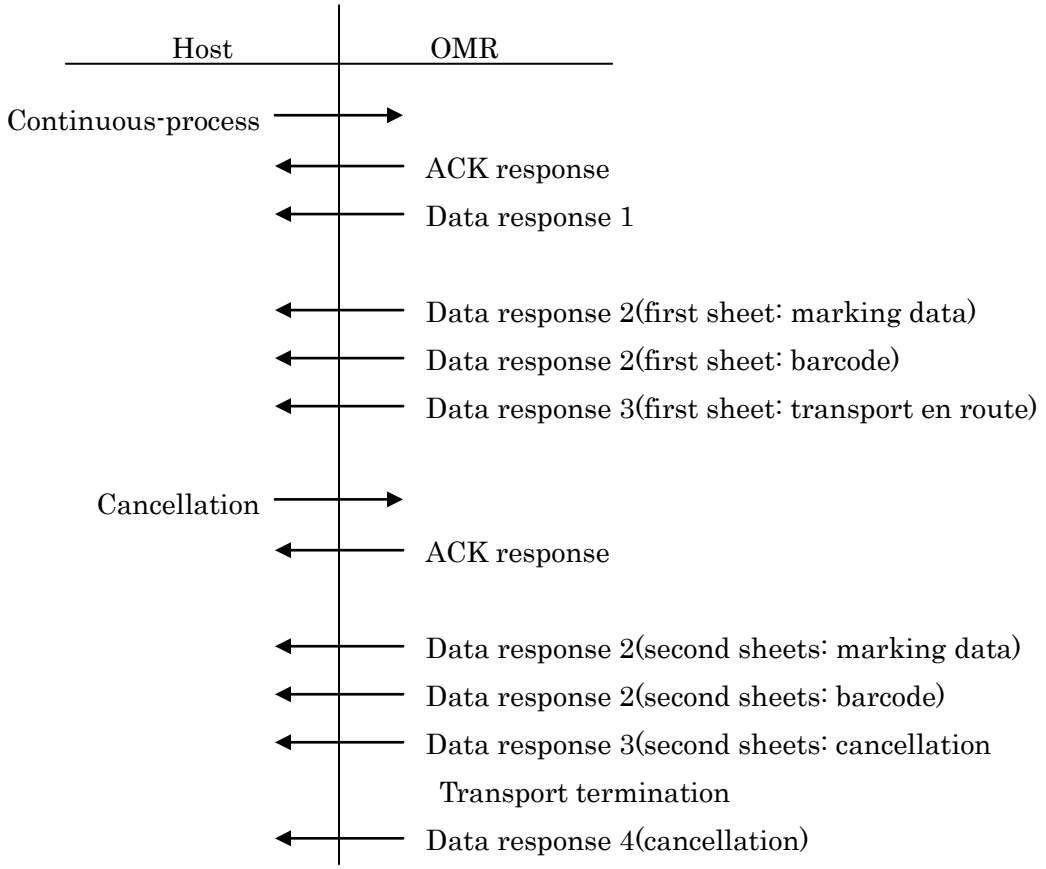


(3) When conditions precedent * caused

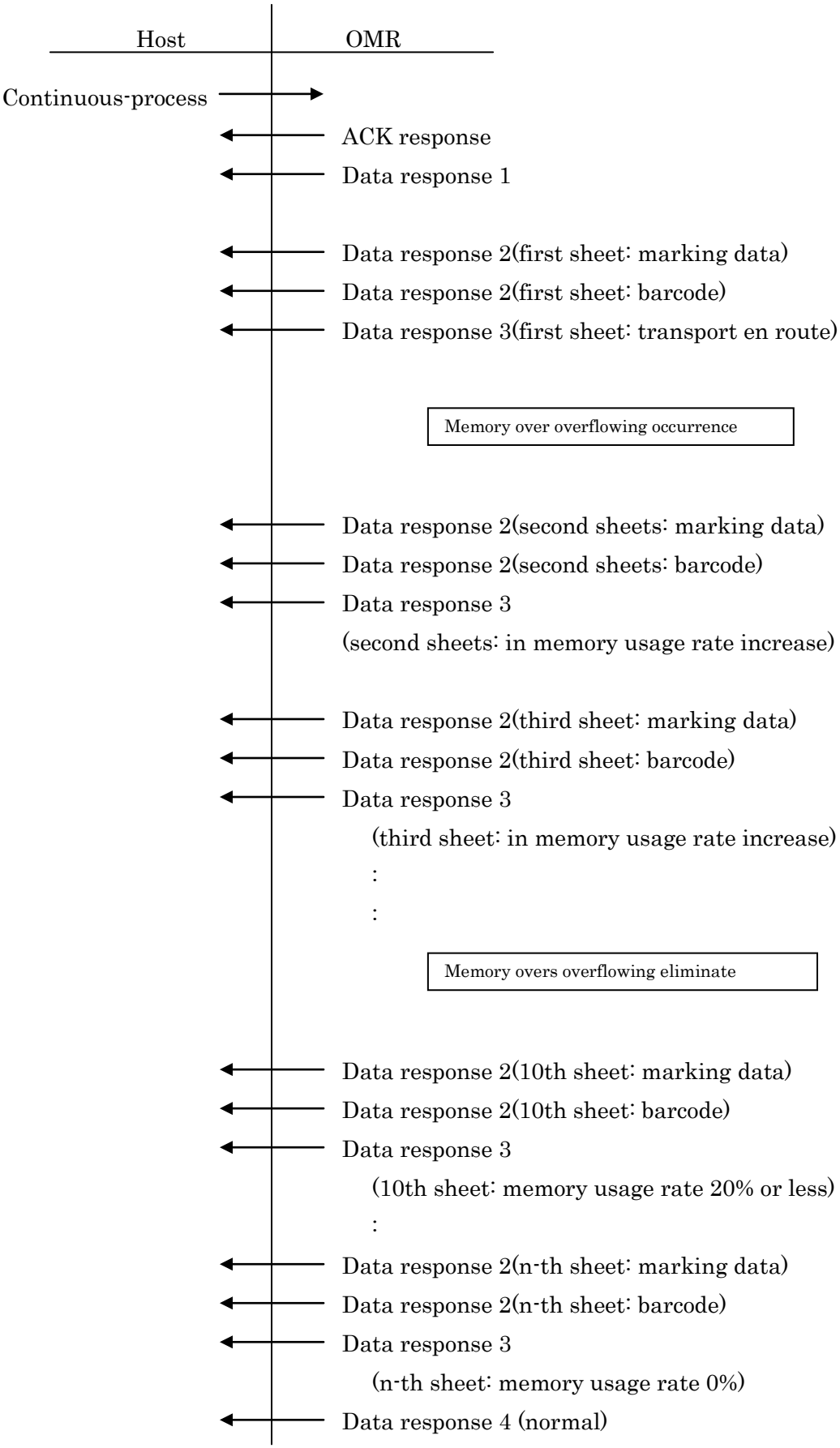


* When lead to stopping transport by results of data judgment process

(4) When cancellation caused

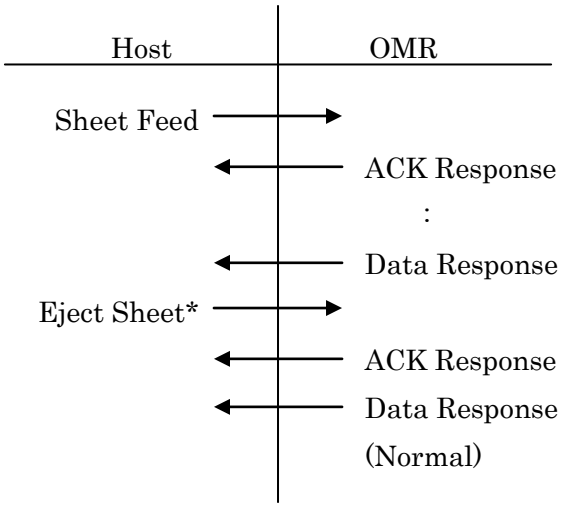


(5) When memory overflow caused



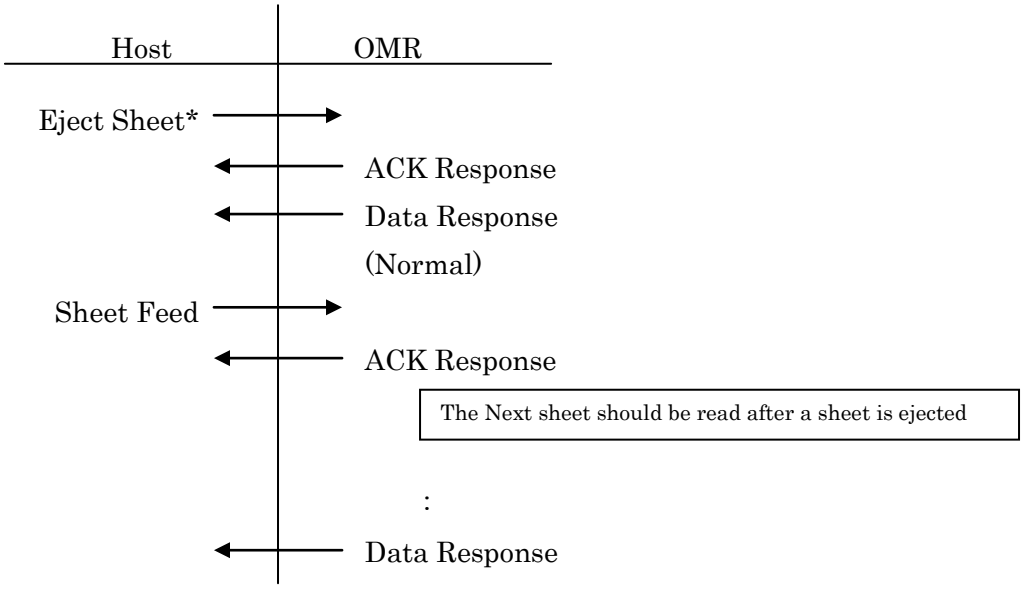
9.4 Eject Sheet

(1) Immediate Processing



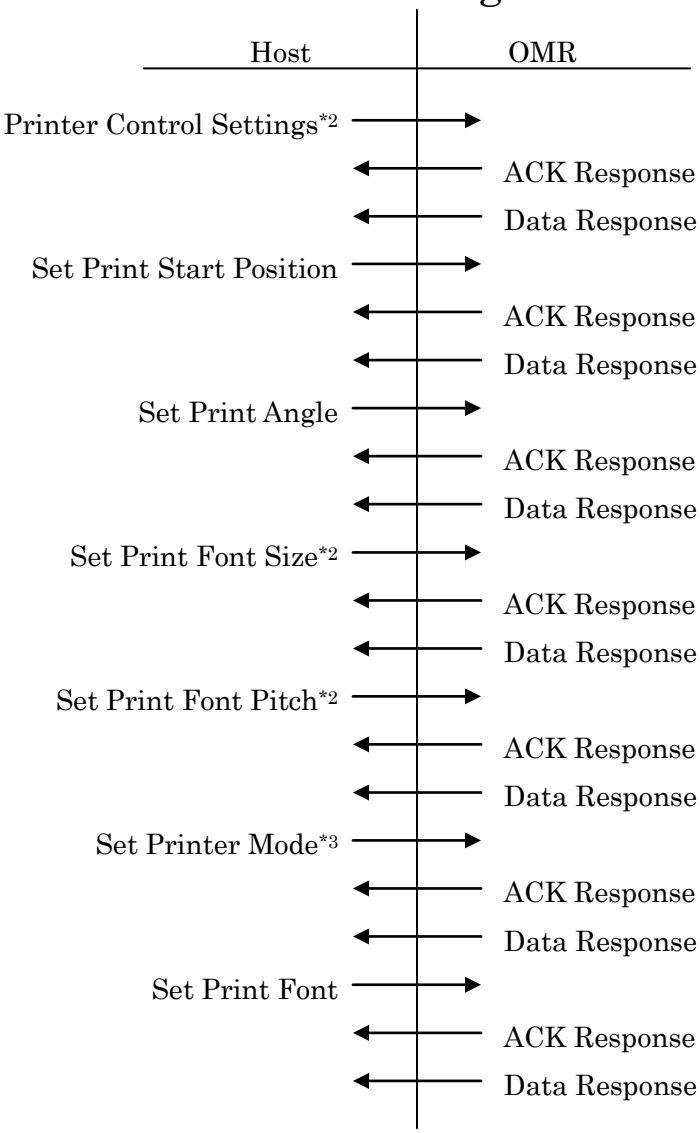
* Sheets will be ejected in the specified direction. Refer to “12.5 Eject Sheet [ER]” for details.

(2) Processing during the Sheet Reading



* Sheets will be ejected in the specified direction while the next sheet is being read. Refer to “12.5 Eject Sheet [ER]” for details.

9.5 Default Printer Configuration



*1 Once it is set, the value remains valid until it is changed. Setting must be done before printing.

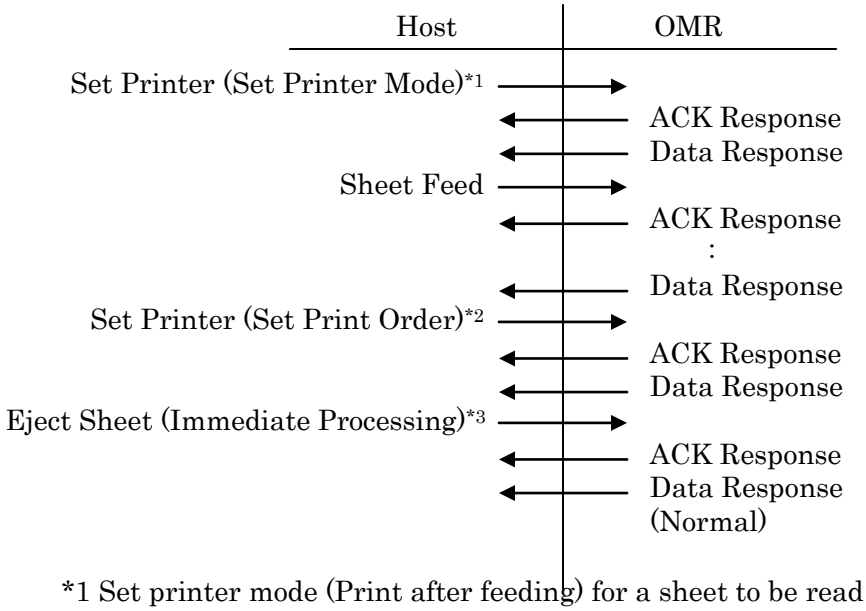
*2 Should be omitted when it is set through the panel operation.

*3 Set print mode for sheet to be read next.

*4 Please refer to “11.10 Printer Configuration [PR]” for details.

9.6 Print After Feeding

(1) Print at "Eject Sheet [ER]"

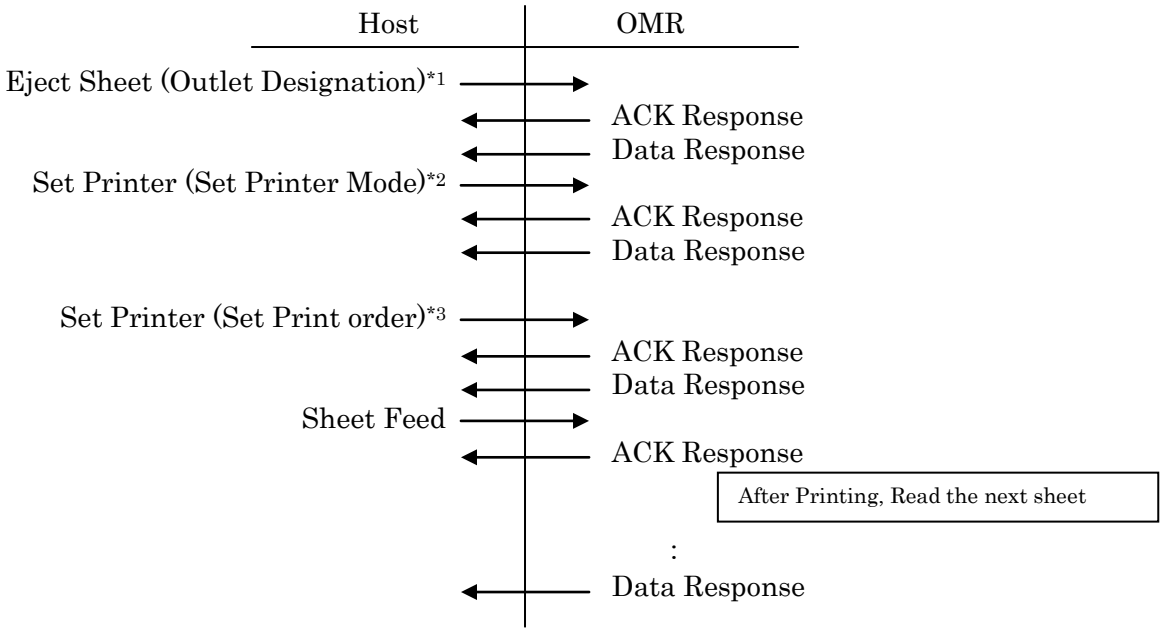


*1 Set printer mode (Print after feeding) for a sheet to be read next. Please refer to "11.10 Printer Configuration [PR]" for details

*2 Set print order for a sheet at the feed stop position. Please refer to "11.10 Printer Configuration [PR]" for details.

*3 Print at the set direction and eject the sheet. Please refer to "12.5 Eject Sheet [ER]" for details.

(2) Print at "Sheet Feed [SF]"

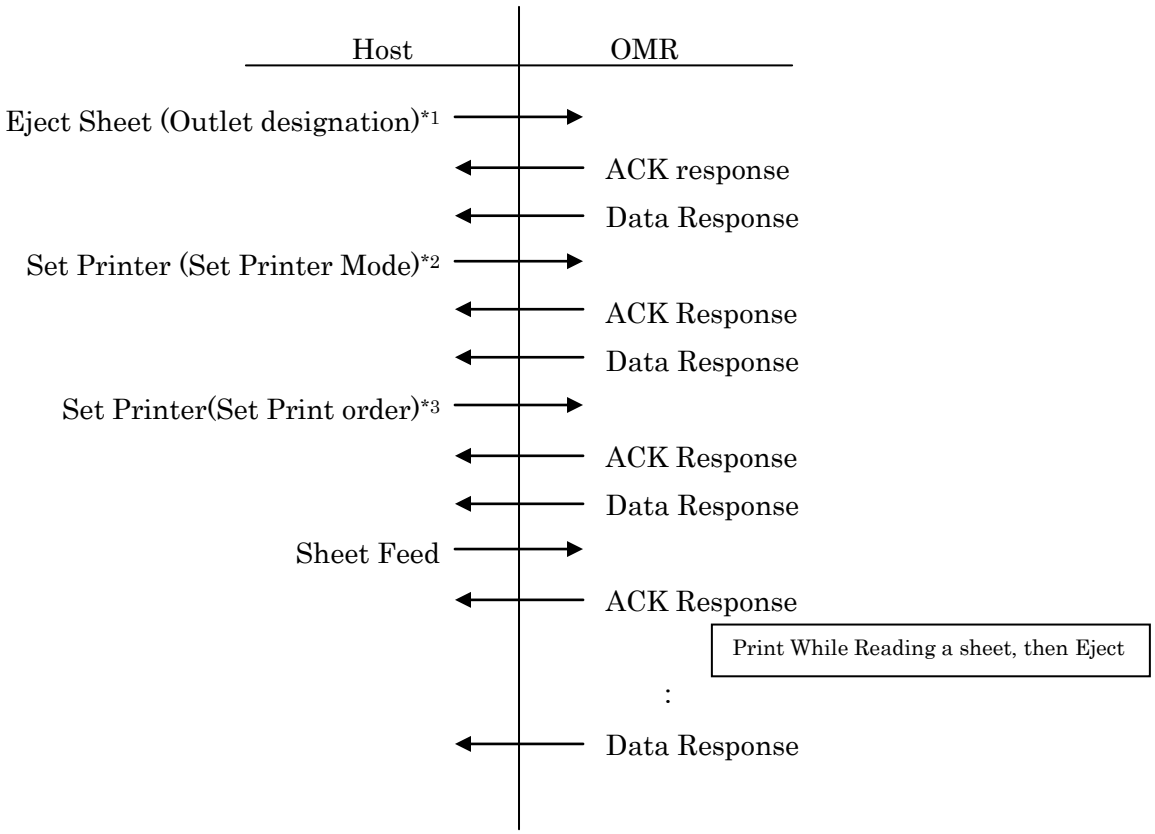


*1 Eject the sheet towards the set direction while reading the next sheet. Please refer to "12.5 Eject Sheet [ER]" for details.

*2 Set printer mode (Print after Feeding) for a sheet to be read next. Please refer to "11.10 Printer Configuration [PR]" for details.

*3 Set print order for a sheet at the feeding stop position. Please refer to "11.10 Printer Configuration [PR]" for details.

9.7 Print While Feeding

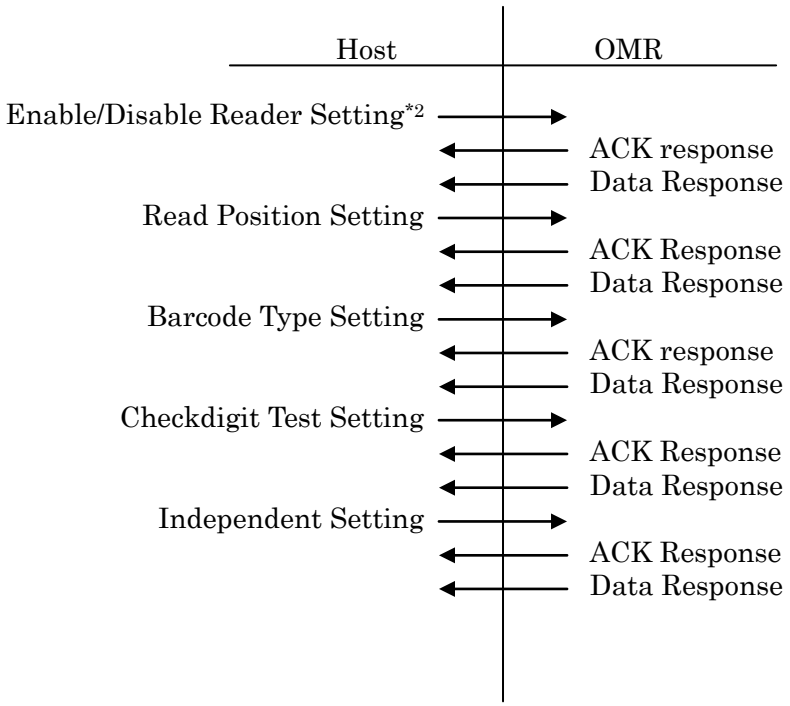


*1 Eject the sheet towards the set direction while reading the next sheet. Please refer to "12.5 Eject Sheet [ER]" for details.

*2 Set printer mode (Print While Feeding) for a sheet to be read next. Please refer to "11.10 Printer Configuration [PR]" for details.

*3 Set print order for the sheet to be read next. Please refer to "11.10 Printer Configuration [PR]" for details.

9.8 Initial bar Code Settings

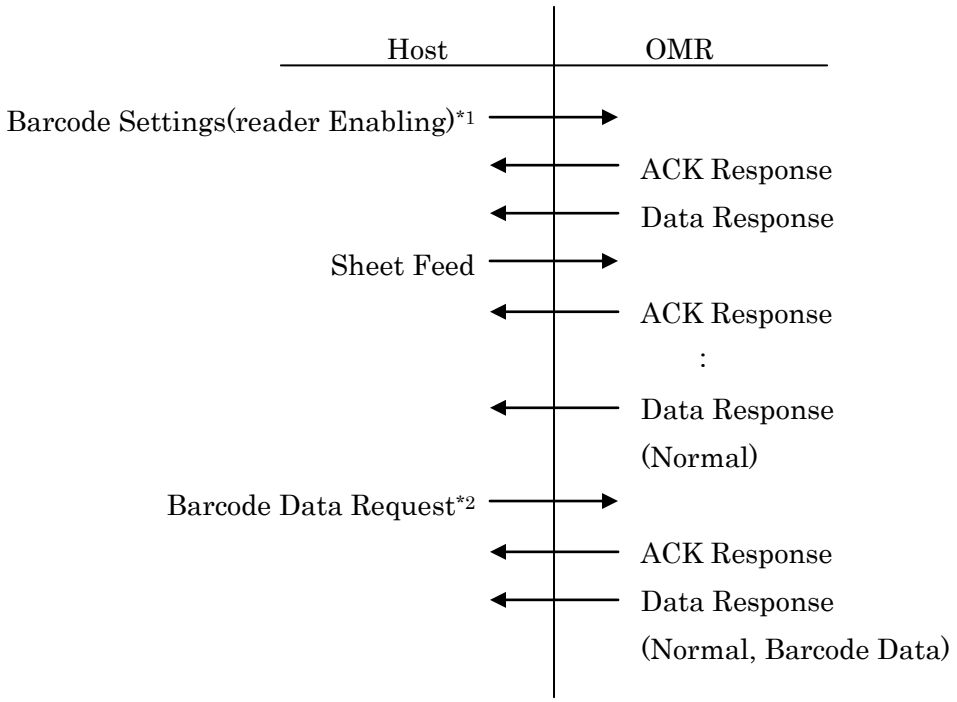


*1 Once made, settings will keep their same values until changed. Settings need to be chosen before the bar code reader can be used.

*2 Should be omitted when it is set through the panel operation.

*3 Refer to “11.11 Bar Code Settings [BC]” for details.

9.9 Barcode Reading

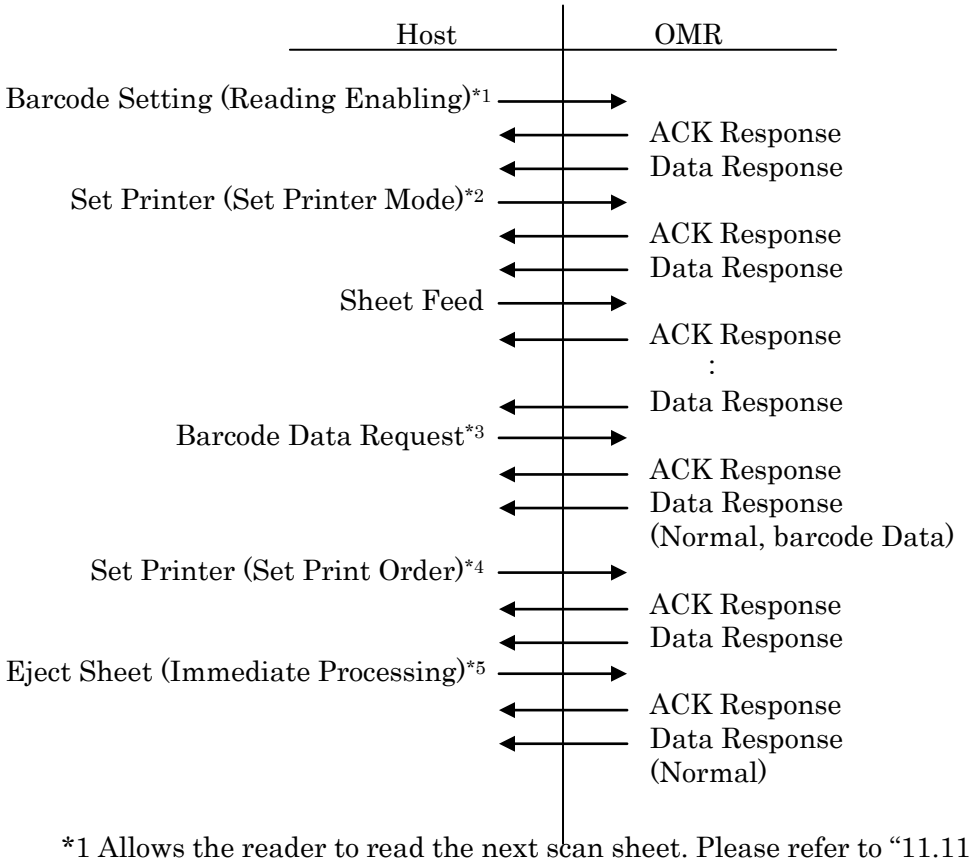


*1 Allows the reader to read the next scan sheet. Please refer to “11.11 Bar Code Settings [BC]” for details.

*2 Returns the designated results. Please refer to “13.2 Bar Code Data Request [BD]” for details.

9.10 Barcode Reading and Print Handling

(1) When Printing After Reading



*1 Allows the reader to read the next scan sheet. Please refer to “11.11 Bar Code Settings [BC]” for details.

*2 Set printer mode (Print after feeding) for a sheet to be read next. Please refer to “11.10 Printer Configuration [PR]” for details.

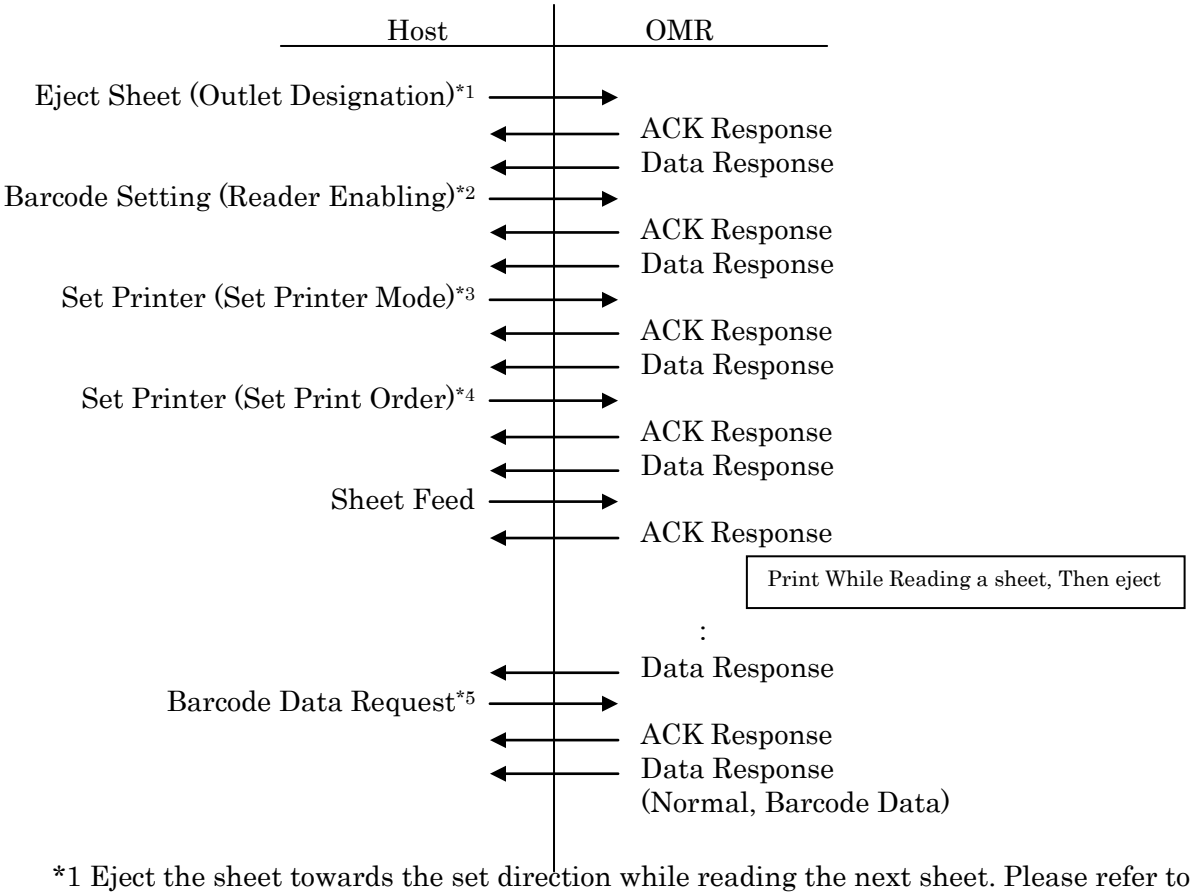
*3 Returns the designated results. Please refer to “13.2 Bar Code Data Request [BD]” for details.

*4 Set print order for a sheet at the feed stop position. Please refer to “11.10 Printer Configuration [PR]” for details.

*5 Print at the set direction and eject the sheet. Please refer to “12.5 Eject Sheet [ER]” for details.

*6 The bar code on the bottom half of the scan sheet cannot be read while the printer is printing. Please refer to “11.11 Bar Code Settings [BC]” for details.

(2) When Printing While Reading



*1 Eject the sheet towards the set direction while reading the next sheet. Please refer to "12.5 Eject Sheet [ER]" for details.

*2 Allows the reader to read the next scan sheet. Please refer to "11.11 Bar Code Settings [BC]" for details.

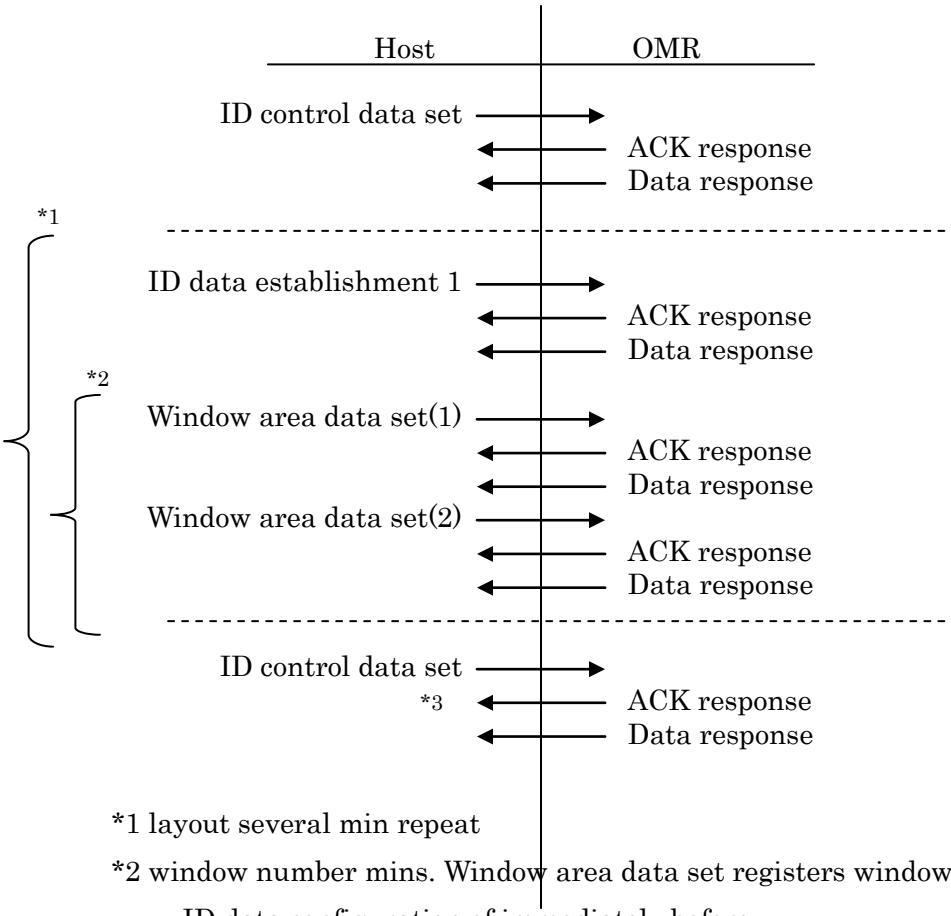
*3 Set printer mode (Print While Feeding) for a sheet to be read next. Please refer to "11.10 Printer Configuration [PR]" for details.

*4 Set print order for a sheet at the feed stop position. Please refer to "11.10 Printer Configuration [PR]" for details.

*5 Returns the designated results. Please refer to "13.2 Bar Code Data Request [BD]" for details.

9.11 Window set(only SR-11000)

9.11.1 Default setting



*1 layout several min repeat

*2 window number mins. Window area data set registers windowed register to layout of ID data configuration of immediately before.

* 3 PRM1='3'(decision of establishment)'s being specified, completion of window set is notified.

10 List of Command

The commands from the host are categorized into the following three groups:
(1) Parameter Commands : The commands used for various settings for the OMR
(2) Action Commands : The commands for each operation (Sheet reading, etc.) of the OMR
(3) Data Request Commands : The commands to read the various data from the OMR

Group	Name	Code	Contents
Parameter	Set Number of Columns	NC	Sets the number of Columns to be read
	Set Reading Method	RM	Sets the methods for reading marks
	Set Back Sensor Unit	BR	Sets Back Sensor unit is uses or not (Valid only Dial Reading Capability)
	Set Sheet Paper Weight	FT	Sets Sheet Thickness
	Set Warning Error	WE	Sets ON/OFF of various warning Errors detection
	Set Panel Operation	PO	Sets whether Panel Operation is active or not
	Buzzer Configuration	BZ	Sets Buzzer ON/OFF, Volume and Tone
	Set Identification Code	ID	Sets the Identification Code (ID) of OMR unit
	Set Image Reading	IR	Sets Reading side of Image / sets the DPI level (Valid only Image Reading Capability)
	Set Printer Configuration	PR	Set Font, Print Start Position etc (Valid only Printer unit installed)
	Set Barcode	BC	Sets Bar Code Read Mode, Read Start Position, etc (Valid only Barcode unit installed)
	Energy Saver Setting	ES	Sets the Energy Saver Mode
	Set Image Reading Sheet Length	IL	Set Reading size of Image (Valid only Image Reading Capability)
	Set ID control data	WM	Layout ID whole configuration (Valid only continuous-process capability)
	Set ID data	WL	Individual setting of layout ID (Valid only continuous-process capability)
	Set Windows area data	WD	Windows area individual setting (Valid only continuous-process capability)

(is continued on Next page)

(Continuation from previous page)

Group	Name	Code	Contents
Action Command	Software Reset	SR	Execute Software reset
	Sheet Feed	SF	Feed one(1) Sheet, and read the markdata, Stores the data into Memory
		NS	Feed One(1) Sheet, and read the Markdata and Image, Stores the all data into Memory. (Valid only Image Reading Capability)
	Sheet continuous reading	CF	A continuous reading processing of sheet (Valid only continuous-process capability)
	Canceling operation	CA	Perform an interruption of the sheet continuous reading (Valid only continuous-process capability)
	Move Hopper	HU	The hopper is move to UP /Down
	Eject Sheet	ER	Eject Sheet
	Initial Setting	IS	Various Setting are initialized
	Clear Error	CE	Error is cleared
	Windows information clearing	WC	Windows information block clear (Valid only continuous-process capability)
Data Request	Get Mark Density	MD	The Mark density(16Level) is requested
	Barcode Data Request	BD	Request the result of barcode read (Valid only Barcode unit installed)
	Get Status Information	ST	Request Current Status Information
	Get Sensor Information	DS	Sensor Information is Requested
	Get Device Information	DI	Request Device Information
	Get Machine Name	MN	Request OMR name
	Get Firmware Version	FV	Request the firmware version for Each unit
	Get Image sensor value	HS	Request Various value of Image Sensor (Valid only Image Reading Capability)

11 Set Parameter Command

11.1 Set Number of Columns [NC]

[Function]

This command sets the number of columns to be read. Save when this command's PRM1= 1 or 3.

This setting can be changed through panel operation.

[Command Format]

No.	Abbrev.		Code		
1	DAT	CMD	4EH	'N'	Set Number of Columns command
2			43H	'C'	
3		PRM1	**H	Command Instruction Data '1' (31H):Set Parameter '2' (32H):Read Parameter '3' (33H):Revert to default	
4		','	2CH	Separator between Parameters	
5		PRM2	**H	Number of Columns to be read Refer to [PRM2 Setting of Range and default]	
6			**H		

PRM1:Specifies which process is to be executed. (cannot be omitted)

* If PRM1 = "2" or "3", PRM 2 can be omitted because it is ignored.
* If PRM1 = "3", the current setting is reverted to a default value. PRM2:Specifies the number of columns to read.
* The setting range and default value will depend on the reader unit to be loaded.
* If omitted, then current value or default value is set.

[PRM2 Setting Range and Default Value]

No.	Sensor Pitch	PRM2Setting Range	Default
1	1/6 (0.166)	'01' (30H 31H) ~ '48' (34H 38H)	'48' (34H 38H)
2	0.2 '	'01' (30H 31H) ~ '40' (34H 30H)	'40' (34H 30H)
3	0.2' S	'01' (30H 31H) ~ '40' (34H 30H)	'40' (34H 30H)
4	0.25'	'01' (30H 31H) ~ '33' (33H 33H)	'33' (33H 33H)
5	0.3'	'01' (30H 31H) ~ '27' (32H 37H)	'27' (32H 37H)
6	0.3' F	'01' (30H 31H) ~ '24' (32H 34H)	'24' (32H 34H)
7	6mm	'01' (30H 31H) ~ '32' (33H 32H)	'32' (33H 32H)
8	0.2' K	'01' (30H 31H) ~ '40' (34H 30H)	'40' (34H 30H)
9	0.2'Special	'01' (30H 31H) ~ '40' (34H 30H)	'40' (34H 30H)
10	0.2'C	'01' (30H 31H) ~ '40' (34H 30H)	'40' (34H 30H)

[Response Format]

PRM1 = ’1’ (Set Parameters) , PRM1 = ’3’ (Revert to Default)

No.			Code	Note	
1	DAT	RES	4EH	‘N’	Set Number of Columns command
2			43H	‘C’	
3		ST1	**H	OMR status code(Front Side Status) Refer to “14. Status information ” for details	
4			**H		
5		ST2	**H	OMR status code(BackSide Status) Refer to “14. Status information ” for details	
6			**H		

PRM1 = ’2’ (Read Parameters)

No.			Code		
1	DAT	RES	4EH	‘N’	Set Number of Columns command
2			43H	‘C’	
3		ST1	**H	OMR status code(Front Side Status) Refer to “14. Status information ” for details	
4			**H		
5		ST2	**H	OMR status code(BackSide Status) Refer to “14. Status information ” for details	
6			**H		
7		RED	**H	Number of Columns to be read ‘01’ (30H 31H) ~ ‘48’ (34H 38H)	
8			**H		

11.2 Set Reading Methods [RM]

[Function]

This command sets the method by which the OMR reads marks.
If the Front Edge Control Method or Rear Edge Control Method is desired, please set the appropriate control multiple value. Save when this command's PRM1 = 1 or 3.
This setting can be changed through panel LCD panel operation.

[Command Format]

No.			Code		
1	DAT	CMD	52H	'R'	Set Reading Method command
2			4DH	'M'	
3		PRM1	**H	Command Instruction Data '1' (31H):Set Parameters '2' (32H):Read Parameters '3' (33H):Revert to Default	
4		','	2CH	Separator between parameters	
5		PRM2	**H	Reading Method '1' (31H):Front Edge Control Method '2' (32H):Rear Edge Control Method '3' (33H):Direct Under Method(DEFAULT) '4' (34H):FACOM Method '5' (35H):Mark Spacing Method (Without Front Edge Margin Reading) '6' (36H):Mark Spacing Method (With Front Edge Margin Reading)	
6		','	2CH	Separator between parameters	
7		PRM3	**H	Control multiple value (Valid 31H/32H only) Front Edge Control Method:'1' (31H) ~ '9' (39H) Rear Edge Control Method:'2' (32H) ~ '9' (39H) [Default ＝ '3']	

PRM1:Specifies which process is to be executed. (Cannot be omitted)

* If PRM1 = "2" or "3", PRM 2 and PRM 3 can be omitted because they are ignored.
* If PRM1 = "3", the current setting is reverted to a default value.

PRM 2:Specifies the reading method.

* If PRM2 = "3" through "6", PRM 3 can be omitted because it is ignored.
* If omitted, then current value or default value is set.
* If the control multiple value is set to "1" and the user changes the reading method to Rear Edge Control Method (PRM2 = "2"), the multiple value is automatically set to "2". In all other cases, the current value is retained.
* If the reader unit sensor pitch is 6mm, the read formula will encounter a parameter range error.

PRM3:Specifies the control multiple value.

* If omitted, then current value or default value is set.
* PRM3 can be set only when Front Edge Control Method or Rear Edge Control Method is used. In all other reading methods, PRM3 is ignored.

[PRM Setting]

Process	PRM1	PRM2	PRM3	
Set to Front Edge Control Method		‘1’ (31H)	’1’ (31H) ~‘9’ (39H)	Control Multiple Value must be set
Set to Rear Edge Control Method		‘2’ (32H)	’2’ (32H) ~‘9’ (39H)	
Set to Direct Method		‘3’ (33H)		
Set to FACOM Method	‘1’ (31H)	‘4’ (34H)		
Set to Mark Spacing Method (W/O front edge margin Reading)		‘5’ (35H)		
Set to Mark Spacing Method (With front edge margin Reading)		‘6’ (36H)		
Read parameters	‘2’ (32H)			
Revert to default	‘3’ (33H)			

[Explanation of Reading Methods]

The following is a detailed explanation of various reading methods and pertinent parameters.

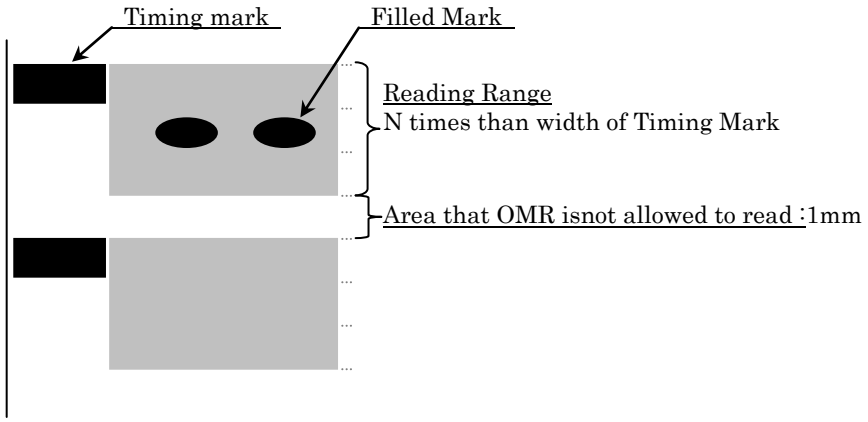
(1) Front Edge Control Method

Starting from the front edge of the timing mark, the reading range is set as n times the width of the timing mark.

R = d x n whereas,

The control multiple value needs to be set so as to allow approximately 1mm of margin till the next timing mark, i.e.,

R < TP - approximately 1mm



R:Reading Range(:mm)
TP:Distance between the tip of one timing Mark to the next one(:mm)
d:Timing Mark Width(:mm)
n:Control Multiple Value (PRM3)

[Example: how to calculate a valid control multiple value]

If TP = 4.23mm, d = 0.89mm, then

R = d × n

= 0.89mm × PRM3

0.89mm × PRM3 < TP − Approx 1mm

< 4.23mm − Approx 1mm

< 3.23mm

PRM3 < 3.23mm ÷ 0.89mm

< 3.63

Control Multiple Value: PRM3 can be set between value 1 and 3.

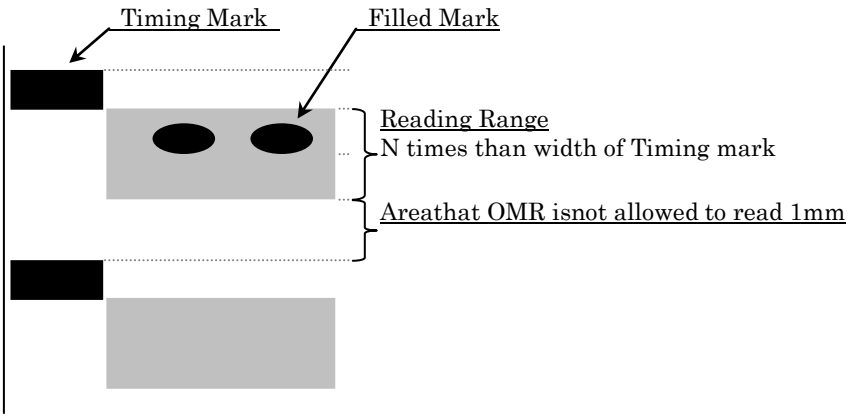
(2) Rear Edge Control Method

Starting from the rear edge of the timing mark, the reading range is set as n times the width of the timing mark.

R = d x n

The control multiple value needs to be set so as to allow approximately 1mm of margin till the next timing mark,

i.e., R ≤ TP - d - approximately 1mm



R: Reading Range (:mm)
TP:Distance between the tip of one timing Mark to the next one (:mm)
d:Timing Mark Width(:mm)
n:Control Multiple Value (PRM3)

[Example: how to calculate a valid control multiple value]

If TP = 4.23mm and d=0.89mm, then,

R = d x n = 0.89mm x (PRM3 - 1)

0.89mm x (PRM3 - 1) < TP - d - approx. 1mm

< 4.23mm - 0.89mm - approx. 1mm

< 2.34mm

PRM3 – 1 < 2.34mm ÷ 0.89mm

< 2.63

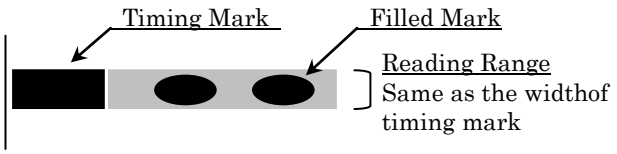
PRM3 < 2.63 + 1

< 3.63

Control Multiple Value: PRM3 can be set between value 2 and 3.

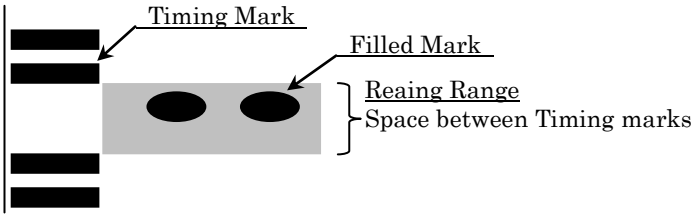
(3)Direct Under Methods

The Reading Range is the same as the timing mark width



(4)FACOM Method

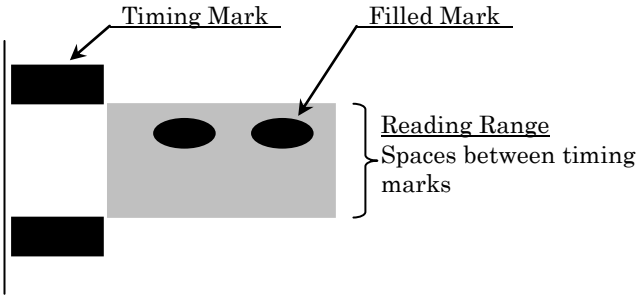
Two Timing marks are deemed to be One(1) , and the reading range is set as the space between two timing marks



(5) Mark Spacing Method

(W/O front Edge Margin Reading)

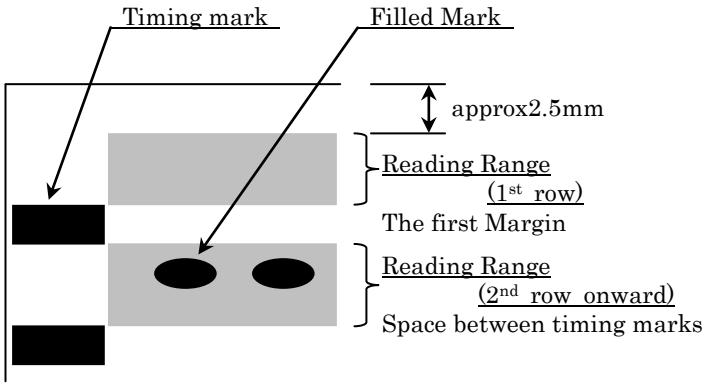
The reading range is set as the spaces between two timing marks



(6) Mark Spacing Method

(With front Edge Margin Reading)

The margin at the begining of the form is deemed to be the first row, and the space between timing marks is deemed to be the second row and onward



[Response Format]

PRM1 = ’1’ (Set Parameters) , PRM1 = ’3’ (Revert to Default)

No.			Code		
1	DAT	RES	52H	‘R’	Set Reading Method Command
2			4DH	‘M’	
3		ST1	**H	OMR status code(Front Side Status) Please refer to “14. Status information ” for detail..	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to “14. Status information ” for detail.	
6			**H		

PRM1 = ’2’ (Read Parameter)

No.	Abbrev.		Code		
1	DAT	RES	52H	‘R’	Set Reading Method Command
2			4DH	‘M’	
3		ST1	**H	OMR status code(Front Side Status) Please refer to “14. Status information ” for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to “14. Status information ” for detail	
6			**H		
7		RED1	**H	Reading method ‘1’ (31H) ~ ’6’ (36H)	
8		‘,’	2CH	Separator between response data	
9		RED2	**H	Control Multiple Value ‘1’ (31H) ~ ’9’ (39H) RED1 = ’3’ ~ ’6’ , RED 2 is fixed at “0” (30H)	

11.3 Set Back Sensor Unit [BR]

[Function]

This command sets whether or not the Back Sensor Unit is used.

When sheets marked only on the front side are fed into a dual-side reading machine, the mark density information for the back side is not transmitted if the use of the Back Sensor Unit is not specified.

Save when this command's PRM1 = 1 or 3. This setting can be changed through panel operation.

[Command Format]

No.	Abbrev.		Code		
1	DAT	CMD	42H	'B'	Set Back Sensor Unit Command
2			52H	'R'	
3		PRM1	**H	Command Instruction Data '1' (31H):Set Parameters '2' (32H):Read Parameters '3' (33H):Revert to Default	
4		','	2CH	Separator between Parameters	
5		PRM2	**H	Use Back Sensor Unit '0' (30H):No '1' (31H):Yes [Default]	

PRM1:Specifies which process is to be executed. (Cannot be omitted)

* If PRM1 = "2" or "3", PRM 2 can be omitted because it is ignored.
* If PRM1 = "3", the current setting is reverted to a default value.

PRM 2:Specifies the use of Back Sensor Unit.

* If omitted, then current value or default value is set.

[Response format]

PRM1 = '1' (Set parameter) , PRM1 = '3' (Revert to Default)

No.	Abbrev.		Code		
1	DAT	RES	42H	'B'	Set Back Sensor Unit Command
2			52H	'R'	
3		ST1	**H	OMR status code(Front Side Status) Please refer to "14. Status information " for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to "14. Status information " for detail	
6			**H		

PRM1 = '2' (Read Parameters)

No.	Abbrev.		Code		
1	DAT	RES	42H	'B'	Set back Sensor Unit Command
2			52H	'R'	
3		ST1	**H	OMR status code(Front Side Status) Please refer to "14. Status information " for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to "14. Status information " for detail	
6			**H		
7		RED1	**H	Reading by back sensor '0' (30H) ~ '1' (31H)	

11.4 Set Sheet Paper Weight [FT]

[Function]

This command sets sheet paper weight (thickness). This number is used as a standard in double feed error detection. When Automatic Detection is selected, the paper weight of the first sheet is used as a standard in
double feed error detection. Save when this command's PRM1 = 1 or 3. This setting can be changed through panel operation.

[Command Format]

No.			Code		
1	DAT	CMD	46H	'F'	Set Sheet Paper Weight Command
2			54H	'T'	
3		PRM1	**H	Command Instruction Data '1' (31H):Set Parameters '2' (32H):Read parameters '3' (33H):Revert to Default	
4		','	2CH	Separator between Parameters	
5		PRM2	**H	Sheet paper Weight (Thickness) '0' (30H):Automatic Detection '1' (31H):55kg (64g/m²) '2' (32H):72kg (84g/m²) '3' (33H):90kg (105g/m²) [Default] '4' (34H):110kg (128g/m²) '5' (35H):135kg (157g/m²)	

PRM1:Specifies which process is to be executed. (Cannot be omitted)

* If PRM1 = "2" or "3", PRM 2 can be omitted because it is ignored.
* If PRM1 = "3", the current setting is reverted to a default value.

PRM 2:Specifies sheet paper weight (thickness).

* If omitted, then current value or default value is set.
*PRM2='1(55Kg form)' is recognized as PRM2='2(72Kg form)' when you use SR-3500/6000/6500/6500 HYBRID.

[Response Format]

PRM1 = '1' (Set Parameter) , PRM1 = '3' (Revert to Default)

No.	Abbrev.		Code		
1	DAT	RES	46H	'F'	Set Sheet Paper Weight Command
2			54H	'T'	
3		ST1	**H	OMR status code(Front Side Status) Please refer to "14. Status information " for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to "14. Status information " for detail	
6			**H		

PRM1 = '2' (Read Parameters)

No.	Abbrev.		Code		
1	DAT	RES	46H	'F'	Set Sheet Paper Weight Command
2			54H	'T'	
3		ST1	**H	OMR status code(Front Side Status) Please refer to "14. Status information " for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to "14. Status information " for detail	
6			**H		
7		RED	**H	Sheet Paper Weight (Thickness) '0' (30H) ~ '5' (35H)	

11.5 Set Warning Error [WE]

[Function]

This command sets on/off of various warning detection, such as sheet empty, timing mark error, double feed, left side skew and mark skew.

Depending on the type of error, the status output, buzzer output and LCD display may or may not be available when a particular error detection is turned off.

If Automatic Paper Ejection is turned on, a sheet containing an error (as defined by this command) will be automatically ejected to the Select Stacker.

Save when this command's PRM1 = 1 or 3. This setting can be changed through panel operation.

[Command Response]

No.			Code		
1	DAT	CMD	57H	'W'	Set Warning Error Command
2			45H	'E'	
3		PRM1	**H	Command Instruction Data '1' (31H):Set Parameters '2' (32H):Read Parameters '3' (33H): Revert to Default	
4		','	2CH	Separator between Parameters	
5		PRM2	**H	Automatic Paper Ejection ON/OFF '0' (30H):OFF '1' (31H):ON [Default]	
6		','	2CH	Separator between Parameters	
7		PRM3	**H	Sheet empty detection ON/OFF '0' (30H):OFF [Default] '1' (31H):ON	
8		','	2CH	Separator between Parameters	
9		PRM4	**H	Timing MarkError Detection ON/OFF '0' (30H):OFF '1' (31H):ON [Default]	
10		','	2CH	Separator between Parameters	
11		PRM5	**H	Double Feed Detection ON/OFF '0' (30H):OFF '1' (31H):ON [Default]	
12		','	2CH	Separator between Parameters	
13		PRM6	**H	Left Side Skew Detection ON/OFF '0' (30H):OFF '1' (31H): ON [Default]	
14		','	2CH	Separator between Parameters	
15		PRM7	**H	Mark Skew Detection ON/OFF '0' (30H):OFF [Default] '1' (31H):ON	
16		','	2CH	Separator between Parameters	
17		PRM8	**H	Mark Skew Detection Row '001' (30H 30H 31H) ~ '155' (31H 35H 35H) [Default = '001']	
18			**H		
19			**H		
20		','	2CH	Separator between Parameters	
21		PRM9	**H	Mark Skew Detection Level '01' (30H 31H) ~ '16' (31H 36H) [Default = '04']	
22			**H		

PRM1:Specifies which process is to be executed. (Cannot be omitted)

* If PRM1 = “2” or “3”, PRM 2 to PRM 9 can be omitted because they are ignored.
* If PRM1 = “3”, the current setting is reverted to a default value.

PRM 2:Specifies Automatic Paper Ejection on/off

* If omitted, then current value or default value is set.

PRM 3:Specifies Sheet Empty Detection on/off

* If omitted, then current value or default value is set.

PRM 4:Specifies Timing Mark Error Detection on/off

* If omitted, then current value or default value is set.

PRM 5:Specifies Double Feed Detection on/off

* If omitted, then current value or default value is set.

PRM 6:Specifies Left Side Skew Detection on/off

* If omitted, then current value or default value is set.

PRM 7:Specifies Mark Skew Detection on/off

* If PRM7 = “0”, PRM8, PRM9 can be omitted because it is ignored.
* If omitted, then current value or default value is set.

PRM 8:Specifies Mark Skew Detection row

* If omitted, then current value or default value is set.
* PRM8 can be set only when Mark Skew Detection is turned on. If it is turned off, PRM8 is ignored.

PRM 9:Specifies Mark Skew Detection level

* If omitted, then current value or default value is set.
* PRM9 can be set only when Mark Skew Detection is turned on. If it is turned off, PRM9 is ignored.
* Care should be taken when Mark Skew Detection level is changed, because it uses “reading sensitivity level” used by existing S/K model (SR-600 / 700 / 900) compatible mode.

[Status Output , Buzzer Output and LCD Display when Error Detection is Turned OFF]

No.	Error details	Status output	Buzzer	LCDDisplay
1	Sheet Empty	o	x	x
2	Timing Mark Error	x	x	x
3	Double Feed	x	x	x
4	Left side (end) Skew	x	x	x
5	Mark Skew	x	x	x

o : output x : no output

[Errors Subject to Automatic Paper Eject]

No.	Error Details	Automatic Paper discharge
1	Sheet Empty	x
2	Timing Mark Error	△
3	Double Feed	o
4	Left side(end) Skew	o
5	Mark Skew	o
6	Paper Jam and Paper remain	x
7	etc error	o

o:Automatic Discharge executed
x:Automatic Discharge non executeded
△:Depending on the conditions, the paper may not automatically discharged*2
*1 Paper Eject is not be executed when error detection is turned OFF
*2 Paper Eject is not be executed when Barcode unit installed

[Response Format]

PRM1 = '1' (Set parameter) , PRM1 = '3' (Revert to Default)

No.	Abbrev.		Code		
1	DAT	RES	57H	'W'	Set Warning Error Command
2			45H	'E'	
3		ST1	**H	OMR status code(Front Side Status) Please refer to "14. Status information " for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to "14. Status information " for detail	
6			**H		

PRM1 = '2' (Read Parameters)

No.	Abbrev.		Code		
1	DAT	RES	57H	'W'	Set Warning Error Command
2			45H	'E'	
3		ST1	**H	OMR status code(Front Side Status) Please refer to "14. Status information " for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to "14. Status information " for detail	
6			**H		
7		RED1	**H	Automatic Paper Eject ON/OFF '0' (30H) ~ '1' (31H)	
8		','	2CH	Separator between response data	
9		RED2	**H	Sheet Empty Detection ON/OFF '0' (30H) ~ '1' (31H)	
10		','	2CH	Separator between response data	
11		RED3	**H	Timing Mark Error Detection ON/OFF '0' (30H) ~ '1' (31H)	
12		','	2CH	Separator between response data	
13		RED4	**H	Double Feed Detection ON/OFF '0' (30H) ~ '1' (31H)	
14		','	2CH	Separator between response data	
15		RED5	**H	Left Side Skew Detection ON/OFF '0' (30H) ~ '1' (31H)	
16		','	2CH	Separator between response data	
17		RED6	**H	Mark Skew Detection ON/OFF '0' (30H) ~ '1' (31H)	
18		','	2CH	Separator between response data	
19		RED7	**H	Mark Skew Detection Row '001' (30H 30H 31H) ~ '155' (31H 35H 35H) If RED6 = '0' , is fixed '000' (30H 30H 30H)	
20			**H		
21			**H		
22		','	2CH	Separator between response data	
23		RED8	**H	Mark Skew Detection level '01' (30H 31H) ~ '16' (31H 36H) If RED6 = '0' , is fixed '00' (30H 30H)	
24			**H		

11.6 Set Panel Operation [PO]

[Function]

This command sets whether panel operation is allowed or not.

If panel operation is not allowed, only the MENU button becomes inoperable. All other buttons continue to function. Save when this command's PRM1 = 1 or 3.

[Command Format]

No.			Code		
1	DAT	CMD	50H	'P'	Set Panel Operation Command
2			4FH	'O'	
3		PRM1	**H	Command Instruction Data '1' (31H):Set parameters '2' (32H):Read Parameters '3' (33H):Revert to Default	
4		','	2CH	Separator between Parameters	
5		PRM2	**H	Panel Operation ON/OFF '0' (30H):OFF '1' (31H):ON [Default]	

PRM1:Specifies which process is to be executed. (Cannot be omitted)

* If PRM1 = "2" or "3", PRM 2 can be omitted because it is ignored.

* If PRM1 = "3", the current setting is reverted to a default value.

PRM 2:Specifies whether panel operation is allowed or not

* If omitted, then current value or default value is set.

[Response Format]

PRM1 = '1' (Set Parameter) , PRM1 = '3' (Revert to Default)

No.	Abbrev.		Code		
1	DAT	RES	50H	'P'	Set Panel Operation Command
2			4FH	'O'	
3		ST1	**H	OMR status code(Front Side Status) Please refer to "14. Status information " for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to "14. Status information " for detail	
6			**H		

PRM1 = '2' (Read parameter)

No.	Abbrev.		Code		
1	DAT	RES	50H	'P'	Set Panel Operation Command
2			4FH	'O'	
3		ST1	**H	OMR status code(Front Side Status) Please refer to "14. Status information " for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to "14. Status information " for detail	
6			**H		
7		RED	**H	Panel Operation ON/OFF '0' (30H) ~ '1' (31H)	

11.7 Buzzer Configration [BZ]

[Function]

This command sets buzzer on/off, buzzer volume and buzzer tone.

If the buzzer is turned off, all buzzer output is unavailable, thus only the error status output and LCD display are available.

Save when this command's PRM1 = 1 or 3. This setting can be changed through panel operation.

[Command Format]

No.			Code		
1	DAT	CMD	42H	'B'	Buzzer Configration
2			5AH	'Z'	
3		PRM1	**H	Command Instruction Data '1' (31H):Set Parameters '2' (32H):Read Parameters '3' (33H):Revert to Default	
4		','	2CH	Separator between Parameters	
5		PRM2	**H	Buzzer ON/OFF '0' (30H):OFF '1' (31H):ON [Default]	
6		','	2CH	Separator between Parameters	
7		PRM3	**H	Buzzer volume '1' (31H) ~ '5' (35H) [Default ＝ '3']	
8		','	2CH	Separator between Parameters	
9		PRM4	**H	Buzzer tone '1' (31H) ~ '3' (33H) [Default ＝ '2']	

PRM1:Specifies which process is to be executed. (Cannot be omitted)

* If PRM1 = "2" or "3", PRM 2 and PRM4 can be omitted because they are ignored.
* If PRM1 = "3", the current setting is reverted to a default value.

PRM 2:Specifies buzzer on/off.

* If PRM2 = "0", PRM 3,PRM 4 can be omitted because it is ignored.
* If omitted, then current value or default value is set.

PRM3:Specifies buzzer volume.

* If omitted, then current value or default value is set.
* PRM3 can be set only when the buzzer is on. If the buzzer is off, PRM3 is ignored.

PRM4:Specifies buzzer tone.

* If omitted, then current value or default value is set.
* PRM4 can be set only when the buzzer is on. If the buzzer is off, PRM4 is ignored.

[Response Format]

PRM1 = '1' (Set Parameter) , PRM1 = '3' (Revert to Default)

No.	Abbrev.		Code		
1	DAT	RES	42H	'B'	Set Buzzer Configration Command
2			5AH	'Z'	
3		ST1	**H	OMR status code(Front Side Status) Please refer to "14. Status information " for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to "14. Status information " for detail	
6			**H		

PRM1 = '2' (Read Parameters)

No.	Abbrev.		Code		
1	DAT	RES	42H	'B'	Set Buzzer Configration Command
2			5AH	'Z'	
3		ST1	**H	OMR status code(Front Side Status) Please refer to "14. Status information " for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to "14. Status information " for detail	
6			**H		
7		RED1	**H	Buzzer ON/OFF '0' (30H) ~ '1' (31H)	
8		','	2CH	Separator between response data	
9		RED2	**H	Buzzer Volume '1' (31H) ~ '5' (35H) If RED1 = '0' , is fixed '0' (30H)	
10		','	2CH	Separator between response data	
11		RED3	**H	Buzzer tone '1' (31H) ~ '3' (33H) If RED1 = '0' , is fixed '0' (30H)	

11.8 Set Identification Code [ID]

[Function]

This command sets the OMR's identification code.

By setting an identification code, it is possible to distinguish it from other applications.

Save when this command's PRM1= 1 or 3.

[Command Format]

No.			Code		
1	DAT	CMD	49H	'I'	Set Identification Code Command
2			44H	'D'	
3		PRM1	**H	Command Instruction Data '1' (31H):Set Parameter '2' (32H):Read Parameter '3' (33H):Revert to Default	
4		','	2CH	Separator between parameters	
5		PRM2	**H	Identification Code (1 to 20 Charactors) [Default = SEKONIC SR-****]	
:			:		
n			**H		

PRM1:Specifies which process is to be executed. (Cannot be omitted)

* If PRM1 = "2" or "3", PRM 2 can be omitted because it is ignored.
* If PRM1 = "3", the current setting is reverted to a default value.

PRM 2:Specifies the identification code.

* When omitting, delete the present setting value.

[PRMsetting]

Process	PRM1	PRM2	
Set an Identification Code	'1' (31H)	00H ~ FFH	1 to 20 Charactors can be set
Delete Identification Code			
Read Parameters	'2' (32H)		
Revert to Default	'3' (33H)		

[Response Format]

PRM1 = '1' (Set parameters) , PRM1 = '3' (Revert to Default)

No.			Code		
1	DAT	RES	49H	'I'	Set Identification Code Command
2			44H	'D'	
3		ST1	**H	OMR status code(Front Side Status)	
4			**H	Please refer to "14. Status information " for detail	
5		ST2	**H	OMR status code(Back Side Status)	
6			**H	Please refer to "14. Status information " for detail	

PRM1 = '2' (Read Parameters)

No.			Code		
1	DAT	RES	49H	"I'	Set Identification Code Command
2			44H	'D'	
3		ST1	**H	OMR status code(Front Side Status)	
4			**H	Please refer to "14. Status information " for detail	
5		ST2	**H	OMR status code(Back Side Status)	
6			**H	Please refer to "14. Status information " for detail	
7		RED	**H	Identification Code	
:			:	* Charactors not defined is fixed at "0 (00H)"	
26			**H	Refer to[Explain of Response]	

[Explain of Response]

When Identification code is set at default(SR-3500)

No.		Code		
7	RED	53H	'S'	Identification Code is 'SEKONIC SR-3500'
8		45H	'E'	
9		4BH	'K'	
10		4FH	'O'	
11		4EH	'N'	
12		49H	'I'	
13		43H	'C'	
14		20H	' '	
15		53H	'S'	
16		52H	'R'	
17		2DH	'-'	
18		33H	'3'	
19		35H	'5'	
20		30H	'0'	
21		30H	'0'	
22		00H		
23		00H		
24		00H		
25		00H		
26		00H		

When the Identification Code is not defined (or Identification Code is deleted)

No.	Abbrev.	Code	
7	RED	00H	Identification Code
:		:	
26		00H	

11.9 Set Image Reading [IR]

[Function]

Sets Image Reading / sets the DPI level **(Valid Only SR-3500 HYBRID)**

Save when this command's PRM1 = 1 or 3.

This function is only for Image unit OMR. Other OMR not installed Image sensor reply NAK response.

[Command Format]

No.			Code		
1	DAT	CMD	49H	'I'	Set Image Reading Command
2			52H	'R'	
3		PRM1	**H	Command Instruction Data '1' (31H):Set Parameters '2' (32H):Read Parameters '3' (33H):Revert to Default	
4		','	2CH	Separator between Parameters	
5		PRM2	**H	Refer [PRM setting]	
6		','	2CH	Separator between Parameters	
7		PRM3	**H	Refer [PRM setting]	

PRM1:Specified which process is to be executed. (Cannot be omitted)

If PRM1 = "2" or "3", PRM 3 can be omitted because it is ignored.

If PRM1 = "3", the current setting is reverted to a default value.

PRM 2:Specifies setting parameters. (Cannot be omitted)

PRM 3:Specifies details of setting parameters.

* Varies depending on PRM2 specification.

[PRM Setting Parameter]

Process	PRM1	PRM2	PRM3	
Set Reading Side	‘1’ (31H)	‘1’ (31H)	‘1’ (31H):Front/Back [Default] ‘2’ (32H):Front ‘3’ (33H):Back	
Set DPI		‘2’ (32H)	‘1’ (31H):300DPI [Default] ‘2’ (32H):200DPI ‘3’ (33H):150DPI ‘4’ (34H):100DPI	
Set front Image sensor		3’ (33H)	‘0’ (30H):Color ‘1’(31H):Black/White [Default] ‘2’ (32H):(R) light uses ‘3’ (33H):(G) light uses ‘4’ (34H):(B) light uses	*1
Set Back Image Sensor		‘4’ (34H)	‘0’ (30H):Color ‘1’ (31H):Black/White [Default] ‘2’ (32H):(R) light uses ‘3’ (33H):(G) light uses ‘4’ (34H):(B) light uses	*1
Read “Set Reading Side” Parameter	‘2’ (32H)	‘1’ (31H)		
Read ”Set DPI” Parameter		‘2’ (32H)		
Read “Set front Image Sensor” Parameter		‘3’ (33H)		
Read ”Set Back Image Sensor “ Parameter		‘4’ (34H)		
Initialize Reading side (Front/Back)	‘3’ (33H)	‘1’ (31H)		
Initialize DPI setting		‘2’ (32H)		
Initialize Front Image Sensor		‘3’ (33H)		
Initialize Back Image sensor		‘4’ (34H)		

*1 Set (Front/back)Image sensor, it can be set separately front sensor and back sensor,
But Both sides can be output as Color if “Color” is included one of the side.

[Response Format]

PRM1 = '1' (Set Parameters) , PRM1 = '3' (Revert to Default)

No.			Code		
1	DAT	RES	49H	'I'	Set Image Reading
2			52H	'R'	
3		ST1	**H	OMR status code(Front Side Status) Please refer to "14. Status information " for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to "14. Status information " for detail	
6			**H		

PRM1 = '2' (Read Parameters)

No.			Code		
1	DAT	RES	49H	'I'	Set Image Reading
2			52H	'R'	
3		ST1	**H	OMR status code(Front Side Status) Please refer to "14. Status information " for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to "14. Status information " for detail	
6			**H		
7		RED1	**H	Refer to (PRM setting Parameter)	

11.10 Printer Configration [PR]

[Function]

Set a print string, print start position, etc. to be printed on the sheet.
Save when this command's PRM1 = 1 or 3."Print order" must be set every time before printing. The other values remain the same until they are changed.
*1 The following values can be saved.
1) Print font size
2) Print font pitch
3) Printer Controls

This setting (limited for settings which can be saved) can be changed through panel operation.
'P3' error would appear if not installed Printer unit, or not connected printer unit.
The smallest font size is 4.0mm and it's different in a printout possible area.
Refer to SR-6500HYBRID instruction manual for printout possible area details.

[Command Format]

No.			Code		
1	DAT	CMD	50H	'P'	Printer Configration
2			52H	'R'	
3		PRM1	**H	Command Instruction Data '1' (31H):Set Parameters '2' (32H):Read Parameters '3' (33H):Revert to Default	
4		','	2CH	Separator between Parameters	
5		PRM2	**H	Refer to [PRMsetting Parameter]	
:		:	:		
n		PRM5	**H		

PRM1:Specifies which process is to be executed. (Cannot be omitted)

* If PRM1 = "2" to "3," PRM4 to PRM5 can be omitted because they are ignored.
* If PRM1 = "3," the current setting is reverted to a default value.

PRM 2:Specifies setting parameters. (Cannot be omitted)

*in time of SR-11000 mode, PRM2 = "3", configuration of" 7' is ignored.
Also PRM2 = '1' (printing character set) is only the first 20 characters of buffer 1 becomes effective.

PRM 3:Specifies details of setting parameters.

* Varies depending on PRM2 specification.
* If PRM1 = "1" and PRM2 = "1" or "3," PRM3 cannot be omitted.
* If PRM1 = "2" and PRM2 = "1," PRM3 cannot be omitted.

PRM 4:Specifies details of setting parameters.

* Varies depending on PRM2 specification.
* If PRM1 = "1" and PRM2 = "1," PRM4 cannot be omitted.

PRM 5:Specifies details of setting parameters.

* Varies depending on PRM2 specification.
* Please refer to [Default PRM setting parameter] for each PRM initial value.
* Please refer to [PRM Setting Parameter] and [Details of PRM Setting Parameter] for each PRM setting parameter.

[PRM setting Parameter]

Process	PRM1	PRM2	PRM3	PRM4	PRM5	
Set Font	‘1’ (31H)	‘1’ (31H)	‘1’ (31H) ~ ‘3’ (33H)	Refer Character Code		Possible to set 1-42 Charactors for a print buffer designated PRM3
Set Print Start Position from the edge of a start		‘2’ (32H)	‘000’ (30H 30H 30H)~ ‘355’ (33H 35H 35H)			PRM3×1mm
Set Print Order		‘3’ (33H)	‘0’ (30H) ~ ‘3’ (33H)			Print buffer disignated at PRM3. Not Designated when “0”
			‘0’ (30H) ~ ‘3’ (33H)	‘0’ (30H) ~ ‘3’ (33H)		Print a order of print buffers designated at PRM3, PRM4. Not designated when “0.”
			‘0’ (30H) ~ ‘3’ (33H)	‘0’ (30H) ~ ‘3’ (33H)	‘0’ (30H) ~ ‘3’ (33H)	Print a order of Print Buffers designated at PRM3-PRM5, not designated when”0”
Set Print Angle		‘4’ (34H)	‘1’ (31H)			Print Regulary
			‘2’ (32H)			Rotate Character String 180°
Set Font Size		‘5’ (35H)	‘032’ (30H 33H 32H) ~ ‘960’ (39H 36H 30H)			PRM3×1/10mm With SR-11000 SR-6500HYBRID minimum ' 040'(30H34H30H). If ' 032 "-" 039' was received, set for "040" internally renewal.
Set Font Pitch		‘6’ (36H)	‘008’ (30H 30H 38H) ~ ‘920’ (39H 32H 30H)			PRM3×1/10mm
Set Printer mode		‘7’ (37H)	‘1’ (31H)			PRINT AFTER FEEDING
			‘2’ (32H)			PRINT WHILE FEEDING
Set Printer Control		‘8’ (38H)	‘0’ (30H)			Printer Control Disabled
			‘1’ (31H)			Printer Control Enabled
Set the initial value of the serial number		'9'(38 H)	'1'(31 H)	'0'(30 H)- '99999999' (39H39H39H39H 39H39H39H39H)		In continuous processing, set an initial value of the sequence number (Only SR-11000)

Process	PRM1	PRM2	PRM3	PRM4	PRM5	
ReadFont Parameter	‘2’ (32H)	‘1’ (31H)	‘1’ (31H) ~ ‘3’ (33H)			
Read Print Start Position Parameter		‘2’ (32H)				
Read Print Order Parameter		‘3’ (33H)				
Read Print angle Parameter		‘4’ (34H)				
Read Font Size Parameter		‘5’ (35H)				
Read Font Pitch Parameter		‘6’ (36H)				
Read Printer mode Parameter		‘7’ (37H)				
Read Printer Control Setting		‘8’ (38H)				
Read serial number initial value		'9'(39 H)	'1'(31 H)			
Initialize Font Setting	‘3’ (33H)	‘1’ (31H)				Delete All fonts in Print buffers 1-3
			‘1’ (31H) ~ ‘3’ (33H)			Delete a font in a print buffer designated at PRM3
Initialize Print Start position Setting		‘2’ (32H)				
Initialize Print order setting		‘3’ (33H)				
Initialize Print Angle Setting		‘4’ (34H)				
Initialize Font Size Setting		‘5’ (35H)				
Initialize Font Pitch Setting		‘6’ (36H)				
Initialize Printer Mode Setting		‘7’ (37H)				
Initialize Printer Control Setting		‘8’ (38H)				
Initialize serial Number initial value		'9'(39 H)	'1'(31 H)			

[Default PRM setting Parameter]

Process	PRM2	PRM3	Default
Font	‘1’ (31H)	‘1’ (31H) ~ ‘3’ (33H)	No Font in each Buffer
PrintStart Position	‘2’ (32H)	‘000’ (30H 30H 30H)	0 mm from the leading edge of a sheet(Maximum Print area)
Print Order	‘3’ (33H)	‘0’ (30H)	Print order not designated
Print Angle	‘4’ (34H)	‘1’ (31H)	Print Regularly
Font Size	‘5’ (35H)	‘032’ (30H 33H 32H)	Font Size = 3.2mm
		SR-6500 HYBRID ‘040’ (30H 34H 30H)	Font Size = 4.0mm
Font Pitch	‘6’ (36H)	‘008’(30H 30H 38H)	Font Pitch = 0.8mm
Printer Mode	‘7’ (37H)	‘1’ (31H)	Print After Reading
Printer Control	‘8’ (38H)	SR-3500/6500/1800 ‘0’ (30H)	Printer control Disabled

An initial value of printer control is differ from the model(SR-3500/6500).

Table2 Font Character Code

(High Order Bit)

(Low Order Bit)	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			SP	0	@	P	■	p	○			ー	タ	ミ		
1			!	1	A	Q	a	q	×		。	ア	チ	ム		
2			“	2	B	R	b	r	△		「	イ	ツ	メ		
3			#	3	C	S	c	s	□		」	ウ	テ	モ		
4			$	4	D	T	d	t			、	エ	ト	ヤ		
5			%	5	E	U	e	u			・	オ	ナ	ユ		
6			&	6	F	V	f	v			ヲ	カ	ニ	ヨ		
7			‘	7	G	W	g	w			ァ	キ	ヌ	ラ		
8			(	8	H	X	h	x			ィ	ク	ネ	リ		
9			)	9	I	Y	i	y			ゥ	ケ	ノ	ル		
A			*	:	J	Z	j	z			ェ	コ	ハ	レ		
B			+	;	K	[	k	{			ォ	サ	ヒ	ロ		
C			,	<	L	¥	l	SP			ャ	シ	フ	ワ		
D			ー	=	M	]	m	}			ュ	ス	ヘ	ン		
E			.	>	N	^	n	~			ョ	セ	ホ	゛		
F			/	?	O	_	o				ッ	ソ	マ	゜		

*1 Can not set in the shaded areas.

*2 SP (20H) is an abbreviation for space. Leaves a space of one character.

*3 "_"(60H) is printed as "`" when you installed stacker.

*4 "_"(60H) is printed as "_" when you use mainbody only.

[Details of PRM setting Parameter]

(1) Print buffer (font)

・There are three print buffers, and it is possible to set 1-42 characters for each buffer.

・Character strings are printed in order of buffers designated at print order.

[Setting example- 1]

When set as:

Print buffer 1 = '123', Print buffer 2 = 'ABCDEFG', Print buffer 3 = 'ab'

Print order = 1,2,3

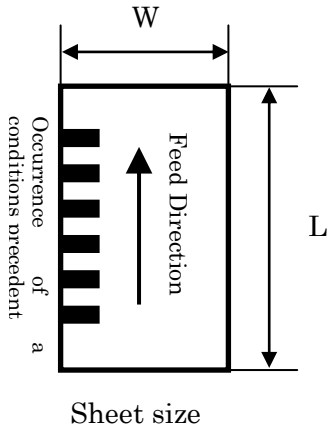
Character string = '123ABCDEFGab'

(2)Print Start Position

Print Start Position is set based on the leading edge of a sheet

Possible Print area varies depending on the loaded unit and sheet size. Therefore, set it outside of the print area, the Actual print Start position may shift.

Possible print area is , shadowed

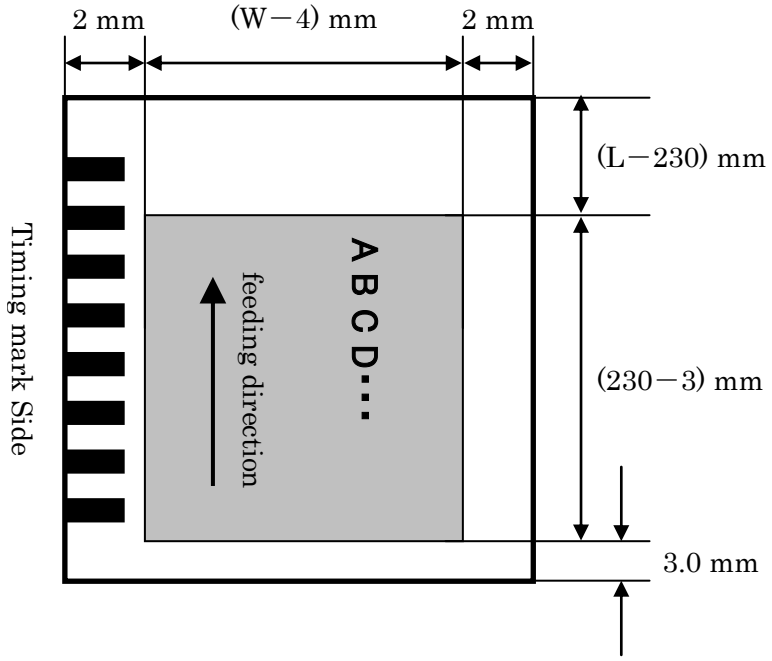


① When Print after feeding the Sheet.
Possible Print area is up to 230mm from the trailing edge of a sheet
When Using Stacker, the whole sheet can be printed on, regardless of size.
(Refer to ③for the model with the image reading capability and the barcode reading enabled)

[When Sheet size is (L > 233) mm]

[setting example-2]

When set print start position at 0mm to (L-230)mm, the actual print start position would be at (L-230)mm

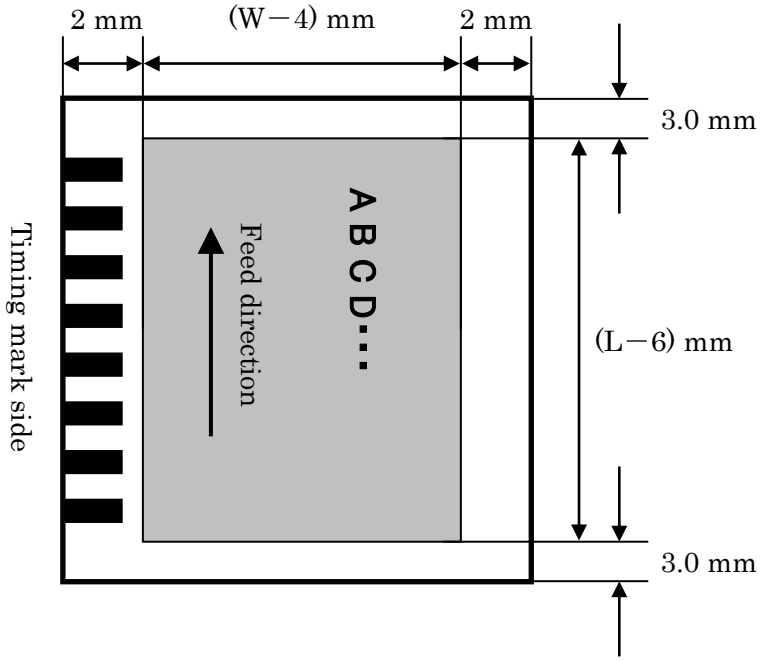


[When Sheet size is L<233mm]

[When use Select Stacker]

[Setting example 3]

When you set print start position at 0-3mm, the actual print starting position will be at 3mm.

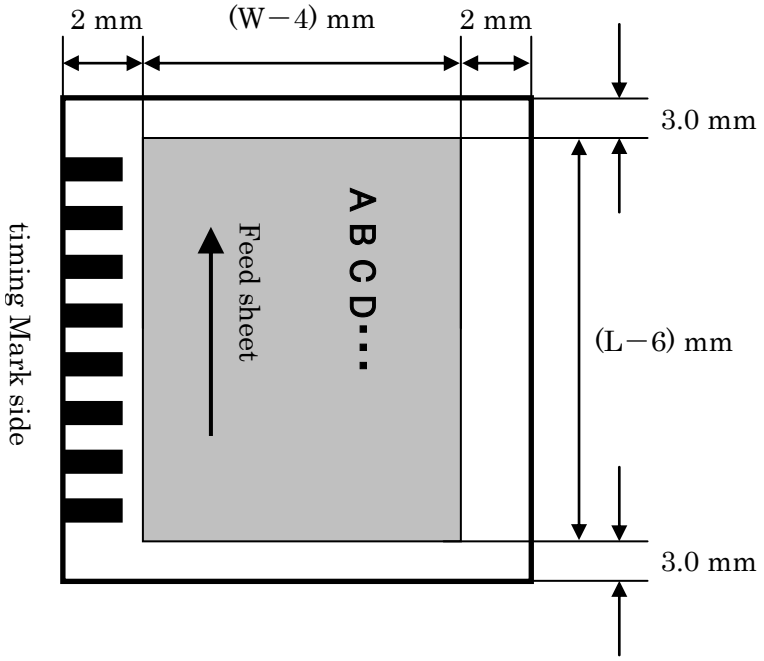


② When Print while feeding the sheet

It is possible to print on a whole sheet regardless of the sheet size.

[Setting example-4]

When you set print start position at 0-3mm, the actual print starting position will be at 3mm.



③ When Print while image reading

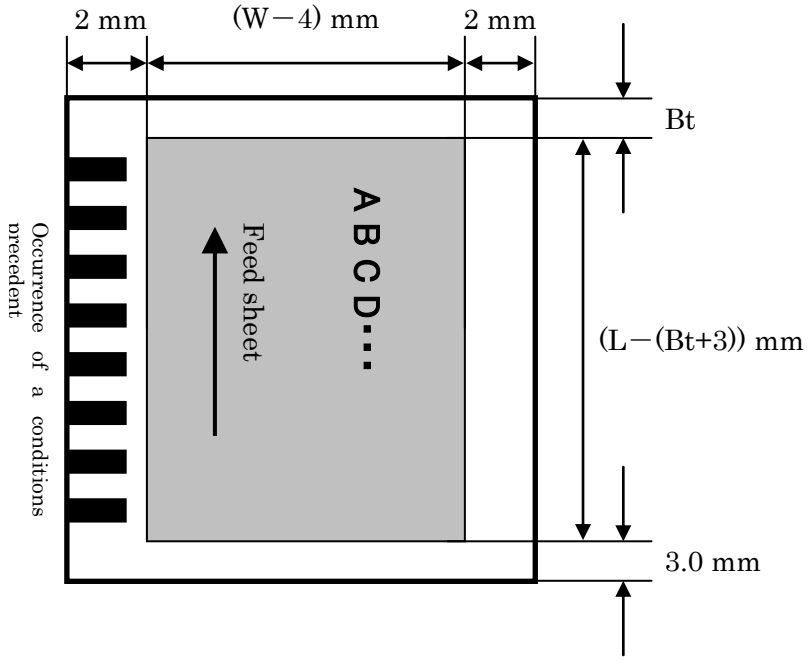
It is possible to print on a whole sheet regardless of the sheet size.

[Setting example-5]

When you set print start position at 0-Bt mm, the actual print starting position will be at Bt mm.

Bt is decided by Set Image Reading Sheet Length ("IL").

Set Image Reading Sheet Length	Bt
'0' (30H) : 14inch	60mm
'1' (31H) : A4size	10mm



(3) Print order

・This must be set every time before printing.

The value set right before printing will be reflected in the print.

[Common Setting]

Print buffer 1 = '123', Print buffer 2 = 'ABCDEFG', Print buffer 3 = 'ab'

[Setting example- 5]

When print order is set at 1

Character string = '123'

[Setting example- 6]

When print order is set at 1,2

Character string = '123ABCDEFG'

[Setting example- 7]

When print order is set at 1,2,3

Character string = '123ABCDEFGab'

[Setting example- 8]

When print order is set at 3,1,2

Character string = 'ab123ABCDEFG'

[Setting example- 9]

When print order is set at 0

Character string = No print

[Setting example-10]

When print order is set at 2,0,1

Character string = 'ABCDEFG123'

[Setting example-11]

When print order is set at 3,1,2 and then before printing set print order as 0,1,2

Character string = '123ABCDEFG'

(4) Print angle

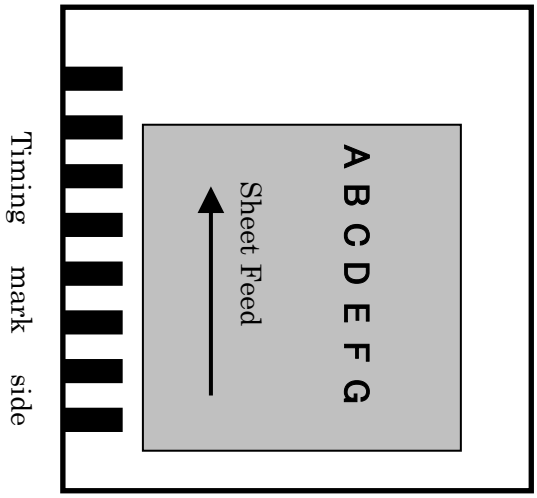
・Rotate Character string 180°print.

[Common Setting]

Print buffer 1 = ‘ABCDEFG’, print order = 1

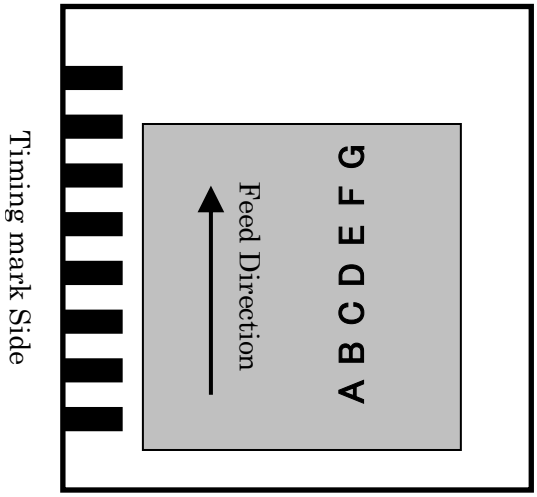
[Setting example-12]

When print angle is set at 1 (Print regularly)



[Setting example-13]

When print angle is set at 2 (Rotate character string 180°)

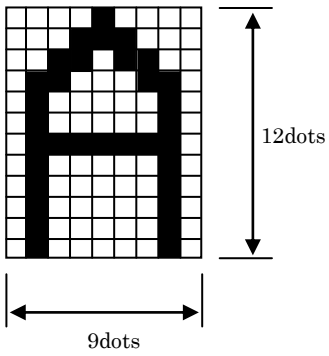


(5) Font size

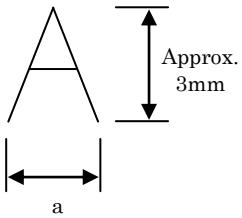
・One Character uses 12dots x 9dots

・The height of Character is fixed (approx 3mm) ,
But the width can be changed,
Yet, the number of dots (9) does not change m so when you make the font size larger, the dot pitch would be widen, making the Character faint.

・It's possible to widen font width within 3.2mm to 96mm by 0.8mm pitch

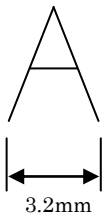


No.	Font Size parameter	Font Size (a)
1	'032' (30H 33H 32H)	3.2 mm
2	'040' (30H 34H 30H)	4.0 mm
3	'048' (30H 34H 38H)	4.8 mm
:	:	:
115	'944' (39H 34H 34H)	94.4 mm
116	'952' (39H 35H 32H)	95.2 mm
117	'960' (39H 36H 30H)	96.0 mm



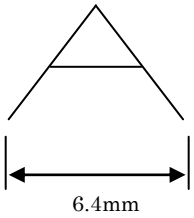
[Setting Example-1]

When Font Size is set at 3.2mm



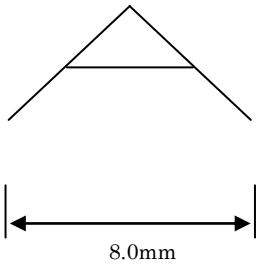
[setting Example-2]

When Font Size is set at 6.4mm



[Setting example-3]

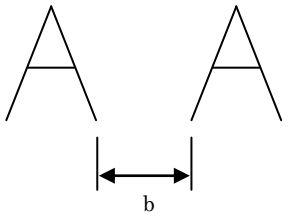
When font size is set at 8.0mm



(6) Font Pitch

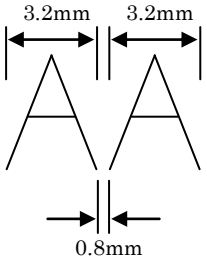
・It is possible to widen the spacing between characters within 0.8mm to 92mm by 0.1 mm pitch.

No.	Font Pitch Parameter	Font Pitch (b)
1	'008' (30H 30H 38H)	0.8 mm
2	'009' (30H 30H 39H)	0.9 mm
3	'010' (30H 31H 30H)	1.0 mm
:	:	:
911	'918' (39H 31H 38H)	91.8 mm
912	'919' (39H 31H 39H)	91.9 mm
913	'920' (39H 32H 30H)	92.0 mm



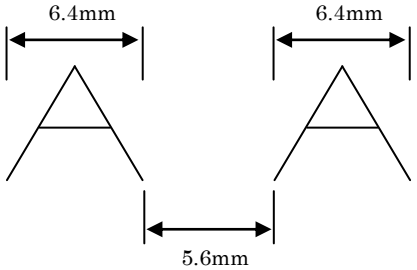
[Setting example-4]

When font size is set at 3.2mm and font pitch is set at 0.8mm



[Setting example-5]

When font size is set at 6.4mm and font pitch is set at 5.6mm



(7) Printer mode

・It is possible to set two types of printer mode: Print after Feed, and Print and Feed.

・Communications protocol (command transmission procedure) varies depending on the setting of printer mode.

Please refer to "8.6 Print after Feeding" and "8.7 Print while Feeding" for details.

(8) Printer Controls

・Controls must be enabled in order to print.

・Error detection and display and receivable data will vary according to setting.

No.	Topics	'1':Enabled	'0':Disabled
1	Printer cartridge installation check	Check	No check
2	Printer cartridge is not installed	Printer unit Not connected error appear on the display	No action
3	[Printer Configration [PR]terConfigration] (PR) data receivable	All	Only "Setting value of printing order", Set functions will result in "Printer Unit Not Connected" error message. Any received data at time of error detection will be lost.
4	Marking Test	Enabled Check Printer Cartridge installation	

(9)Serial number initial value(only SR-11000)

- In Continuous processing ("sheet continuous reading (" CF ")"), print content becomes combination of fixed character + serial number.
- Printing the contents of the fixed character, set in the registration data 1 ~ 20byte of "buffer 1" of printing character set.(If you have registered more than 20 bytes, it is ignored 21 bytes or more.)
- In the case of the serial number, it will start printing from the specified initial value. After conveying the one sheet, and print counts up by one.
- Number of serial number digits becomes specifying digit of Number of initials(maximum of 8 digit). If start from 1, and want to print in 3 digits, specified value becomes "001". Serial number returns to 0 from Number of appointed digits after you have arrived to be able to standing for maximum. ('000' when it reached the 999 case: 3 digits)
- If there is not registration data of "buffer 1", or, initialization was implemented, fixed character does not print
- If serial number is not stored, or, initialization was implemented, serial number does not print

[Print content]
Fixed character + serial number turns on.

ABCDEFGHIJKLMNOPQRST 12345678

Fixed character(buffer 1 maximumof 20 character) Serial number(Specified number of digits)

[Response Format]

PRM1 = '1' (Set parameters) or PRM1 = '3' (Revert to default)

No.			Code		
1	DAT	RES	50H	'P'	Printer Configration Command
2			52H	'R'	
3		ST1	**H	OMR status code(Front Side Status) Please refer to "14. Status information " for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to "14. Status information " for detail	
6			**H		

PRM1 = '2' (Read Parameters)

No.			Code		
1	DAT	RES	50H	'P'	Printer Configration Command
2			52H	'R'	
3		ST1	**H	OMR status code(Front Side Status) Please refer to "14. Status information " for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to "14. Status information " for detail	
6			**H		
7		RED1	**H	Reading Setting '1' (31H) ~ '8' (38H)	
8		','	2CH	Separator between response Data	
9		RED2	**H	Refer to [Details of Response]	
:		:	:		
n		RED4	**H		

[Details of Response]

PRM1 = “2” , PRM2 = “1” (Read the setting of font), PRM3 = “1” - “3” (Print buffer 1-3)

No.			Code		
1	DAT	RES	50H	‘P’	Printer Configration Command
2			52H	‘R’	
3		ST1	**H	OMR status code(Front Side Status) Please refer to “14. Status information ” for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to “14. Status information ” for detail	
6			**H		
7		RED1	31H	Reading Setting ‘2’ (32H):Read the setting of Print Start Position	
8		‘,’	2CH	Separator between Response data	
9		RED2	**H	Designate Print buffer ‘1’ (31H) ~ ‘3’ (33H)	
10		‘,’	2CH	Separator between Response data	
11		RED3	**H	Print Buffer Setting Charactors not set are fixed at 0(00H)	
:			:		
52			**H		

PRM1 = “2” , PRM2 = “2” (Read the setting of print start position)

No.			Code		
1	DAT	RES	50H	‘P’	Printer Configration command
2			52H	‘R’	
3		ST1	**H	OMR status code(Front Side Status) Please refer to “14. Status information ” for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to “14. Status information ” for detail	
6			**H		
7		RED1	32H	Reading Setting ‘2’ (32H):Read the setting of Print Start position	
8		‘,’	2CH	Separator between Response Data	
9		RED2	**H	Print Start position ‘000’ (30H 30H 30H) ~ ‘355’ (33H 35H 35H)	
10			**H		
11			**H		

PRM1 = “2” , PRM2 = “3” (Read the setting of print order)

No.			Code		
1	DAT	RES	50H	‘P’	Printer Configration Command
2			52H	‘R’	
3		ST1	**H	OMR status code(Front Side Status) Please refer to “14. Status information ” for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to “14. Status information ” for detail	
6			**H		
7		RED1	33H	Reading Setting ‘3’ (33H): Read the setting of Print order	
8		‘,’	2CH	Separator between response Data	
9		RED2	**H	Buffer printed 1st ‘0’ (30H) :No designation ‘1’ (30H) ~ ’3’ (33H) :Print Buffer 1~3	
10		‘,’	2CH	Separator between response Data	
11		RED3	**H	Buffer printed 2nd ‘0’ (30H) :No designation ‘1’ (30H) ~ ’3’ (33H) :Print buffer 1~3 When not set, is fixed at ’0’ (30H)	
12		‘,’	2CH	Separator between response Data	
13		RED4	**H	Buffer printed 3rd ‘0’ (30H) :No designation ‘1’ (30H) ~ ’3’ (33H) : print buffer1~3 When not set, is fixed at ’0’ (30H)	

PRM1 = “2” , PRM2 = “4” (Read the setting of print angle)

No.	Abbrev.		Code		
1	DAT	RES	50H	‘P’	Printer Configration Command
2			52H	‘R’	
3		ST1	**H	OMR status code(Front Side Status) Please refer to “14. Status information ” for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to “14. Status information ” for detail	
6			**H		
7		RED1	34H	Reading Setting ‘4’ (34H):Read the setting of Print Angle	
8		‘,’	2CH	Separator between response data	
9		RED2	**H	Print Angle ‘1’ (31H):Print regularly ‘2’ (32H):Rotate charactors string180°	

PRM1 = “2” , PRM2 = “5” (Read the setting of font size)

No.	Abbrev.		Code		
1	DAT	RES	50H	‘P’	Printer Configration Command
2			52H	‘R’	
3		ST1	**H	OMR status code(Front Side Status) Please refer to “14. Status information ” for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to “14. Status information ” for detail	
6			**H		
7		RED1	35H	Reading Setting ‘5’ (35H):Read the setting of font size	
8		‘,’	2CH	Separator between Response Data	
9		RED2	**H	Font Size ‘032’ (30H 33H 32H) ~ ‘960’ (39H 36H 30H)	
10			**H		
11			**H		

PRM1 = “2” , PRM2 = “6” (Read the setting of font pitch)

No.	Abbrev.		Code		
1	DAT	RES	50H	‘P’	Printer Configration Command
2			52H	‘R’	
3		ST1	**H	OMR status code(Front Side Status) Please refer to “14. Status information ” for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to “14. Status information ” for detail	
6			**H		
7		RED1	36H	Reading Setting ‘6’ (36H):Read the setting of font pitch	
8		‘,’	2CH	Separator between Response Data	
9		RED2	**H	Font Pitch ‘008’ (30H 30H 38H) ~ ‘920’ (39H 32H 30H)	
10			**H		
11			**H		

PRM1 = ’2’ , PRM2 = ’7’ (Read the Printer Mode)

No.	Abbrev.		Code		
1	DAT	RES	50H	‘P’	Printer Configration Command
2			52H	‘R’	
3		ST1	**H	OMR status code(Front Side Status) Please refer to “14. Status information ” for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to “14. Status information ” for detail	
6			**H		
7		RED1	37H	Reading Setting ‘7’ (37H):Read the setting of Printer mode	
8		‘,’	2CH	Separator between response Data	
9		RED2	**H	Printer mode ‘1’ (31H):Print after feeding ‘2’ (32H):Print while feeding	

PRM1 = ’2’ , PRM2 = ’8’ (Read the setting of Printer Control)

No.			Code		
1	DAT	RES	50H	‘P’	Printer Configration Command
2			52H	‘R’	
3		ST1	**H	OMR status code(Front Side Status) Please refer to “14. Status information ” for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to “14. Status information ” for detail	
6			**H		
7		RED1	38H	Reading Setting ‘8’ (38H):Read the setting of Printer control	
8		‘,’	2CH	Separator between Response Data	
9		RED2	**H	Printer control ‘0’ (30H):Printer Control Disabled ‘1’ (31H):Printer Control Enabled	

PRM1 = "2", PRM2 =" 9(serial number initial value setting is read)

No.	Abbreviations		Code		Note
1	DAT	RES	50H	‘P’	Printer Configration Command
2			52H	‘R’	
3		ST1	**H	OMR status code(Front Side Status) Please refer to “14. Status information ” for detail	
4			**H		
5		ST2	**H	OMR status code(Back Side Status) Please refer to “14. Status information ” for detail	
6			**H		
7		RED1	31 H	Read information setting ' 1'(31 H):serial number initial value setting is read	
8		', '	2 CH	Separator between Response Data	
9		RED2	31 H	'1'(31 H): fixed value	
10		', '	2 CH	Separator between Response Data	
11		RED3	**H	serial number initial value *** 0(00 H) fixes configured character**	
:			:		
18			**H		

11.11 Barcode Setting [BC]

[Function]

Sets the type of bar code to be read, the Read start position, etc.

Up to 10 bar codes can be set up at a time. Save when this command's PRM1= 1 or 3.

* The following values can be saved.

1) Bar Code Reader

This setting (limited for settings which can be saved) can be changed through panel operation.

(P2) error appears while un connected Barcode or uninstalled barcode unit

[Command Format]

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	**H	Command Instruction Data '1' (31H):Set parameters '2' (32H):Read Parameters '3' (33H):Revert to Default	
4		','	2CH	Separator between Parameters	
5		PRM2	**H	Process details '1' (31H):barcode read '2' (32H):barcode position '3' (33H):Barcode type '4' (34H):Check Digit test '5' (35H):Independent Setting	
6		','	2CH	Separator between Parameters	
7		PRM3	**H	See [PRM setting Details]	
:		:	:		
n		PRM22	**H		

<u>PRM1:Specifies which process is to be executed. (Cannot be omitted)</u>

* If PRM1 = "2" or "3", PRM3 to PRM22 can be omitted because they are ignored.
* If PRM1 = "3", the current setting is reverted to a default value.

<u>PRM2:Specifies setting parameters. (Cannot be omitted)</u>

<u>PRM3 through 22: Specifies details of setting parameters.</u>

* Varies depending on PRM2 specification.

[PRM setting details]

(1). Barcode Read

Set Enables/Disables the bar code reader.

Uses the current settings if no new parameters are entered.

When disabled, the bar code reader will stop reading with the next scan sheet.

When enabled, the bar code reader will begin reading with the next scan sheet.

Error detection and display and receivable data will vary according to setting.

No.	Topics	'1':Enabled	'0':Disabled
1	Barcode reader installation check on startup	Check	No Check
2	When barcode reader is not installed	"Barcode unit not connected"error message would be displayed	No action
3	Barcode setting{BC} data receivable when barcode reader is not installed	Other than for "Barcode Reader" Set/Read/Initialize functions would result in "Barcode Unit Not Connected" error message. Any received data at time of Error detection would be lost	
4	Barcode Reader test	Check Barcode reader installation	

[Set Parameters]

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	31H	Command Instruction Data '1' (31H):Set Parameters	
4		','	2CH	Separator between Parameters	
5		PRM2	31H	Command Instruction Data '1' (31H): Set Parameters	
6		','	2CH	Separator between parameter	
7		PRM3	**H	Barcode Read '0' (30H):Disable Read '1' (31H):Enable Read [Default]	

[Read Parameters]

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	32H	Command Instruction Data '2' (32H):Read parameters	
4		','	2CH	Separator between Parameter	
5		PRM2	31H	Process details '1' (31H):Barcode read	

[Revert to Default]

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	33H	Command Instruction Data '3' (33H):Revert to Default	
4		','	2CH	Separator between Parameters	
5		PRM2	31H	Process Details '1' (31H):barcode read	

2). Read Position

・This detail may be set in one of two ways, either by setting just the read start position or by setting the areas to be read or ignored.

・When the read position is changed, all previously read bar code data will be lost.

・See your user's manual for details on the readable area.

1) Setting Just the Read Start Position

・Sets the read start position at the front edge of the scan sheet.

・A value must be entered for PRM3.

・PRM4 - 22 are either omitted or set at "000" : "Unspecified".

・Depending on the read start position setting, multiple bar codes along the back edge will be read.

[Set Parameters]

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	31H	Command Instruction Data '1' (31H):Set Parameter	
4		','	2CH	Separator between Parameters	
5		PRM2	32H	Process details '2' (32H):Read position	
6		','	2CH	Separator between Parameters	
7		PRM3	**H	Read Start Position '000' (30H 30H 30H) ~ '355' (33H 35H 35H) x 1mm	
8			**H		
9			**H		

[Setting example- 1]

If set to read bar codes starting at 50 mm from the front edge:

1) PRM3 = "050" , PRM4 - 22 are omitted

2) PRM3 = "050" , PRM4 = "000" , PRM5 - 22 are omitted.

3) PRM3 = "050" , PRM4 - 22 = "000".

Whichever of these three methods is used, the setting details will be the same.

2) Setting the Areas to be Read/Ignored

- Reads the bar code in the designated position.
- Values must be enetered for PRM3 and 4. If no value is entered for PRM4, it is the same as if setting just the read start position.
- Individual areas to be read or ignored will be set as a single group.
  (If entries are not made for either of these two, a parameter error will occur.)
- If there are no settings after the first item, PRM5 - 22 are either omitted or set at “000” : “Unspecified”.

[Set Parameters]

No.	Abbrev.		Code		
1	DAT	CMD	42H	‘B’	Barcode Setting Command
2			43H	‘C’	
3		PRM1	31H	Command Instruction Data ‘1’ (31H):Set parameter	
4		‘,’	2CH	Separator between Parameters	
5		PRM2	32H	Process Details ‘2’ (32H):Read Position	
6		‘,’	2CH	Separator between Parameters	
7		PRM3	**H	First area to be ignored ‘000’ (30H 30H 30H) ~ ‘355’ (33H 35H 35H) x1mm	
8			**H		
9			**H		
10		‘,’	2CH	Separator between Parameters	
11		PRM4	**H	First area to be read ‘001’ (30H 30H 31H) ~ ‘355’ (33H 35H 35H) x1mm	
12			**H		
13			**H		
14		‘,’	2CH	Separator between Parameters	
:		:	:	:	
78		‘,’	2CH	Separator between Parameters	
79		PRM21	**H	10th area to be ignored ‘000’ (30H 30H 30H):Unspedified ‘001’ (30H 30H 30H) ~ ‘355’ (33H 35H 35H) x1mm	
80			**H		
81			**H		
82		‘,’	2CH	Separator between Parameters	
83		PRM22	**H	10th area to be read ‘000’ (30H 30H 30H):Unspecified ‘001’ (30H 30H 31H) ~ ‘355’ (33H 35H 35H) x1mm	
84			**H		
85			**H		

[Setting example- 2]

If the first bar code is set at PRM3 = 10mm and no value is entered for PRM4, it is the same as setting the read start position only.

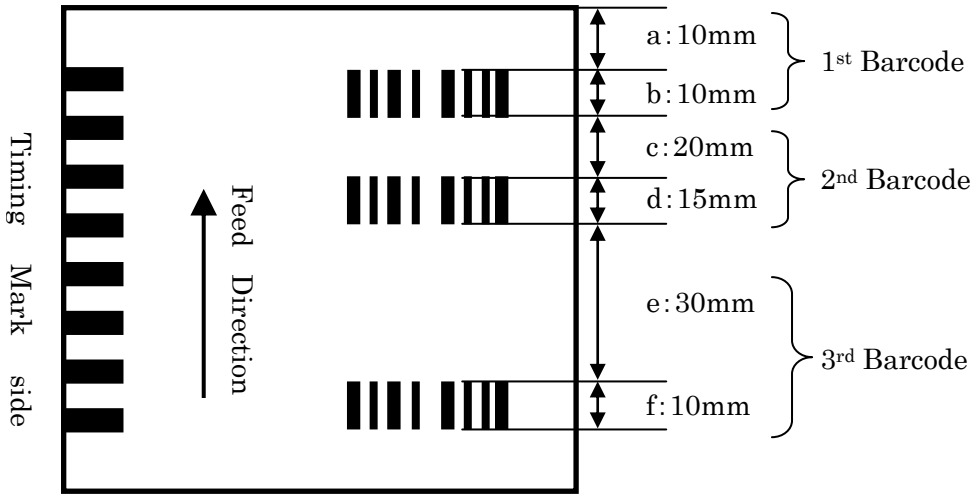
[Setting example- 3]

If the first bar code is set at PRM3 = 10mm and PRM4 = 10mm and the second bar code is set at PRM5 = 20mm and no value is entered for PRM6, a parameter error will occur.

[Setting example- 4]

If the first bar code is set at PRM3 = 10mm and PRM4 = 10mm and the second bar code is set, no value is entered for PRM5, and PRM6 = 15mm, a parameter error will occur.

[Example of Vertical Feeding Barcode Unit Setting]



[Setting example- 5]

If only the first bar code is set at a : 10mm and b : 10mm):

1) PRM3 = “010” , PRM4 = “010” , and PRM5 - 22 are omitted

2) PRM3 = “010” , PRM4 = “010” , and PRM5 - 22 = “000”

Whichever of these two methods is used, the setting details will be the same.

[Setting example- 6]

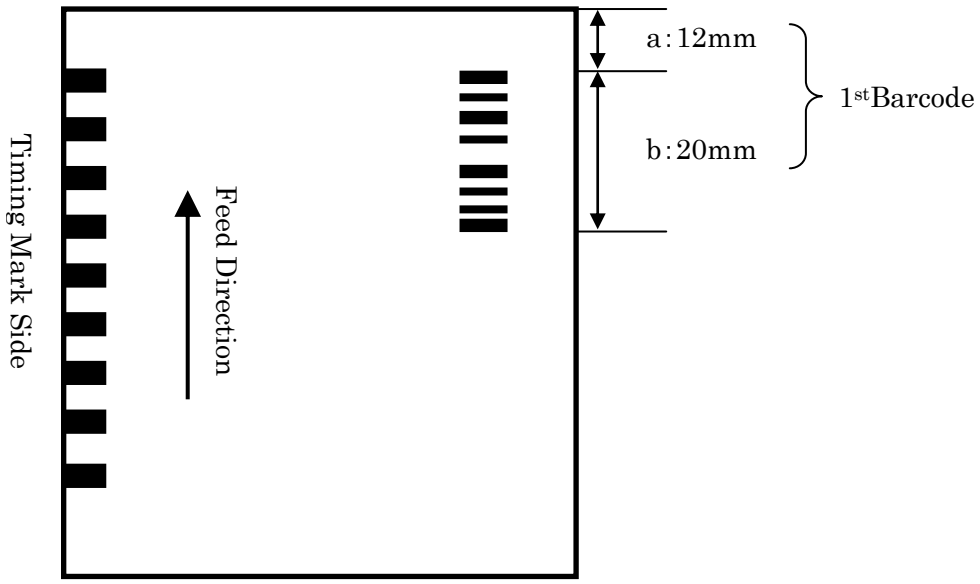
If the first bar code is set at (a : 10mm, b : 10mm) and the second bar code is set at (c : 20mm, d : 15mm):

1) PRM3 = “010” , PRM4 = “010” , PRM5 = “020” , PRM6 = “015” , and PRM7 - 22 are omitted

2) PRM3 = “010” , PRM4 = “010” , PRM5 = “020” , PRM6 = “015” , and PRM7 - 22 = “000”

Whichever of these two methods is used, the setting details will be the same.

[Example of Horizontal Feeding Bar Code Unit Setting]



[Setting example- 7]

If only the first bar code is set at (a : 12mm, b : 20mm):

1) PRM3 = “012” , PRM4 = “020” , and PRM5 - 22 are omitted

2) PRM3 = “012” , PRM4 = “020” , and PRM5 - 22 = “000”.

Whichever of these two methods is used, the setting details will be the same.

[Setting example- 8]

If the first bar code is set at (a : 12mm, b : 20mm) and the second bar code is set at (c : 200mm, d : 20mm):

1) PRM3 = “012” , PRM4 = “020” , PRM5 = “200” , PRM6 = “020” , and PRM7 - 22 are omitted

2) PRM3 = “012” , PRM4 = “020” , PRM5 = “200” , PRM6 = “020” , and PRM7 - 22 = “000”

Whichever of these two methods is used, the setting details will be the same.

[Read Parameters]

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	32H	Command Instruction Data '2' (32H): Read Parameters	
4		','	2CH	Separator between Parameters	
5		PRM2	32H	Process details '2' (32H):Read Position	

[Revert to Default]

No.	Abbrev.		Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	33H	Command Instruction Data '3' (33H):Revert to Default	
4		','	2CH	Separator between Parameter	
5		PRM2	32H	Process details '2' (32H):Read Position	

[Read Position Default]

Process	PRM3	PRM3, 5, 7, 9, 11, 13, 15, 17, 19, 21	PRM4, 6, 8, 10, 12, 14, 16, 18, 20, 22	
Read Start position	'000' (30H 30H 30H)			0mm from front edge (MAX: Read data)
Ignore Area		'000' (30H 30H 30H)		Unspecified
Read Area			'000' (30H 30H 30H)	Unspecified

(2). Barcode type

- Sets the type of bar code to be read
- If parameters are not entered, the data will not be read.
- Some bar code types are only supported by certain bar code readers.
  (If the reader is set for an unsupported type, a parameter error will occur.)
- For vertical feeding bar code units, only four bar code types can be set at one time.
  (If more than 4 types are set, a parameter error will occur.)
- For horizontal feeding bar code units, any number of bar code types can be set at the same time.
- When a bar code type is set, the individual Check Digit Test and Independent Setting values are reset.

[Set parameters]

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	31H	Command Instruction Data '1' (31H):Set Parameters	
4		','	2CH	Separator between Parameters	
5		PRM2	33H	Process Details '3' (33H):Barcode Type	
6		','	2CH	Separator between Parameters	
7		PRM3	**H	CODE-39 (Vertical／Horizontal) '0' (30H):Ignore '1' (31H):Read	
8		','	2CH	Separator between Parameters	
9		PRM4	**H	ITF (Vertical／Horizontal) '0' (30H):Ignore '1' (31H):Read	
10		','	2CH	Separator between Parameters	
11		PRM5	**H	NW-7 (Vertical／Horizontal) '0' (30H):Ignore '1' (31H):Read	
12		','	2CH	Separator between Parameters	
13		PRM6	**H	JAN/EAN/UPC (Vertical／Horizontal) '0' (30H):Ignore '1' (31H):Read	
14		','	2CH	Separator between Parameters	
15		PRM7	**H	CODE-128 (Vertical) CODE-128/EAN-128 (Horizontal) '0' (30H):Ignore '1' (31H):Read	
16		','	2CH	Separator between Parameters	
17		PRM8	**H	Industrial 2of5 (Vertical) '0' (30H):Ignore '1' (31H):Read **For Horizontal, this value is fixed at "0" (30H).**	
18		','	2CH	Separator between Parameters	
19		PRM9	**H	COOP2of5 (Vertical) '0' (30H):Ignore '1' (31H):Read **For Horizontal, this value is fixed at "0" (30H).**	
20		','	2CH	Separator between Parameters	
21		PRM10	**H	CODE-93 (Horizontal) '0' (30H):Ignore '1' (31H):Read **For Vertical, this value is fixed at "0" (30H).**	

[Read Parameters]

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	32H	Command Instruction Data '2' (32H):Revert to Default	
4		','	2CH	Separator between Parameters	
5		PRM2	33H	Process Details '3' (33H):Barcode Type	

[Revert to Default]

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	33H	Command Instruction Data '3' (33H):Revert to Default	
4		','	2CH	Separator between Parameters	
5		PRM2	33H	Process Details '3' (33H):Barcode Type	

[Barcode type Possible Setting areas and Default]

No.	Barcode Type	Possible Scan area		Default	
		V	H	V	H
1	CODE-39	o	o	'1': Read	'1': Read
2	ITF	o	o	'1': Read	'1': Read
3	NW-7	o	o	'1': Read	'1': Read
4	JAN/EAN/UPC	o	o	'1': Read	'1': Read
5	V:CODE-128 H:CODE-128/EAN-128	o	o	'0':Ignore	'1': Read
6	Industrial2of5	o	x	'0':Ignore	
7	COOP2of5	o	x	'0':Ignore	
8	CODE-93	x	o		'1': Read

o:Possible Setting x:Parameter Error

[[Setting example- 9]

For settings of "JAN/EAN/UPC", "Industrial 2 of 5", and "COOP 2 of 5":

1) PRM3 is omitted, PRM4 is omitted, PRM5 is omitted, PRM6 = "1" ,PRM7 is omitted, PRM8 = "1" , PRM9 = "1" , and PRM10 = is omitted
2) PRM3 = "0" , PRM4 = "0" , PRM5 = "0" , PRM6 = "1" ,PRM7 = "0" , PRM8 = "1" , PRM9 = "1" , and PRM10 = "0".

Whichever of these two methods is used, the setting details will be the same.

[Setting example- 10]

If a vertical feeding bar code unit is set for "CODE-93" or a horizontal feeding bar code unit is set for "Industrial 2 of 5" or "COOP 2 of 5", a parameter error will occur.

[Setting example- 11]

If a vertical feeding bar code unit is set for "CODE-39", "ITF", "JAN/EAN/UPC", "Industrial 2 of 5" or "COOP 2 of 5", a parameter error will occur.

(4). Check Digit Test

・Turns the Check Digit Test on or off for each code.

・Check digits are displayed as data.

・A value must be entered for PRM3.

・If the value for PRM4 is left unchanged, the current settings will stay in effect.

・When conducting a check digit test, the bar code type must first be set to “Read”.
(If the bar code type is not set for “Read”, a parameter error will occur.)

・When a reset is performed, if no value is entered for PRM3, all code settings will revert to their default values. If a value has been entered for PRM3, the bar code type must first be set to “Read”.
(If the bar code type is not set for “Read”, a parameter error will occur.)

[Setting example- 12]

If a CODE-39 Check Digit Test is selected when CODE-39 is set at “Ignore”, a parameter error will occur.

[Setting example- 13]

If ITF reset is selected while ITF is set at “Ignore”, a parameter error will occur.

1) CODE-39

・Turns the CODE-39 Check Digit Test on or off.

[Set Parameters]

No.			Code		
1	DAT	CMD	42H	‘B’	Barcode Setting Command
2			43H	‘C’	
3		PRM1	31H	Command instruction Data ‘1’ (31H):Set parameters	
4		‘,’	2CH	Separator between Parameters	
5		PRM2	34H	Process Details ‘4’ (34H):Check Digit Test	
6		‘,’	2CH	Separator between parameters	
7		PRM3	61H	Barcode Type ‘a’ (61H):CODE-39	
8		‘,’	2CH	Separator between parameters	
9		PRM4	**H	Check Digit Test ‘0’ (30H):OFF{default} ‘1’ (31H):ON	

2) ITF

Turns the ITF Check Digit Test ON or OFF

[Set Parameters

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	31H	Command Instruction Data '1' (31H):Set parameters	
4		','	2CH	Separator between Parameter	
5		PRM2	34H	Process Details '4' (34H):Check Digit Test	
6		','	2CH	Separator between Parameter	
7		PRM3	62H	Barcode Type 'b' (62H):ITF	
8		','	2CH	Separator between Parameter	
9		PRM4	**H	Check Digit Test '0' (30H):OFF{Default] '1' (31H):ON	

3) NW-7

Turns the NW-7 Check Digit Test ON or OFF and sets the Check Digit Test Type

[Set parameters]

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	31H	Command Instruction Data '1' (31H):Set parameter	
4		','	2CH	Separator between Parameters	
5		PRM2	34H	Process details '4' (34H):Check Digit Test	
6		','	2CH	Separator between Parameters	
7		PRM3	63H	Barcode Type 'c' (63H):NW-7	
8		','	2CH	Separator between Parameters	
9		PRM4	**H	Check Digit Test '0' (30H):OFF [Default] '1' (31H):Modulus16 '2' (32H):Modulus11 '3' (33H):Modulus 10／2Weight '4' (34H):Modulus 10／3Weight '5' (35H):7Check DR '6' (36H):Weighted Modulus11 '7' (37H):Runes	

[Read parameters]

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	32H	Command Instruction Data '2' (32H):Read Parameters	
4		','	2CH	Separator between Parameters	
5		PRM2	34H	Process details '4' (34H):Check Digit Test	
6		','	2CH	Separator between parameters	
7		PRM3	**H	Barcode Type 'a' (61H):CODE-39 'b' (62H):ITF 'c' (63H):NW-7	

[Revert to Default]
When Initialize all codes

No.			Code		
1	DAT	CMD	42H	'B'	Barcode setting Command
2			43H	'C'	
3		PRM1	33H	Command Instruction Data '3' (33H):Revert to Default	
4		','	2CH	Separator between Parameters	
5		PRM2	34H	Process details '4' (34H):Check Digit Test	

When Reset Individual Codes

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	33H	Command Instruction Data '3' (33H):Revert to Default	
4		','	2CH	Separator between Parameters	
5		PRM2	34H	Process Details '4' (34H):Check Digit Test	
6		','	2CH	Separator between Parameters	
7		PRM3	**H	Barcode Type 'a' (61H):CODE-39 'b' (62H):ITF 'c' (63H):NW-7	

(5). Independent Setting

- Sets individual codes independently.
- A value must be entered for PRM3.
- When making independent settings, the bar code type must first be set to “Read”.
  (If the bar code type is not set for “Read”, a parameter error will occur.)
- When a reset is performed, if no value is entered for PRM3, all code settings will revert to their default values. If a value has been entered for PRM3, the bar code type must first be set to “Read”.
  (If the bar code type is not set for “Read”, a parameter error will occur.)

[Setting example- 14]

If UPC reset is selected while UPC is set at “Ignore”, a parameter error will occur.

1) UPC

- Sets the number of output digits for UPC data or assigns the system code “0”.
- If no parameters are added, the current settings will stay in effect.

[Set Parameters]

No.			Code		
1	DAT	CMD	42H	‘B’	Barcode Setting Command
2			43H	‘C’	
3		PRM1	31H	Command Instruction Data ‘1’ (31H):Set Parameters	
4		‘,’	2CH	Separator between parameters	
5		PRM2	35H	Process Details ‘5’ (35H):Independent Setting	
6		‘,’	2CH	Separator between parameters	
7		PRM3	64H	Barcode Type ‘d’ (64H):UPC	
8		‘,’	2CH	Separator between parameters	
9		PRM4	**H	Number of UPC-A output digits ‘0’ (30H):12digits ‘1’ (31H):13digits [Default]	
10		‘,’	2CH	Separator between parameters	
11		PRM5	**H	Assign UPC-E system Code ‘0’ (30H):No Code ‘1’ (31H):Assign Code [Default]	

[Read Parameters]

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	32H	Command Instruction Data '2' (32H):Read Parameters	
4		','	2CH	Separator between parameters	
5		PRM2	35H	Process Details '5' (35H):Individual Setting	
6		','	2CH	Separator between Parameters	
7		PRM3	64H	Barcode Type 'd' (64H):UPC	

[Revert to Default]

When Resetting all codes

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	33H	Command Instruction Data '3' (33H):Revert to Default	
4		','	2CH	Separator between parameter	
5		PRM2	35H	Process details '5' (35H):Independent Setting	

When resetting individual codes

No.			Code		
1	DAT	CMD	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		PRM1	33H	Command Instruction Data '3' (33H):Revert to Default	
4		','	2CH	Separator between Parameter	
5		PRM2	35H	Process details '5' (35H):Individual setting	
6		','	2CH	Separator between Parameters	
7		PRM3	64H	Barcode Type 'd' (64H):UPC	

[Response Format]

PRM1 = '1' (Set parameters) , PRM1 = '3' (Revert to Default)

No.			Code		
1	DAT	RES	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		

PRM1 = '2' (Read Parameters)

No.	Abbrev		Code		
1	DAT	RES	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		
7		RED1	**H	Process Details '1' (31H) ~ '5' (35H)	
8		','	2CH	Separator Between Response Data	
9		RED2	**H	See [Response Details]	
:		:	:		
n		RED21	**H		

[Response Details]

PRM1 = '2' , PRM2 = '1' (Read the setting of Barcode Reader)

No.	Abbrev.		Code		
1	DAT	RES	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		
7		RED1	31H	Process Details '1' (31H):Barcode read	
8		','	2CH	Separator between response Data	
9		RED2	**H	Barcode Reader '0' (30H):Disable Reader '1' (31H):Enable Reader	

PRM1 = “2” , PRM2 = “2” (Read the setting of Read Start Position)

No.	Abbrev.		Code		
1	DAT	RES	42H	‘B’	Barcode Setting Command
2			43H	‘C’	
3		ST1	**H	OMR status code(Front side Status) Refer to “14. Status information “ for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to “14. Status information “ for details	
6			**H		
7		RED1	32H	Process Details ‘2’ (32H):Read Position	
8		‘,’	2CH	Separator between Response Data	
9		RED2	**H	Read Start Position ‘000’ (30H 30H 30H) ~ ‘355’ (33H 35H 35H)	
10			**H		
11			**H		
12		‘,’	2CH	Separator between Response Data	
13		RED3	**H	‘000’ (30H 30H 30H):Unspecified	
14			**H		
15			**H		
16		‘,’	2CH	Separator between Response Data	
:		:	:	:	
84		‘,’	2CH	Separator between Response Data	
85		RED21	**H	‘000’ (30H 30H 30H):Unspecified	
86			**H		
87			**H		

PRM1 = ’2’ , PRM2 = ’2’ (Read the setting of Areas to be Ignored/Read)

No.	Abbrev.		Code		
1	DAT	RES	42H	‘B’	Barcode Setting Command
2			43H	‘C’	
3		ST1	**H	OMR status code(Front side Status) Refer to “14. Status information “ for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to “14. Status information “ for details	
6			**H		
7		RED1	32H	Process Details ‘2’ (32H):Read Position	
8		‘,’	2CH	Separator between response data	
9		RED2	**H	1st Area to be Ignored ‘000’ (30H 30H 30H) ~ ‘355’ (33H 35H 35H)	
10			**H		
11			**H		
12		‘,’	2CH	Separator between response data	
13		RED3	**H	1st Area to be Read ‘001’ (30H 30H 31H) ~ ‘355’ (33H 35H 35H)	
14			**H		
15			**H		
16		‘,’	2CH	Separator between response data	
:		:	:	:	
80		‘,’	2CH	Separator between response data	
81		RED20	**H	10th Area to be Ignored ‘001’ (30H 30H 30H) ~ ‘355’ (33H 35H 35H) Unspecified, this setting is fixed at “000” (30H 30H 30H).	
82			**H		
83			**H		
84		‘,’	2CH	Separator between response data	
85		RED21	**H	10th Area to be Read ‘001’ (30H 30H 30H) ~ ‘355’ (33H 35H 35H) Unspecified, this setting is fixed at “000” (30H 30H 30H).	
86			**H		
87			**H		

PRM1 = '2' , PRM2 = '3' (Read the Setting of Barcode Type)

No.	Abbrev.		Code		
1	DAT	RES	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		
7		RED1	33H	Process Details '3' (33H):barcode Type	
8		','	2CH	Separator between Response Data	
9		RED2	**H	CODE-39 (Vertical／Horizontal) '0' (30H) ~ '1' (31H)	
10		','	2CH	Separator between Response Data	
11		RED3	**H	ITF (Vertical／Horizontal) '0' (30H) ~ '1' (31H)	
12		','	2CH	Separator between Response Data	
13		RED4	**H	NW-7 (Vertical／Horizontal) '0' (30H) ~ '1' (31H)	
14		','	2CH	Separator between Response Data	
15		RED5	**H	JAN/EAN/UPC (Vertical／Horizontal) '0' (30H) ~ '1' (31H)	
16		','	2CH	Separator between Response Data	
17		RED6	**H	CODE-128 (Vertical) CODE-128/EAN-128 (Horizontal) '0' (30H) ~ '1' (31H)	
18		','	2CH	Separator between Response Data	
19		RED7	**H	Industrial 2of5 (Vertical) '0' (30H) ~ '1' (31H) For Horizontal feeders, this value is fixed at "@" (40H).	
20		','	2CH	Separator between Response Data	
21		RED8	**H	COOP2of5 (縦流し) '0' (30H) ~ '1' (31H) * For Horizontal feeders, this value is fixed at "@" (40H).	
22		','	2CH	Separator between Response Data	
23		RED9	**H	CODE-93 (横流し) '0' (30H) ~ '1' (31H) * For Vertical feeders, this value is fixed at "@" (40H).	

PRM1 = '2' , PRM2 = '4' (Read the Setting of Check Digit Test)

No.	Abbrev.		Code		
1	DAT	RES	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		
7		RED1	34H	Process details '4' (34H):Check Digit Test	
8		','	2CH	Separator between response Data	
9		RED2	**H	Barcode Type 'a' (61H) ~ 'c' (63H)	
10		','	2CH	Separator between response Data	
11		RED3	**H	Check Digit Test '0' (30H) ~ '7' (37H)	

PRM1 = '2' , PRM2 = '5' (Read the Setting of Independent Setting)

No.	Abbrev.		Code		
1	DAT	RES	42H	'B'	Barcode Setting Command
2			43H	'C'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		
7		RED1	35H	Process details '5' (35H):Independent Setting	
8		','	2CH	Separator between response Data	
9		RED2	64H	Barcode Type 'd' (64H)	
10		','	2CH	Separator between response Data	
11		RED3	**H	Number of UPC-A output Digits '0' (30H) ~ '1' (31H)	
12		','	2CH	Separator between response Data	
13		RED4	**H	Assign UPC-E system Code '0' (30H) ~ '1' (31H)	

11.12 Energy Saver Setting [ES]

[Function]

Sets the time before going into Energy Saving (Sleep/Standby) mode.

Two types of setting are possible: the time before going from normal mode into sleep mode, and the time before going from sleep mode into standby mode. Save when this command's PRM1= 1 or 3.

This setting can be changed through panel operation.

* The energy saver mode only works for the SR-5500 model. Even if this setting is performed on the SR-2300 model, it will not function.

[Command Format]

No.	Abbrev.		Code		
1	DAT	CMD	45H	'E'	Energy Saver Setting Command
2			53H	'S'	
3		PRM1	**H	Command Instruction Data '1' (31H):Set parameters '2' (32H):Read parameters '3' (33H):Revert to Default	
4		','	2CH	Separator between Parameters	
5		PRM2	**H	Sleep Timer '00' (30H 30H):OFF '01' (30H 31H) ~ '60' (36H 30H) minutes [Default = '05']	
6			**H		
7		','	2CH	Separator between Parameters	
8		PRM3	**H	Stand By Timer '00' (30H 30H):OFF '01' (30H 31H) ~ '60' (36H 30H) minutes [Default = '05']	
9			**H		

PRM1: Specifies which process is to be executed. (Cannot be omitted)

* If PRM1 = "2" or "3" , PRM2 and PRM3 can be omitted because they are ignored.
* If PRM1 = "3", the current setting is reverted to a default value.

PRM2: Specifies sleep timer.

* If omitted, then current value or default value is set.

PRM3: Specifies standby timer.

* If omitted, then current value or default value is set.

[Response Format]

PRM1 = '1' (Set parameter) , PRM1 = '3' (Rivert to Default)

No.	Abbrev.		Code		
1	DAT	RES	45H	'E'	Energy Saver Setting Command
2			53H	'S'	
3		ST1	**H	OMR status code(Front side Status)	
4			**H	Refer to "14. Status information " for details	
5		ST2	**H	OMR status code(Back side Status)	
6			**H	Refer to "14. Status information " for details	

PRM1 = '2' (Read Parameter)

No.	Abbrev.		Code		
1	DAT	RES	45H	'E'	Energy Saver Setting Command
2			53H	'S'	
3		ST1	**H	OMR status code(Front side Status)	
4			**H	Refer to "14. Status information " for details	
5		ST2	**H	OMR status code(Back side Status)	
6			**H	Refer to "14. Status information " for details	
7		RED1	**H	Sleep Timer	
8			**H	'00' (30H 30H) ~ '60' (36H 30H) minutes	
9		','	2CH	Separator between response Data	
10		RED2	**H	Stand By Timer	
11			**H	'00' (30H 30H) ~ '60' (36H 30H) minutes	

11.13 Set ID control data[WM]

[Function]

Configure for recognizing layout ID of window control is performed.

Setting the order reference "9.11Window set(only SR-11000)".

(This command only supports "continuous-process function model".)

[Command Format]

No.	Abbreviations		Code	Note	
1	DAT	CMD	57 H	'W'	Set ID control data command
2			4 DH	'M'	
3		PRM1	**H	Command process Specified data ' 1'(31 H): Set Parameters '2'(32 H): (unused) '3'(33 H): decision of configuration	
4		', '	2 CH	Separator between Parameters	
5		PRM2	**H	Layout ID usage setting '0'(30 H): unused ' 1'(31 H): uses	
6		', '	2 CH	Separator between Parameters	
7		PRM3	**H	Operation set at ID judgment NG (Operation at no ID agreement, timing mark number discrepancies, ID order checks NG) * See "Table 3 Reject operation specification"	
8		', '	2 CH	Separator between Parameters	
9		PRM4	**H	Layout ID layout area '0'(30 H): surface ' 1'(31 H): reverse side	
10		', '	2 CH	Separator between Parameters	
11		PRM5	**H	Column information	Layout ID area commencement column "001" (30H,30H,31 H)-"155" (31H, 35H, 35 H)
12			**H		
13			**H		
14		', '	2 CH		Separator between Parameters
15		PRM6	**H		Layout ID area set column number "001" (30H,30H,31 H)-"155" (31H, 35H, 35 H)
16			**H		
17			**H		
18		', '	2 CH		Separator between Parameters
19		PRM7	**H		Layout ID area established pitch "001" (30H,30H,31 H)-"154" (31H, 35H, 34 H)
20			**H		
21			**H		
22		', '	2 CH	Separator between Parameters	
23		PRM8	**H	Line information	Starting line layout ID region "01" (30H,31 H)-"48" (34H, 38 H)
24			**H		
25		', '	2 CH		Separator between Parameters
26		PRM9	**H		Number of layout ID area established line "01" (30H,31 H)-"48" (34H, 38 H)
27			**H		
28		', '	2 CH		Separator between Parameters
29		PRM10	**H		Layout ID area established pitch "01" (30H,31 H)-"47" (34H, 37 H)
30			**H		

(is continued)

(Continuation)

31		', '	2 CH	Separator between Parameters	
32		PRM11	**H	Reading direction "0" (30 H)-"7" (37 H)	
33		', '	2 CH	Separator between Parameters	
34		PRM12	**H	Density set	Layout ID area sensitivity level "01" (30H,31H)-"16" (31H,36H)
35			**H		
36		', '	2 CH		Separator between Parameters
37		PRM13	**H		Layout ID area concentration difference "00" (30H,30H)-"15" (31H,35H)
38			**H		
39		', '	2 CH	Separator between Parameters	
40		PRM14	**H	Option appointment(ID order check) '00'(30H,30H): invalidation(random order) '01'(30H,31H): validity *ASCII hexadecimal number symbol	
41			**H		

PRM1 :Content of the command processing is specified. (Cannot be omitted)

For PRM1 = "1"(set), window setting information(ID data input("WL"), window areas data input("WD")) is done initialization.

PRM2 :Layout ID usage setting

For PRM2 = "0"(unused), data of PRM4 after is ignored

Something about PRM2 = "0"(unused) is specified requires Set ID data("WL"), too.

In such cases, validity ID number = "00" only turns on.

PRM3: Operation setting at the time of ID judgment NG

Define the following operation.

"No ID match", "timing mark number mismatch", "ID order check NG"

Determines the operation by a combination of the specified per Bit in the following table.The following setting is used in window area set command("WD"), too, but when it was true to conditions in either "stop" or "upper paper ejection" is priority.

Table 3 Reject operation specification

Bit	Content	High	Low
Bit 7	(Unused)	-	Fixing
Bit 6	(Unused)	-	Fixing
Bit 5	(Output character)	Fixing	-
Bit 4	(Output character)	Fixing	-
Bit 3	(Unused)	-	Fixing
Bit 2	Printing specified	Not printed	print
Bit 1	Specified stop	Stop	Do not stop
Bit 0	Discharge destination specified	Upper stage	Lower

*followed data do by power reset, SOFTWARE reset("SR") initialization.

- Set ID control data(WM)Set ID control data[WM
- Set ID data(WL)Set ID data[WL
- Window area data set(WD) Window area data [WD

PRM5 , PRM6, PRM7:ID setting of the readout field

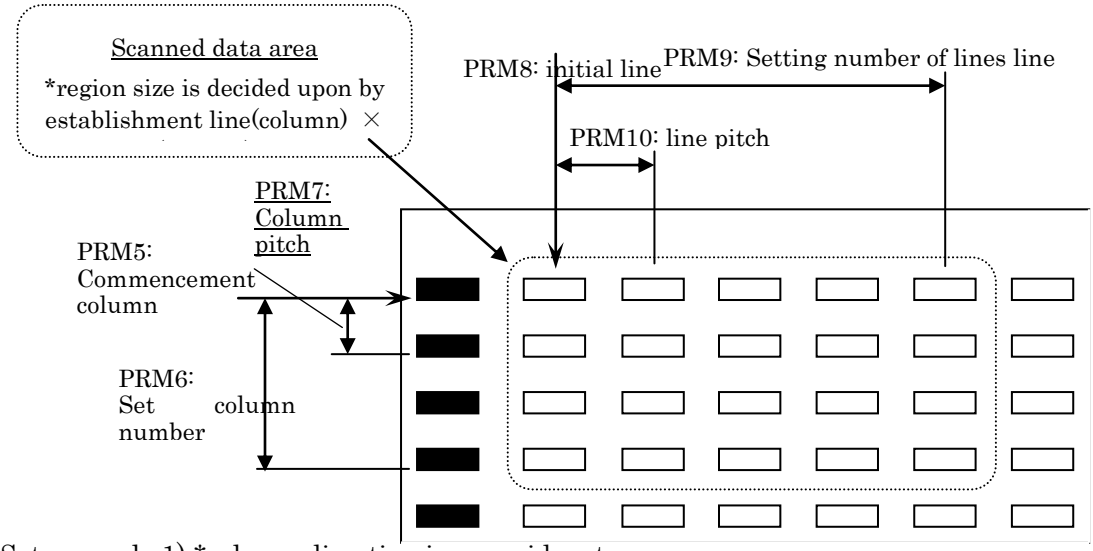
In the setting of the window area, it does not exceed the maximum column number of the form (the column 155) a combination of the start of column and setting column number and pitch.

PRM8 PRM9, PRM10: ID set of lines to read

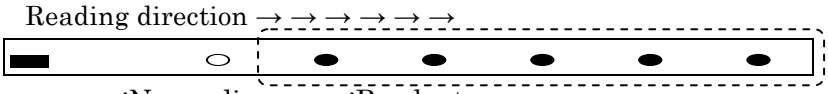
In the setting of the window area, the maximum number of lines in the form of a combination of the start line and set the number of lines and pitch, that does not exceed reading setting the number of lines (the value of the number of read-line setting NC command).

① By the setting of the lines and column, if that becomes a number of marks in excess of 64 marks, 65 marks onwards are ignored.

② Set column(line) number become column(line) number that read actually.



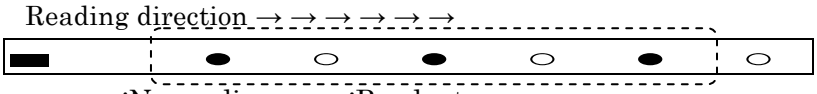
Set example 1) *column direction is same idea, too



○:No reading ●:Readout

Start line: 2, setting line: 5, line pitch: 1

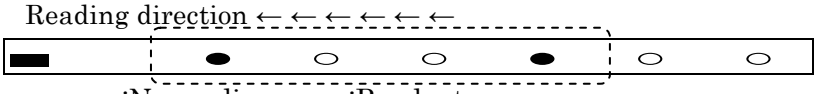
Set example 2)



○:No reading ●:Readout

Start line: 1, setting line: 3, line pitch: 2

Set example 3)



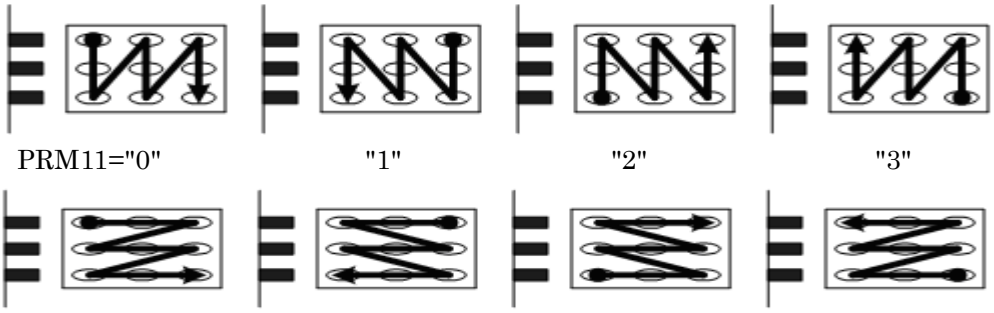
○:No reading ●:Readout

Start line: 1, setting line: 2, line pitch: 3

If the origin of the pitch of the line, the timing mark side, in the case of a column, the front end side.

Figure 5 windows area setting5

PRM11: to set the reading direction. Reading direction by the specified value, see below



PRM12: to set the sensitivity level of the layout ID

Read mark concentration data (0 to 16) is equal to or greater than the value set at a sensitivity level, it is determined that there is a mark.

PRM13: to set the concentration difference between the level of layout ID

Ability to cancel a thin mark with respect to the most dark mark in the mark density data read by the layout ID in the area (0 to 16).

Valid mark:

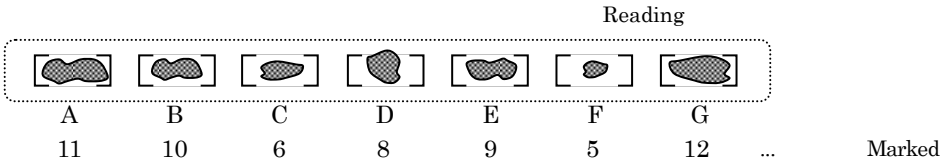
"density of judges mark" >= "density of the most dark mark" - "concentration difference"

Invalid Mark:

"density of judges mark" < "density of the most dark mark" - "concentration difference"

* sensitivity level, concentration difference level About the relationship between

If the mark, such as shown in the figure below has been filled in, the sensitivity level (PRM12), the decision content due to the setting of the difference in concentration level (PRM13) described below.



○mark determination commentary

① The sensitivity level = 6, effective mark A ~ E and G.

② The concentration difference level = 4, mark A ~ E and darkest lower four levels, including the mark G of the mark A among the G, B, E, G, D is enabled.

In this case, the mark A ~ E and concentration = 12 of the darkest mark G among the G, by the difference in concentration level = 4, less than the concentration level 8 (= 12-4) is canceled

Therefore, the mark there = A, B, E, G, D To become.

PRM14: to set the ID order check.

The ID sequence checking, when to read a plurality of sheets in a plurality ID registration state, function for whether check sheet is sent in the order of the ID numbers.

* The ID number, that the number of 0 to 15, which is allocated automatically to WL command transmission order.

* When disabled ('1'), not an error also read ID is in what order.

(1) ID order check method

·Immediately after the settings in the WM (ID order check = enabled), WL, WD command,Carry out the ID order check from the ID number = 0.

· Sheet continuous reading (CF) ID number to be read in first sheet in the command, a check is made in a continuous number of the last sheet of the ID number + 1 of the previous CF command.

· CF when reading the command, if you want to check the first sheet from the ID number = 0, it is cleared to zero in the re-transmission of the WM, WL,WD command.

· And expectations reading a different sheet and the ID number to be, if you stop in the ID order check NG, when processing resumes at the CF command to resume the check processing from the ID number that was expected at the time of the last ID order check NG detection.

· If you have reached the upper limit of the order · ID check at the time that are registered ID number, resume from 0.

(2) ID order check NG judgment

· In the order of · ID number if the sheet is not fed

- Reading sheet of ID number of the previous sheet ID number For non-consecutive, such as + 2

Example) If the ID numbers 0 to 3 are registered. A determination as follows by the ID of a sheet read.

· When the decision normal: first sheet ID number = 0, 2nd ID number = 1, 3rd ID number = 2,4th ID number = 3, 5 th number ID = 0 ····

· When the judgment NG 1: 1 sheet ID number = 0, 2nd ID number = 1, the first sheet ID number = 0 (Order abnormal NG)

·When the judgment NG 2: 1 sheet ID number = 0, 2nd ID number = 2 (NG in a non-continuous)

· When the judgment NG 3: 1 sheet ID number = 3 (NG other than the first sheet 0 immediately after the window settings)

[Response Format]

PRM1 = '1' case (to set)

No.	Abbreviations		Code	Note	
1	DAT	RES	57 H	'W'	Set ID control data command
2			4 DH	'M'	
3		ST1	**H	OMR status code(Front Side Status)	
4			**H	Refer to “14. Status information ” for details	
5		ST2	**H	OMR status code(BackSide Status)	
6			**H	Refer to “14. Status information ” for details	

PRM1 = '3' case (fixed setting)

No.	Abbreviations		Code	Note	
1	DAT	RES	57 H	'W'	Set ID control data command
2			4 DH	'M'	
3		ST1	**H	OMR status code(Front Side Status)	
4			**H	Refer to “14. Status information ” for details	
5		ST2	**H	OMR status code(BackSide Status)	
6			**H	Refer to “14. Status information ” for details	
7		RED1	**H	Temporary stop action decision * '0'(30 H): Not Pause '1'(31 H): Pause '2'(32 H): If the setting to be printed, a pause	

"temporary stop action" is that operation to pause for each one by the following conditions.

-If the number of windows that are registered in - one layout exceeds the limit

- If the total of the number of marks to be used in each window has exceeded the limit

This determination is based on the one that is the maximum number of settings in all layouts. Determination limit is performed with the following criteria.

(1) Limit is a temporary stop operation when the extravagant below.

When the Yes printing, the number of marks = 6528 (12 inches form one sheet (line 48 × 68 column × 2 (front and back)))

Number of windows = 80 frame

Is when there is no printing, the number of marks = 9792

Number of windows = 120 frame

(2) Window in the window area data set ("WD") is, when the partition has to count the number of marks that are used in that window as 1.5 times (*). If the partition / no is mixed in the same layout, and 1.5 times only partition there of the window.

*compared to no partition in terms of processing time, because it requires about 1.5 times.

None partition: 10 line ×10 columns =100 marks

Partition is present: 10 line ×10 columns×1.5 = convert as 150 marks

Possible continuous transport Mark / window setting number List

Print	Windows Partition Split	Continuous transport available Marking set number (12 inch double standard)	Continuous transport available Windows set number
valid	invalid	Up to 6528	Up to 80
	valid	Up to 4352 *	Up to 80
invalid	invalid	Up to 9792	Up to 120
	valid	Up to 6528 *	Up to 120

*maximum possible number that is set to all windows' being done partitioning actually.

Prior value that is done count calculatio n as 1.5 time.

Judgment example 1)

Layout 1 (per window, and setting you are using 100 mark)

Window 1 (mark number 100)

Window 2 (mark number 100)

:

Window 50 (mark number 100)

Total mark number **5000** <mark speed limit of Yes printing

→ '0 (30H): No pause

Judgment Example 2)

Layout 2 (per window, and setting you are using 200 mark)

Window 1 (mark number 200)

Window 2 (mark number 200)

:

Window 50 (mark number 200)

Total mark number **10000>** mark speed limit without printing

→ '1' (31H): Yes paused

Judgment Example 3)

Layout 3 (per window, and setting you are using 100 mark)

Window 1 (mark number 100) partition Yes → 100 × 1.5 = 150 conversion

Window 2 (mark number 100) partition Yes → 100 × 1.5 = 150 conversion

:

Window 50 (mark number 100) partition Yes → 100 × 1.5 = 150 conversion

Total mark number **7500>** printing there of the number of marks limit

→ '2' (31H): the case with printing, there pause

Judgment Example 4)

Layout 4 (per window, and setting you are using 70 mark)

Window 1 (mark number 70)

Window 2 (mark number 70)

:

Window **90** (mark number 70)> printing there of **window speed** limit

The total number of marks 6300

→ '2' (31H): the case with printing, there pause

11.14 Set ID data[WL]

[Function]

Make the individual setting of the layout ID of the window control. Layout ID can be set up to 16.

Pre-ID management data set to ('WM') is essential.

Setting the order reference "9.11Window set(only SR-11000)"

(This command only supports "continuous-process function model".)

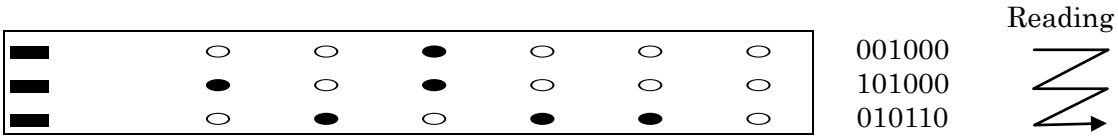
[Command Format]

No.	Abbreviations		Code	Note	
1	DAT	CMD	57 H	'W'	ID set command
2			4 CH	'L'	
3		PRM1	**H	Command process Specified data ' 1'(31 H): sets	
4		', '	2 CH	Separator between Parameters	
5		PRM2	**H	ID discrimination mark data "00 00 00 00 00 00 00 00" -"FF FF FF FF FF FF FF FF" *ASCII hexadecimal number symbol	
6			**H		
7			**H		
8 9 10 11 12 13 14 15 16 17			:		
18			**H		
19			**H		
20			**H		
21		', '	2 CH	Separator between Parameters	
22		PRM3	**H	Layout Information	Surfacing time mark number '001'(30H 30H 31 H) -'155' (31H 35H 35H)
23			**H		
24			**H		
25		', '	2 CH		Separator between Parameters
26		PRM4	**H		Back timing mark number '000'(30H 30H 30 H) -'155' (31H 35H 35H)
27			**H		
28			**H		
29		', '	2 CH		Separator between Parameters
30		PRM5	**H		Barcode number '00' (30H 30H) -'02' (30H 32H)、 '99'(39H 39 H): no appointment
31			**H		
32		', '	2 CH	Separator between Parameters	
33		PRM6	**H	Unused(' 0' fix)	
34		', '	2 CH	Separator between Parameters	
35		PRM7	**H	Option appointment(subscription) '00' (30H 30H) -'FF' (46H 46H) *ASCII hexadecimal number symbol	
36			**H		

PRM1: Specify the processing contents of the command. (Non-optional)

PRM2: Along the reading direction, representing a mark presence / absence in 1/0 from the upper bit in order.
It represents the 1 mark in 1bit, to register the mark information of 64 mark minute (if that does not from the size of the 16byte fixed length.
Line × column and 64 minute mark, the mark information of the later is ignored).

Example) 6 lines × has an ID of 3 column, if you want to recognize the pattern, such as the following



○:Marked non ●:Fill mark

In this case, 0010 0010 1000 0101 10(00) turn on from ID the perception data reading head. 2 2 8 5 8
(Data outside scope set 0)
Of theatrical configuration data, "22858000000000 00" turns on.

***:ID management data set('WM') command layout ID settings = unused('2')**
Case the value of the PRM2 is not checked.

PRM3 , PRM4: timing mark number is specified. For one side read, "000" is designated as PRM4.

*:ID is allocated to each time you send commands. ID is allocated from 0 to 15 in order.
If command was received to 15 after reach, improper(parameters error) turn on.

[Response Format]

No.	Abbreviations		Code	Note	
1	DAT	RES	57 H	'W'	ID set command
2			4 CH	'L'	
3		ST1	**H	OMR status code(Front Side Status)	
4			**H	Refer to “14. Status information ” for details	
5		ST2	**H	OMR status code(BackSide Status)	
6			**H	Refer to “14. Status information ” for details	
7		RED1	**H	ID number	
8			**H	'00' (30H 30H) -'15' (31H 35H)	

11.15 Set Window area data [WD]

[Function]

Window area data setting is performed. There is no default setting.
Window number total that was set at all ID(maximum of 16 ID) 1280 establishment possible pl. Maximum of 255 window area can be set for 1 ID. (If 255 window territoriess is entered in individual in 16 ID, 4080 turn on in total, and yield parameter error.) window area data to same layout continues to Set ID data("WL")), and do in series.
If you register more than the limit value window per one ID1, sheet continuous reading ("CF") becomes the operation of the temporary stop is performed one by one. "11.13Set ID control data[WM]" reference. "9.11Window set(only SR-11000)" reference.
(This command only supports "continuous-process function model".)

[Command Format]

No.	Abbreviations		Code	Note	
1	DAT	CMD	57 H	'W'	Set Windows area data command
2			44 H	'D'	
3		PRM1	**H	Command process Specified data ' 1'(31 H): sets	
4		', '	2 CH	Separator between Parameters	
5		PRM2	**H	Layout area of the windows area '0'(30 H): surface ' 1'(31 H): reverse side	
6		', '	2 CH	Separator between Parameters	
7		PRM3	**H	Column information	Start column of the window area "001" (30H,30H,31 H)-"155" (31H, 35H, 35 H)
8			**H		
9			**H		
10		', '	2 CH		Separator between Parameters
11		PRM4	**H		Setting column of the window area "001" (30H,30H,31 H)-"155" (31H, 35H, 35 H)
12			**H		
13			**H		
14		', '	2 CH		Separator between Parameters
15		PRM5	**H		Setting the pitch of the window area "001" (30H,30H,31 H)-"154" (31H, 35H, 34 H)
16			**H		
17			**H		
18		', '	2 CH	Separator between Parameters	
19		PRM6	**H	Line information	Start line of the window area "01" (30H,31 H)-"48" (34H, 38 H)
20			**H		
21		', '	2 CH		Separator between Parameters
22		PRM7	**H		Setting line of the window area "01" (30H,31 H)-"48" (34H, 38 H)
23			**H		
24		', '	2 CH		Separator between Parameters
25		PRM8	**H		Setting the pitch of the window area "01" (30H,31 H)-"47" (34H, 37 H)
26			**H		
27		', '	2 CH	Separator between Parameters	
28		PRM9	**H	Reading direction "0" (30 H)-"7" (37 H)	
29		', '	2 CH	Separator between Parameters	
30		PRM10	**H	Partitioning '0' (30 H): None '1'(31 H): Yes (0 start) '2'(32 H): Yes (1 start)	

(Continuation)

31	DAT	', '	2 CH	Separator between Parameters	
32		PRM11	**H	Density set	Sensitivity level of the window area Setting range "01" (30H,31H)-"16" (31H,36H)
33			**H		
34		', '	2 CH	Separator between Parameters	
35		PRM12	**H		Concentration difference between the window area Setting range "00" (30H,30H)-"15" (31H,35H)
36			**H		
37		', '	2 CH	Separator between Parameters	
38		PRM13	**H	Marking number	Error judgment at marking number 0 ' 0'(30 H): is error ' 1'(31 H): is not error
39		', '	2 CH		
40		PRM14	**H		Minimum value of marking number Setting range "0000" (30H,30H,30H,30H) -"9999" (39H,39H,39H,39H)
41			**H		
42			**H		
43			**H		
44		', '	2 CH		Separator between Parameters
45		PRM15	**H		Maximum the marking number value Setting range "0000" (30H,30H,30H,30H) -"9999" (39H,39H,39H,39H)
46			**H		
47			**H		
48			**H		
49		', '	2 CH	Separator between Parameters	
50		PRM16	**H	Operation at windowed test NG * See "Table 3 Reject operation specification"	
51		', '	2 CH	Separator between Parameters	
52		PRM17	**H	Option is specified '00'(30H 30 H): none(PRM18 omission Yes) '01'(30H 31 H): mask set '02'(30H 32 H): fixed data comparative '03'(30H 33 H): check digit '04'(30H 34 H):range checking(ascending order) '05'(30H 35 H):range checking(descending order) '06'(30H 36 H): range checking (no order) '07'(30H 37 H):mask set(common partition) *ASCII hexadecimal number symbol	
53			**H		
54		', '	2 CH	Separator between Parameters	
55		PRM18	**H	Options data "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00" - "FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF" *ASCII hexadecimal number title 32 character part Pleasing refer to the marginal details	
56			**H		
:			:		
86			**H		

PRM2 :Layout area of the windows area

Set ID data (WL) back timing mark number zero of command (PRM4 = '000') at the time specified, you can not set the window area arrangement surface on the back side (PRM2 = '1').

If set, yield parameter error.

PRM3 , PRM4, PRM5: set of window area read column

In the setting of the window area, start column, that does not exceed the maximum number of field of a form with a combination of range and pitch. Also ID data set (WL) that does not exceed the value of the timing mark set number of commands (PRM3,4).

If it exceeds a parameter error.

PRM6 , PRM7, PRM8: set of window area read line

In the setting of the window area, start line, the scope and it does not exceed the maximum number of lines of the form of a combination of pitch. If it exceeds a parameter error.

Settings of PRM9 from PRM3 reference "11.13Set ID control data[WM]".

PRM9 :Set reading direction

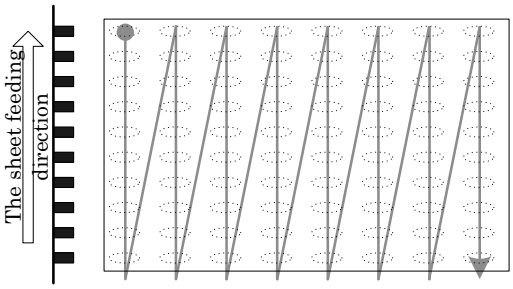
See "11.13Set ID control data[WM]" for reading direction.

PRM10: split partition establishes the existence

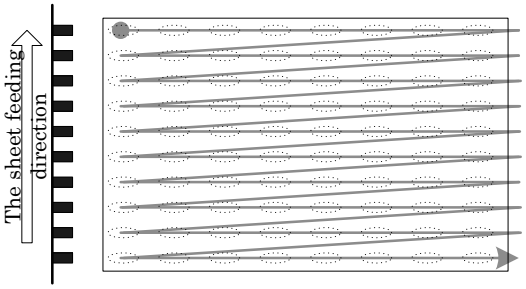
(1) PRM10 (partitioning) = '0': for without

PRM17(option settings)='00': without / ='01': mask establishment /

='02': fixed data comparative To the case available.



PRM9 = '0' reading direction (= '0')
PRM 10 = '0' partition without division



PRM9 = '4' reading direction (= '4')
PRM10 = '0' partition without division

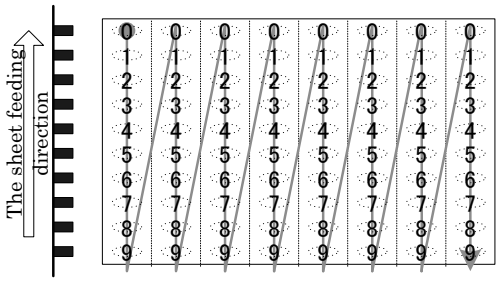
(2) PRM10 (partitioning) = '1': Yes (0 start) / = '2': Yes (1 start) for the

PRM17 (optional setting) = '04' - '06': range check /

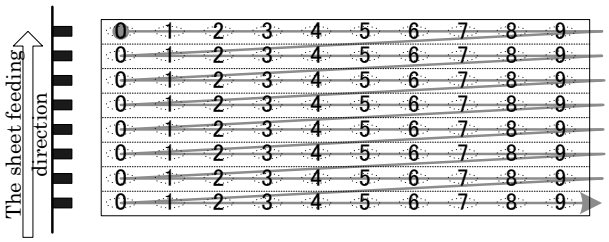
= '07 ': mask set (partition common) can be used in the case of.

* PRM9 (reading direction) = '0' - '3' In the case of, it is separated by a vertical partition.

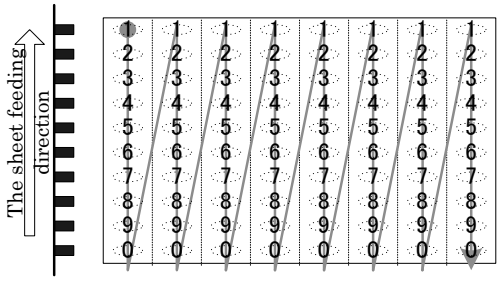
* PRM9 (reading direction) = '4' - '7' In the case of, it is separated by a horizontal partition.



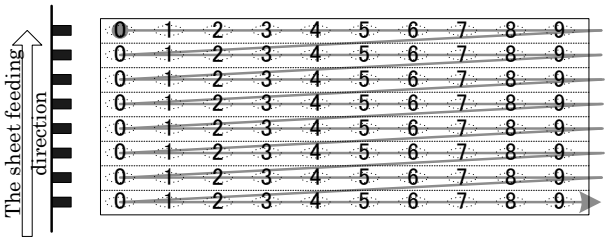
PRM9 = '0' reading direction (= '0')
PRM10 = '1' there is division (0 start)



PRM9 = '4' reading direction (= '4')
PRM10 = '1' there is division (0 start)



PRM9 = ' 0' reading direction (= '0')
PRM10 = '2' there is division (1 start)



PRM9 = '4' reading direction (= '4')
PRM10 = '2' there is division (1 start)

PRM11 - PRM12 setting the contents of the " 11.13Set ID control data[WM]" reference

PRM13 : Error determination of the case where the number of marks of zero

Regardless of the setting of the PRM14, the case of PRM13 = "1", the error does not occur.

If PRM14 = "0000" / PRM13 = "0", the error does not occur.

PRM14 , 15 : the minimum value of the number of marks, the maximum value

The minimum value is greater than the maximum value of a parameter error.

PRM17 : to specify the reading additional options of the window data. PRM18 to set the options for data at.

PRM17 = "2" (fixed data comparison) is 1 per layout 2 can be set only place.

PRM17 = "3" (check digit), PRM17 = "4" - "6" (range check) is

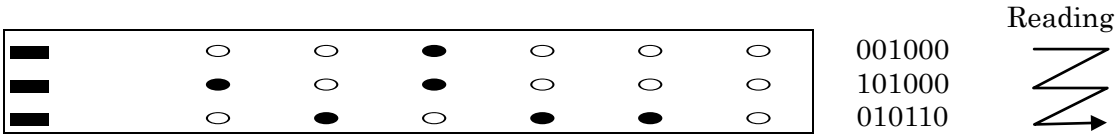
1 per layout 1 only place can be set.

PRM18 : PRM17 settings by different.

[PRM17 = "1" In the case of (mask setting)]

Along the reading direction, the upper bit of the mask data in order from 1/0 = not mask (Read) / mask (not read) represented by. 1bit at 1 represents the mark, 128 to register the mask data of the mark min (fixed line × from the size of the column 128 if you do not become a mark worth, mark information of the later is ignored)

Example) 6 lines × 3 there is a window area of the field, if you want to mask as follows:



○:Mask(does not read) ●:Do not mask(read)

In this case, mask data become 0010 0010 1000 0101 10(00) read head.

2 2 8 5 8

(Data outside scope set 0)

Of theatrical configuration data, "22 85 80 00 00 00 00 00 00 00 00 00 00 00 00 00" turns on.

[For PRM17="2" (fixed data comparative)]

Measuring up in reading direction, and is fixed data from top bit 1/0 = mark in order, and express in no/mark. If do not correspond to setting comparative fixed data, you are deemed that judgment NG. Set methods equal to mask data

[PRM17 = "3" In the case of (check digit)]

Currently, the modulus 11 correspondence only.

* partitioning is essential. Without split a parameter error.

First 2byte becomes type specification, now, "01" (modulus 11) only correspondence of

The setting data, "01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00" and made. 3byte subsequent 30byte will be unused.

(1) check digit for the window

1 to 7 digits and 1 data by comparing the digit check digit is to check whether it is normal.

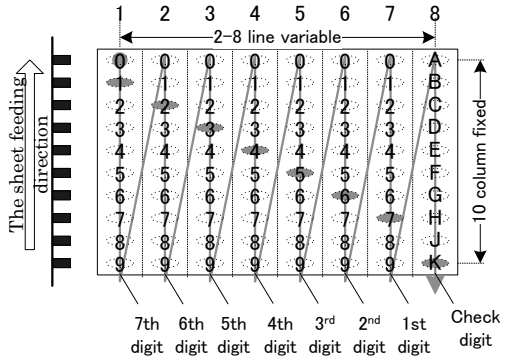
(Ex) Reading direction = '0' , partitioning = Yes split (0 Start) In the case of

If you want to express the 7-digit number and the check digit, set the window of 8 lines × 10 column, to have a meaning as follows in each mark..

- In the window 1 of line numbers 7 digit, 2 the line 6 digit ... 7 the line 1 and digit is a check digit for the last line.

(Reading direction = 3 ' to 5' relationship between the column and line in is reversed)

· In the case of the mark, such as the following, the number "1234567" , check digit "K" and read.



PRM4 = '010' column set number (10 column) / PRM7 = '08' line set number (8 lines)

PRM9 = '0' reading direction (= '0') / PRM10 = '1' there is division (0 start)

(2) check digit calculation

1. From the at the top of the numbered data factors into the 2,3,4,, 8, and request total.

   (The least significant digit of the numerical value × 2)

   + (the lowest -1 numerical value of the digit × 3) + ...

   + (numerical value of the most significant digit × 8)

2. Divide total by 11, and request rest.

3. Transform rest by following table, and is check digit.

Calculation(rest)	0	1	2	3	4	5	6	7	8	9	10
Checking digit character	A		K	J	H	G	F	E	D	C	B

(Ex) number "1234567" and check digit "K"

Total = 112 = (7×2) + (6×3) + (5×4) + (4×5) + (3×6) + (2×7) + (1×8)

Remainder = 2 (112 ÷ 11 = 10 remainder 2)

Checking digit character = K

* judgment If their check digit character with the calculated result read from the mark data OK . Meet unless judgment NG .

[PRM17 = "3" In the case of (check digit) Following

(3) limit of the check digit for the window

PRM17 during the check digit selected in, representing the number 10 pieces of mark × and the number of digits

Check digit character (ABCDEFGHK) for the selected 10 pieces of the mark is required.

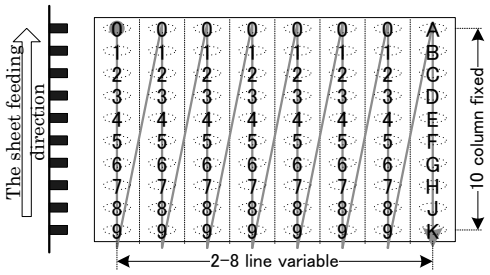
The reading direction, it is necessary to set the window as follows.

* PRM9 (reading direction) = '0' - '3'

Since the longitudinal direction of the partition, prm4 (column number setting) needs to be set in the "010" column fixed.

PRM7 (line set number) is '02' - '08' needs to be set up between the lines.

When out of range specified a parameter error.



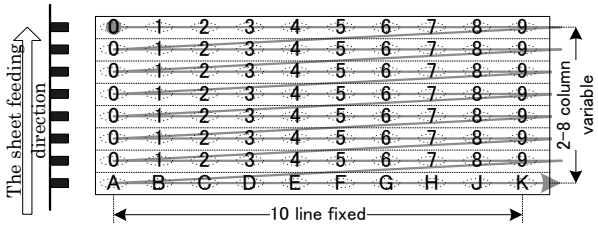
P RM4 = '010' column set number (10 column)
PRM7 = '08' line set number (8 lines)
PRM9 = '0' reading direction (= '0')
PRM10 = '1' there is division (0 start)

* PRM9 (reading direction) = '4' - '7'

Since the lateral direction of the partition, prm4 (column number setting) needs to be set at "02" to "08".

PRM7 (line set number) is '10' is required to be set in line fixed.

When out of range specified a parameter error.



PRM4 = '8' column set number (8 column)
PRM7 = '10' line set number (10 lines)
PRM9 = '4' reading direction (= '4')
PRM10 = '1' there is division (0 start)

[PRM17 = "4" - "6" (range check)]

Partitioning is essential (parameter error if it is not set)

The lower limit of the value to be compared with the reading data beginning 8byte expressed in, the upper limit of the next 8byte represented by.

There is a need to be a lower limit value <= upper limit.

(Lower limit> upper limit, the parameter error.)

Setting range: 0x00000000 - 0xFFFFFFFF

Ex) lower limit value = 1000 (0x3E8) , the upper limit = 99999999 (0X5F5E0FF)

In the case of,

Configuration data, " 00 00 03 E8 05 F5 E0 FF 00 00 00 00 00 00 00 00 " .

Lower limit upper limit value (not used)

(1) range check (ascending, descending order, no order)

Range check (ascending order) is, to check that the window of reading data at the time of reading is increased. (1st sheet = 1000,2nd = 1001 ...)

1000 , 1005 , 1007 judgment if the direction in which the data increases even if the data is not connected as ... OK becomes.

If the read data is reduced, the window decision NG become.

Range check (descending order) is, to check that the read data is reduced.

Range check (no order) does not check the order of the read data.

Range check reading to the first sheet in the sheet continuous reading (CF) command (ascending / descending order) performs a check to continue from the previous successful completion and final seat number.

CF when reading the command, if you want to check the first sheet as the first, WM , WL , WD is reset at the re-transmission of command.

Range check is NG at the time after the stop at the decision resume, NG check to the extent that had been expected at the time of detection.

(2) range check for window

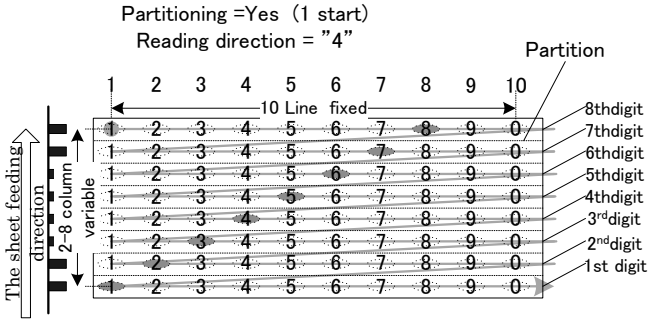
10 pieces of the mark to 0-9 separated by to have a meaning of the partition, sets an area that has been separated by a number of digits partition of numbers that you want to express. Up to 8 digits to be.

(Ex) Reading direction = '4', if there is partition = split (1 start)

If you want to represent the 8-digit number, to set the window of 10 lines × 8 column,to each mark to have a meaning in the following manner.

- Represents the Column 1 in the window at the 8 digit numbers,Representing the Column 2 in the 7 digit numbers.In addition, representing the 8 th column in the first digit. (In the case of reading direction '0-2', the relationship between the column and line is reversed)

· In the case of the mark, such as the following, numerical value "87654321" and read.



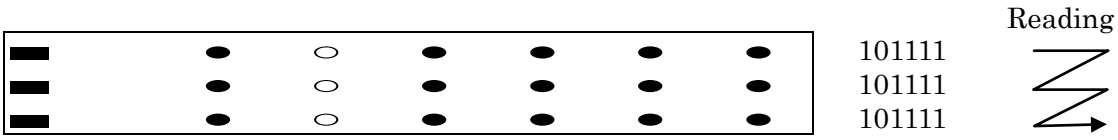
PRM4 = '008' column set number (8 column) / PRM7 = '10' line set number (10 lines)
PRM9 = '4' reading direction (= '4') / PRM10 = '1' there is division (1 start)

[PRM17 = "7" (mask setting partition common)]

Partitioning is essential (parameter error if it is not set)

To apply the same mask pattern in each partition.

Ex) If you want to mask the second of each partition as shown below.



○:Mask(does not read)　●:Do not mask(read)

In this case, mask data become 1011 11(00) read head.

B　C

Setting data is " BC 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00".

(Out of range of the data is set to 0)

*: ID management data set ('WM') in PRM1 = "3" becomes impossible if you were set after a specified (the determination of setting) (parameter error). If, once the initialization of the window setting information (to change ID management data set ('WM') or, window information clear ("WC" it is necessary to carry out)

[Response Format]

No.	Abbreviations		Code	Note	
1	DAT	RES	57 H	'W'	Set Windows area data command
2			4 DH	'D'	
3		ST1	**H	OMR status code(Front Side Status) Refer to “14. Status information ” for details	
4			**H		
5		ST2	**H	OMR status code(BackSide Status) Refer to “14. Status information ” for details	
6			**H		
7		RED1	**H	Windows number "0000" (30H,30H,30H,30H) -"9999" (39H,39H,39H,39H)	
8			**H		
9			**H		
10			**H		

11.16 Set Image Reading Sheet Length [IL]

[Function]

This command sets the maximum image reading sheet length.

If the sheet length exceeds the specified size is read, the image reading length is up to specified size.

Save when this command's PRM1= '1'.

*This function is only for Image unit OMR. Other OMR not installed Image sensor reply NAK response.

[Command Format]

No.	.		Code		
1	DAT	CMD	49H	'I'	Set Image Reading Sheet Length
2			4CH	'L'	
3		PRM1	**H	Command Instruction Data '1' (31H):Set parameters '2' (32H):Read parameters	
4		','	2CH	Separator between Parameters	
5		PRM2	**H	Refer to [PRMsetting Parameter]	

PRM1: Specifies which process is to be executed. (Cannot be omitted)

* If PRM1 = "2", PRM2 can be omitted because they are ignored.

PRM 2:Specifies details of image reading sheet length setting parameters.

[PRM Setting Parameter]

No.	setting	PRM2	Default
1	Image Reading Sheet Length	'0' (30H) : 14inch '1' (31H) : A4size	'0' (30H)

[Response Format]

PRM1 = '1' (Set Parameters)

No.			Code		
1	DAT	RES	49H	'I'	Set Image Reading Sheet Length
2			4CH	'L'	
3		ST1	**H	OMR status code(Front Side Status)	
4			**H	Please refer to "14. Status information " for detail	
5		ST2	**H	OMR status code(Front Side Status)	
6			**H	Please refer to "14. Status information " for detail	

PRM1 = '2' (Read Parameters)

No.			Code		
1	DAT	RES	49H	'I'	Set Image Reading Sheet Length
2			4CH	'L'	
3		ST1	**H	OMR status code(Front Side Status)	
4			**H	Please refer to "14. Status information " for detail	
5		ST2	**H	OMR status code(Front Side Status)	
6			**H	Please refer to "14. Status information " for detail	
7		RED	**H	Refer to [PRMsetting Parameter]	

12 Action Request Command

12.1 Software Reset [SR]

[Function]

This command puts the OMR into the same state as when the power is turned on.

If various parameters are stored in the OMR's internal memory, those parameters are restored.

* Even when there is a sheet in the device, remaining paper error by this command is cleared.

[Command Format]

No.	Abbrev.		Code		
1	DAT	CMD	53H	'S'	Software Reset Command
2			52H	'R'	

[Response Format]

No.	Abbrev.		Code		
1	DAT	RES	53H	'S'	Software Reset Command
2			52H	'R'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		

12.2 Sheet Feed [SF]

[Function]

This command feeds one sheet, reads data and stores the data into memory.

[Command Format]

No.	Abbrev.		Code		
1	DAT	CMD	53H	'S'	Sheet Feed Command
2			46H	'F'	

[Response format]

No.	Abbrev.		Code		
1	DAT	RES	53H	'S'	Sheet Feed Command
2			46H	'F'	
3		ST1	**H	OMR status code(Front side Status)	
4			**H	Refer to "14. Status information " for details	
5		ST2	**H	OMR status code(Back side Status)	
6			**H	Refer to "14. Status information " for details	

12.3 Sheet Read [NS]

[Function]

This command feeds one sheet , read the Image, and store the Image data into memory.

Also, Read the OMR mark data by (PRM1) setting

* This is the command only for SR-3500 HYBRID, NAK response would be return for another OMR.

[Command Format]

No.	Abbrev.		Code		
1	DAT	CMD	4EH	'N'	Sheet Read Command
2			53H	'S'	
3		PRM1	**H	Set Image + Mark read '0' (30H):Only Image '1' (31H):Image + Mark data	
4		','	2CH	Separator between parameters	
5		PRM2	**H	Option Setting '00'(30H 30H)～'FF'(46H 46H) Refer to [PRMsetting Parameter]	
6			**H		

※ No.4,5,6 can be omitted.If omitted, then default value is set.

[PRMsetting Parameter]

A number of 2 digits of hexadecimal number (ASCII) is meant by 2byte.

That means the binary value for 1 byte.

Each bit of the binary value has the meaning like the following table.

Bit	Description	High	Low	Default
bit 7	(Reserve:Fixed at Low)	—	Fixed	—
bit 6	(Reserve:Fixed at Low)	—	Fixed	—
bit 5	(Reserve:Fixed at Low)	—	Fixed	—
bit 4	(Reserve:Fixed at Low)	—	Fixed	—
bit 3	(Reserve:Fixed at Low)	—	Fixed	—
bit 2	Reduction mode	0/1/2 = not use / reduction(Low) / reduction(High)		1
bit 1				
bit 0				

* When Reduction mode is applied, it's necessary to process data by the host(application software).

*Refer to the [Get Device Information [DI]] command for whether it's possible to designate a reduction mode.

[Response Format]

* Sheet Read command (NS) is constitute of 3 steps below

1) Data Response-1: The response to check the condition OMR can read the sheet(Fixed length)

2) Data Response-2: The response the Image data feeding (Variable length)

3) Data Response-3: The response finish the feeding sheet(Fixed length)

1) Data Response-1

No.	Abbrev.		Code		
1	DAT	RES	4EH	'N'	Sheet Read Command
2			53H	'S'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		

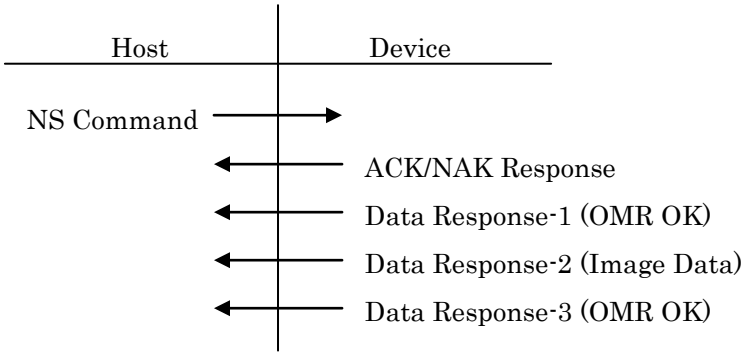
2) Data Response-2

No.	Abbrev.	Code	
1	RED	**H	Image Data (Binary) [Variable Length]
2		**H	
:		:	

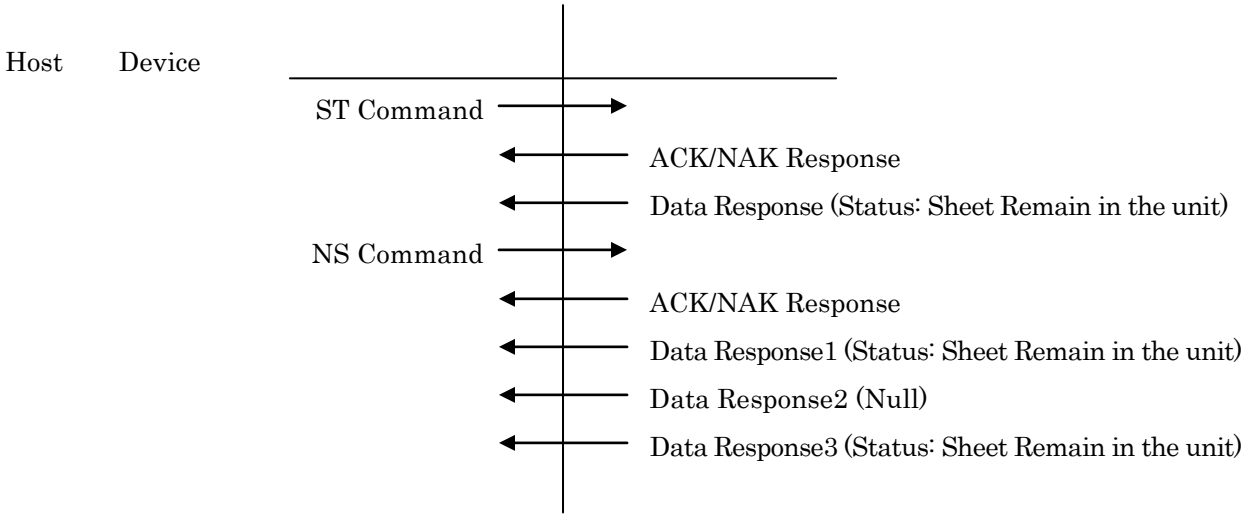
RED :Image Data(Not Omitted) [variable Length]

3) Data Response-3

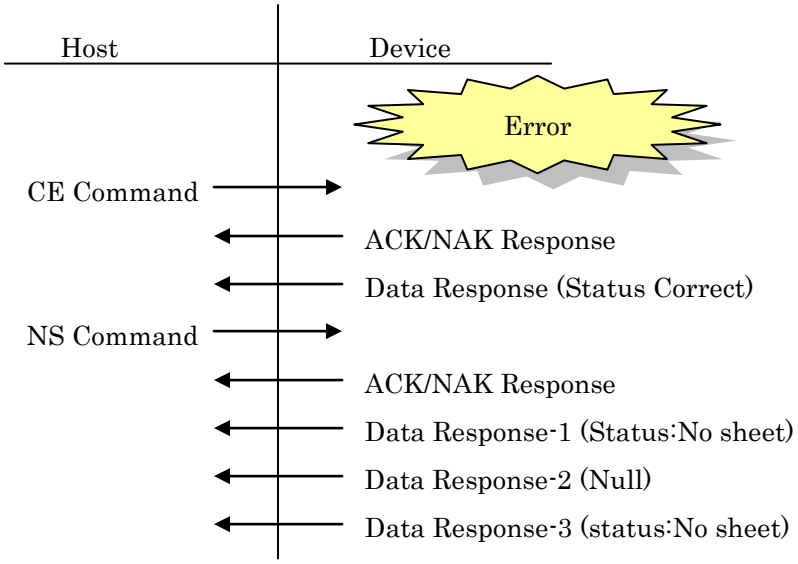
No.	Abbrev.		Code		
1	RED	RES	4EH	'N'	Sheet Read Command
2			53H	'S'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		
7		RED-1	**H	Number of Pixel for main scanning direction (ex) If 2,808 Then '2808' (32H,38H,30H,38H)	
8			**H		
9			**H		
10			**H		
11		','	2CH	Separator between Response Data	
12		RED-2	**H	Number of Pixel for Vertical scanning direction (ex)If 3,482, then '03482' (30H,33H,34H,38H,32H)	
13			**H		
14			**H		
15			**H		
16			**H		



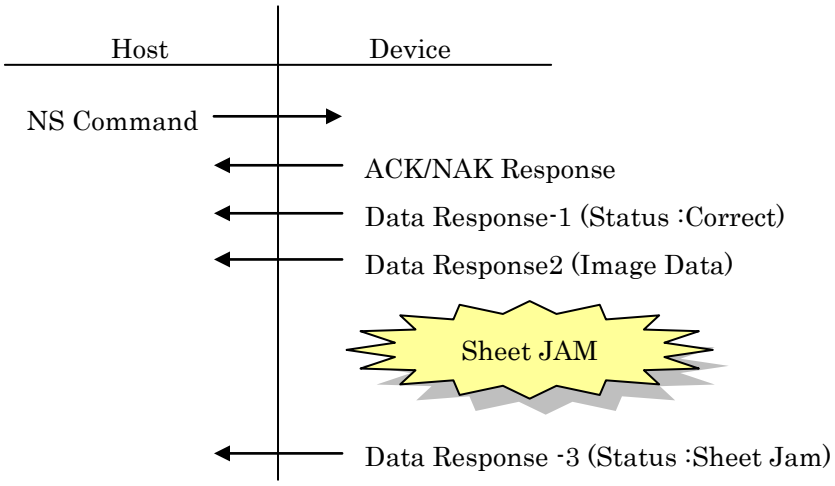
<Figure6 The Data response while Sheet feed command works correctly>



<Figure7 The Data response while Sheet feed command works in correctly(Sheet Remain in the Unit)>



<Figure8 The Data response while Sheet feed command works in correctly(No Sheet)>



<Figure9 The Data response while Sheet feed command works in correctly(Sheet jam)>

The details of Image Data (Data Response-2)

Data Response -2 is the actual Raw Data

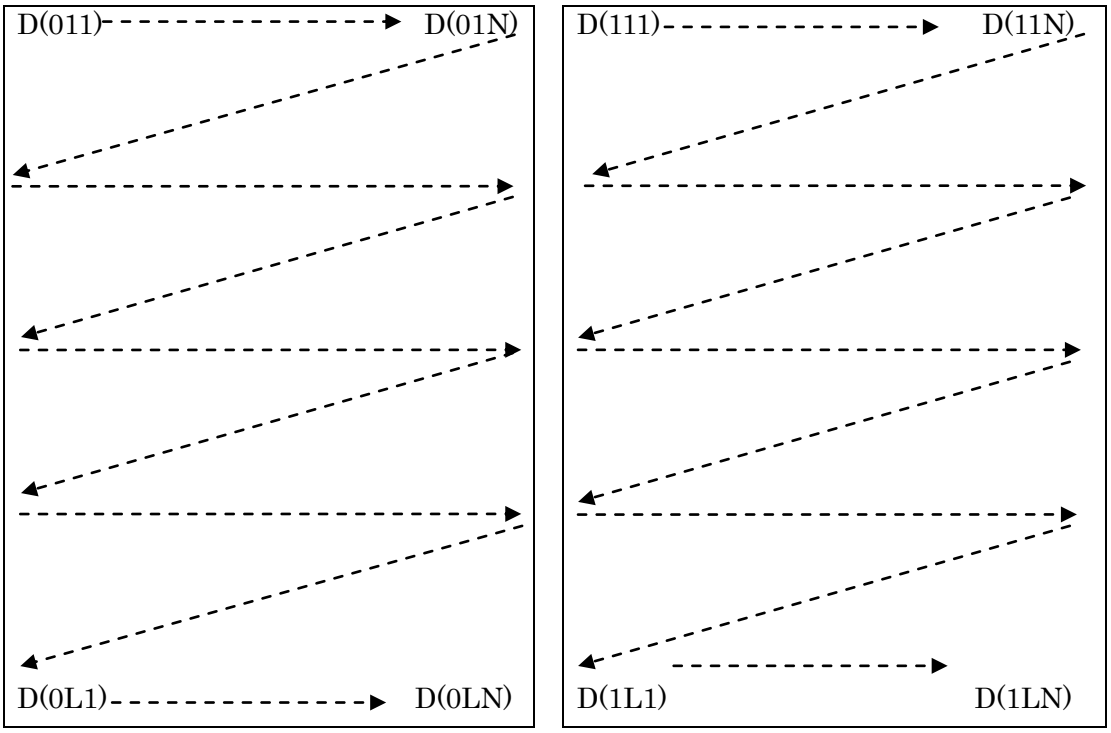
When scan both side, it would be transfer “per a line” Front ->Back ->Front->Back .When Single side scan, it would be transferred per each line.

The file size is decided the setting of DPI by the number of pixel of main scanning direction.

And the line number of Image data is decided depends on the sheet and DPI.

(a) Definition of Sheet , Image Data, Scan direction

Front side(P=0) Back Side(P=1)



N:The number of Pixel Main Scanning line = Decided by DPI host (software) set

L:The number of Pixel Vertical scanning line＝Decided by the Sheet length OMR detected.

P:Front/Back＝Decided by host(software) set

Front “D(011)” as Left TOP

Back “D(111)” as Left TOP

(b) Data format by scan side, color setting,

1) Both sides, RGB Color reading

Transfer	Number of Line	RGB	F/B	The contents of Data(1line)		
↓	1	R	F	R(010)	~	R(01N)
			B	R(110)	~	R(11N)
		G	F	G(010)	~	G(01N)
			B	G(110)	~	G(11N)
		B	F	B(010)	~	B(01N)
			B	B(110)	~	B(11N)
	≀	≀	≀	≀	~	≀
	Final Line(L)	R	F	R(0L0)	~	R(0LN)
			R	R(1L0)	~	R(1LN)
		G	F	G(0L0)	~	G(0LN)
			R	G(1L0)	~	G(1LN)
		B	F	B(0L0)	~	B(0LN)
			R	B(1L0)	~	B(1LN)

2) Single Color, Both Sides Reading

(ex) Front side is “Col0” (either B/H,R,G,B), Back Side is “Col1”(either B/H, R,G,B)

Transfer	Number of line	Color	F/B	The contents of Data(1line)		
↓	1st line	Single	F	Col0(011)	~	Col0 (01N)
			B	Col1(111)	~	Col1 (11N)
	≀	≀	≀	≀	~	≀
	Final Line(L)	Single	F	Col0 (0L0)	~	Col0 (0LN)
			B	Col1 (1L0)	~	Col1 (1LN)

3) RGB color, Single side reading

Front side “P=0”, Back Side “P=1”

Transfer	Number of line	RGB	F/B	The contents of Data(1line)		
↓	1st line	R	P	R(P10)	~	R(P1N)
		G	P	G(P10)	~	G(P1N)
		B	P	B(P10)	~	B(P1N)
	≀	≀	≀	≀	~	≀
	Final line(L)	R	P	R(PL0)	~	R(PLN)
		G	P	G(PL0)	~	G(PLN)
		B	P	B(PL0)	~	B(PLN)

④Single Color, Single Side reading

Front side “P =0”, Back side “P =1”

Transfer	Number of line	Color	F/B	The contents of Data(1line)		
↓	1st line	Single	P	Col0(P11)	~	Col0 (P1N)
	≀	≀	≀	≀	~	≀
	Final line(L)	Single	P	Col0 (PL0)	~	Col0 (PLN)

Table3 The number of pixels of main scanning line

300 dpi	2808 bytes
200 dpi	2808 bytes (*1)
150 dpi	1404 bytes
100 dpi	936 bytes

*1 If want 200 dpi image Device would get 300 dpi image, So need to change to 200 dpi by the Host(application software)

12.4 Sheet continuous reading[CF]

[Function]

In this command to continuous processing without stopping the sheet.

In addition, the transfer mark data (* 1) at any time host.

Further, by setting options, it can at the same time reading of the bar code data, and printing.

(This command only supports "continuous-process function model".)

[Command Format]

No.	Abbreviations		Code	Note	
1	DAT	CMD	43 H	'C'	Sheet continuous reading command
2			46 H	'F'	
3		PRM1	**H	Marking data output format(cannot be omitted) '0000'(30H 30H 30H 30 H) -'FFFF'(46H 46H 46H 46 H) See "Table 5 marking data output format"	
4			**H		
5			**H		
6			**H		
7		', '	2 CH	Separator between Parameters	
8		PRM2	**H	Error occurring (*2) waste paper prior Specified data ' 0'(30 H): main tray ' 1'(31 H): select tray	

* 1, The window is performed only if the window settings(Set ID data('WL') window area data set('WD') has been set.

* 2, Being limited to double feed error, timing mark error, left end skew error

Table 5 marking data output format

Regarded as a binary value, and each bit is meaningful, such as shown in the table below. Currently, the '0000' fixed.

(1,2bytes Specified data)

Bit	Content	High	Low
Bit 7	(Reserved)	-	Fixing
Bit 6	Specified sheet size * bit5 = valid only when the High	More than 12 inch	12 inch or less
Bit 5	Sheet size setting	Command specified	Panel specified
Bit 4	(Unused)	-	Fixing
Bit 3	(Unused)	-	Fixing
Bit 2	(Unused)	-	Fixing
Bit 1	(Unused)	-	Fixing
Bit 0	(Unused)	-	Fixing

(3,4bytes Specified data)

Bit	Content	High	Low
Bit 7	(Unused)	-	Fixing
Bit 6	(Unused)	-	Fixing
Bit 5	(Unused)	-	Fixing
Bit 4	(Unused)	-	Fixing
Bit 3	(Unused)	-	Fixing
Bit 2	(Unused)	-	Fixing
Bit 1	(Reserved)	-	Fixing
Bit 0	(Reserved)	-	Fixing

[Response Format]

CF command response becomes transfer operation and asynchronous. At the same time registration of the response data to the OMR transport and end is completed. Data transmission timing to the PC depends on the availability of USB communication processing.

* Response sheet continuous reading request is configured in the following four responses

1) data response -1 : OMR having received the command, a response to a response if the read operation is performed (variable length)

2) data response -2 : data response when you are reading the form. Mark data, window data, bar code data is response separately (variable length) . In the case of data invalid, it responds the only data type.

3) data response -3 : Response in the case of processing of one sheet has been completed (fixed length)

4) data response -4 : Response to notify the end of the continuous processing

1) Data response-1

No.	Abbreviations		Code	Note	
1	DAT	RES	43 H	'C'	Sheet continuous reading command
2			46 H	'F'	
3		ST1	**H	OMR status code(Front Side Status)	
4			**H	Refer to “14. Status information ” for details	
5		ST2	**H	OMR status code(BackSide Status)	
6			**H	Refer to “14. Status information ” for details	
7		RED-1	**H	Return data(1) type *	
8			**H	To See the table below " <return data type>	
9		', '	2 CH	Separator between Parameters	
10		RED-2	**H	Return data(2) type *	
11			**H	To See the table below " <return data type>	
12		', '	2 CH	Separator between Parameters	
:		:	:	:	
N-1		RED-n	**H	Return data(n) type *	
N			**H	To See the table below " <return data type>	

*data response-2 output in order of return data(n).

Returns number of data(= n) is scope of 1 to 10.

<Return data type>

Value	Type
'00'(30H 30 H)	None (only *return data(1))
'01'(30H 31 H)	Surface marking data(16 concentrations)
'02'(30H 32 H)	Back mark data(16 concentrations)
'03'(30H 33 H)	Bar-code data

2) Data response-2

No.	Abbreviations	Code	Note
1	RED	**H	Scanned data(variable length) *see "details of the read data (data response -2)"
2		**H	
:		:	

3) Data response-3

No.	Abbreviations		Code	Note	
1	RED	RES	43 H	'C'	Sheet continuous reading command
2			46 H	'F'	
3		ST1	**H	OMR status code(Front Side Status) Refer to “14. Status information ” for details	
4			**H		
5		ST2	**H	OMR status code(BackSide Status) Refer to “14. Status information ” for details	
6			**H		
7		RED-1	**H	Document count '000'(30H 30H 30 H) — '999' (39H 39H 39H)*6	
8			**H		
9			**H		
10		', '	2 CH	Separator between Parameters	
11		RED-2	**H	Surfacing time mark number '000'(30H 30H 30 H) — '155' (31H 35H 35H)	
12			**H		
13			**H		
14		', '	2 CH	Separator between Parameters	
15		RED-3	**H	Back timing mark number '000'(30H 30H 30 H) — '155' (31H 35H 35H)	
16			**H		
17			**H		
18		', '	2 CH	Separator between Parameters	
19		RED-4	**H	Barcode number '00' (30H 30H) — '10' (31H 30H)	
20			**H		
21		', '	2 CH	Separator between Parameters	
22		RED-5	**H	ID number '00'(30H 30 H)-'15'(31H 35 H): recognition ID '99'(39H 39 H): discrepancies * For no-setting ' 00' is responded	
23			**H		
24		', '	2 CH	Separator between Parameters	
25		RED-6	**H	Print results '0'(30 H): no print '1'(31 H): print	
26		', '	2 CH	Separator between Parameters	
27		RED-7	**H	Paper Destination ' 0'(30 H): not waste paper ' 1'(31 H): main tray ' 2'(32 H): select tray	
28		', '	2 CH	Separator between Parameters	

(is continued)

(Continuation)

29		RED-8	**H	Transport result end notification data. See " Table 6 Transport result end notification data ".
30	RED	', '	2 CH	Separator between Parameters
31		RED-9	**H	ID recognition *7 '00'(30H 30 H): normal '01'(30H 31 H): surfacing time mark number discrepancies '02'(30H 32 H): back timing mark number discrepancies '03'(30H 33 H): double timing mark number discrepancies '04'(30H 34 H): layout ID all disagreement '05'(30H 35 H): number discrepancies of bar-code data '06'(30H 36 H): layout ID order NG
32			**H	
33		', '	2 CH	Separator between Parameters
34		RED-10	**H	Windowed recognition results: NG number of windows '0000'(30H 30H 30H 30 H) — '1280' (31H 32H 38H 30H)
35			**H	
36			**H	
37			**H	
38		', '	2 CH	Separator between Parameters
39		RED-11	**H	NG window number *5 '0000'(30H 30H 30H 30 H) — '1279' (31H 32H 37H 39H)
40			**H	
41			**H	
42			**H	
43		', '	2 CH	Separator between Parameters
44		RED-12	**H	Partition number *5 '000'(30H 30H 30 H) — '155' (31H 35H 35H)
45			**H	
46			**H	
47		', '	2 CH	Separator between Parameters
48		RED-13	**H	NG reason *5 '00' (30H 30H) — '99' (39H 39H)
49			**H	
50		', '	2 CH	Separator between Parameters
51		RED-14	**H	End notification data *3 '0'(30 H): There is a next sheet '1'(31 H): There is no next sheet(final data)
52		', '	2 CH	Separator between Parameters
53		RED-15	**H	Buffer usage *4 '00' (30H 30H) — '99' (39H 39H)
54			**H	
55		', '	2 CH	Separator between Parameters
56		RED-16	**H	GAP length (length of unit is 0.1mm) (Ex)In the case of 92.9mm '0929'(30H, 39H, 32H, 39 H)
57			**H	
58			**H	
59			**H	
60		', '	2 CH	Separator between Parameters
61		RED-17	**H	The length of the paper. Unit is 0.1mm (Ex)In the case of 304.4mm '3044'(33H, 30H, 34H, 34 H)
62			**H	
63			**H	
64			**H	
65		', '	2 CH	Separator between Parameters
66		RED-18	**H	Reaching the speed of the feed motor. Unit is pps (Ex)In the case of 4010pps '4010'(34H, 30H, 31H, 30 H)
67			**H	
68			**H	
69			**H	

* 1, Before indicating the length of the distance to the tip of the form from the form trailing end. In the case of the first sheet after the document set in the paper feed hopper is '0000' (0mm) a fixed.
* 2, ---
* 3, In the case of RED-14 = '0' (NEXT form), there is next data. Other No next of data.
* 4, data response -3 to the amount used at the time of registration to the buffer. Different from the time of transmission.
* 5, If there is Multiple NG, the smallest window number is notified. If there is no NG, all become "0".
* 6, First sheet are "001", and following of ' 999' becomes "000". With the proviso, depends on product specification hopper capacity.

[NG reason]

'00'(30H 30 H): normal
' 01'(30H 31 H): marking number is less
' 02'(30H 32 H): marking number is many
'03'(30H 33 H): fixed data inconsistencies
'04'(30H 34 H): check digit NG
' 05'(30H 35 H): ranges checking process(ascending order)
' 06'(30H 36 H): ranges checking process(descending order)
' 07'(30H 37 H): ranges checking process(no direction)

Error group A

Error group B

Note) If the error groups A and B occur at the same time A takes precedence.

* Error storage priority 7 ID recognition results are as follows.

(ID recognition results) (A higher priority of the above.)

'04'(30H 34 H): layout ID all disagreement
' 03'(30H 33 H): double timing mark number discrepancies(when is generated on inside and outside surface same time)
'01'(30H 31 H): surfacing time mark number discrepancies
'02'(30H 32 H): back timing mark number discrepancies
'05'(30H 35 H): number discrepancies of bar-code data
'06'(30H 36 H):layout ID order NG(as arise from 2nd sheets, bottom)

Table 6 Transport result end notification data

Bit	Content	High	Low
Bit 7	(Unused)	-	Fixing
Bit 6	(Unused)	-	Fixing
Bit 5	(Output character)	Fixing	-
Bit 4	(Output character)	Fixing	-
Bit 3	ID judgment NG	Exist	None
Bit 2	Waste paper by error occurring	Exist	None
Bit 1	Abend	Exist	None
Bit 0	Windowed test NG	Exist	None

4) Data response-4

No.	Abbreviations		Code	Note	
1	DAT	RES	43 H	'C'	Sheet continuous reading command
2			46 H	'F'	
3		ST1	**H	OMR status code(Front Side Status) Refer to “14. Status information ” for details	
4			**H		
5		ST2	**H	OMR status code(BackSide Status) Refer to “14. Status information ” for details	
6			**H		
7		RED-1	**H	Continuous processing end notification data '0' (30H): successful completion '1' (31H): abnormal termination '2' (32H): Exit by the window decision '3' (33H): Cancel End	
8		', '	2 CH	Separator between Parameters	
9		RED-2	**H	Not judgment number: '0'(30 H)-'9'(39 H)*6	
10		', '	2 CH	Separator between Parameters	
11		RED-3	**H	Not print number: '0'(30 H)-'9'(39 H)*7	
12		', '	2 CH	Separator between Parameters	
13		RED-4	**H	Not paper ejection number: '0'(30 H)-'9'(39 H)*8	
14		Data for Internal processing (32bytes fix) 14byte onwards are added only when needed. Characters that can be used refer to table below			
15					
:					
45					

* 6, Since the conveyance start, it returns the number of sheets in a position that is not marked read complete.

* 7, Since the conveyance start, returns the number of sheets in a position that is not printed completed.

* 8, Since the conveyance start, it returns the number of sheets in a position that is not completed paper ejection.

Table 7 For "Response 4" internal processing for the data can be set character code

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			SP	0	@	P	`	p								
1			!	1	A	Q	a	q								
2			"	2	B	R	b	r								
3			#	3	C	S	c	s								
4			$	4	D	T	d	t								
5			%	5	E	Us	e	Us								
6			&	6	F	V	f	v								
7			'	7	G	W	g	w								
8			(	8	H	X	h	x								
9			)	9	I	Y	i	y								
A			*	:	J	Z	j	z								
B			+	;	K	[	k	{								
C			,	<	L	¥	l	|								
D			-	=	M	]	m	}								
E			.	>	N	^	n	-								
F			/	?	O	_	o									

[Details of scanned data(data response-2)]

1. Bar-code data

No.	Abbreviations		Code	Note
1	DAT	RED-1	30 H	Data type '03'(30H 33 H): barcode
2			33 H	
3		', '	2 CH	Separator among response data
4		RED-2	**H	Data type determination result '0' (30H): normal '1' (31H): bar code data count mismatch
5		', '	2 CH	Separator among response data
6		RED-3	**H	Bar code number of data * 1 '00' (30H 30H) ~ '02' (30H 32H)
7			**H	
8		', '	2 CH	Separator among response data
9		RED-4	**H	Bar code type * 2
10		', '	2 CH	Separator among response data
11		RED-5	**H	Bar code size '000' (30H 30H 30H) ~ '064' (30H 36H 34H)
12			**H	
13			**H	
14		', '	2 CH	Separator among response data
:		RED-6	**H	Bar code data (ASCII code variable length)
:			:	
:			**H	
:	*3	', '	2 CH	Separator among response data
:		RED-7	**H	Bar code type * 2
:		', '	2 CH	Separator among response data
:		RED-8	**H	Bar code size '000' (30H 30H 30H) — '064' (30H 36H 34H)
:			**H	
:			**H	
:		', '	2 CH	Separator among response data
:		RED-9	**H	Bar code data (ASCII code variable length)
:			:	
n			**H	

* 1, Number of bar-code data

By the number of digits of the bar code in a continuous transport, the maximum number of bar code label is limited.

- If within the bar code of 32 digits, you can read up to two of the bar code label.
- If the first bar code is 33 digits or more, you can read a maximum of one.
- If the second bar code is 33 or more digits, the second bar code is discarded reading.

Reading example

① Reading the label number of bar code is zero.
03,0,00

② Reading the label number of bar code is 1.
03,0,01,a,032,00000000001111111111222222222233

③ Reading the label number of bar code is 2.
03,0,02,a,032,00000000001111111111222222222233,c,016,4444444444555555

* 2, Bar-code type
  See "13.2BarCode Data Request [BD]".
  If the second of the bar code data is read, it is added to the back in the same format as the first bar code.

* 3 , If the bar code data of the second and subsequent are read, it will be added to the back in the same format as the first bar code data.

3. Marking data

No.	Abbreviations		Code	Note
1	DAT	RED-1	**H	Data type '01' (30H 31H) : surface mark data '02' (30H 32H) : back mark data
2			**H	
3		', '	2 CH	Separator among response data
4		RED-2	**H	Data type determination result '0' (30H): normal '1' (31H): ID judgment NG '2' (32H): window judgment NG
5		', '	2 CH	Separator among response data
6		RED-3	** H	Mark data of the first column * Mark data of the second column : Mark data of the n-th column * The content details of the reference to "mark Data Details"
7			**H	
:			**H	
:			**H	
n			**H	

[Marking data details]

Size	Abbreviations	Code	Note
1 to 48	RED1	**H	Mark density data of the first column The set output by the number of lines read "Table4" reference marking concentration data
		:	
		**H	
1	', '	2 CH	Separator among response data
:	:	:	:
1	', '	2 CH	Separator among response data
1 to 48	REDn	**H	Mark density data of the n-th column The set output by the number of lines read "Table4" reference marking concentration data

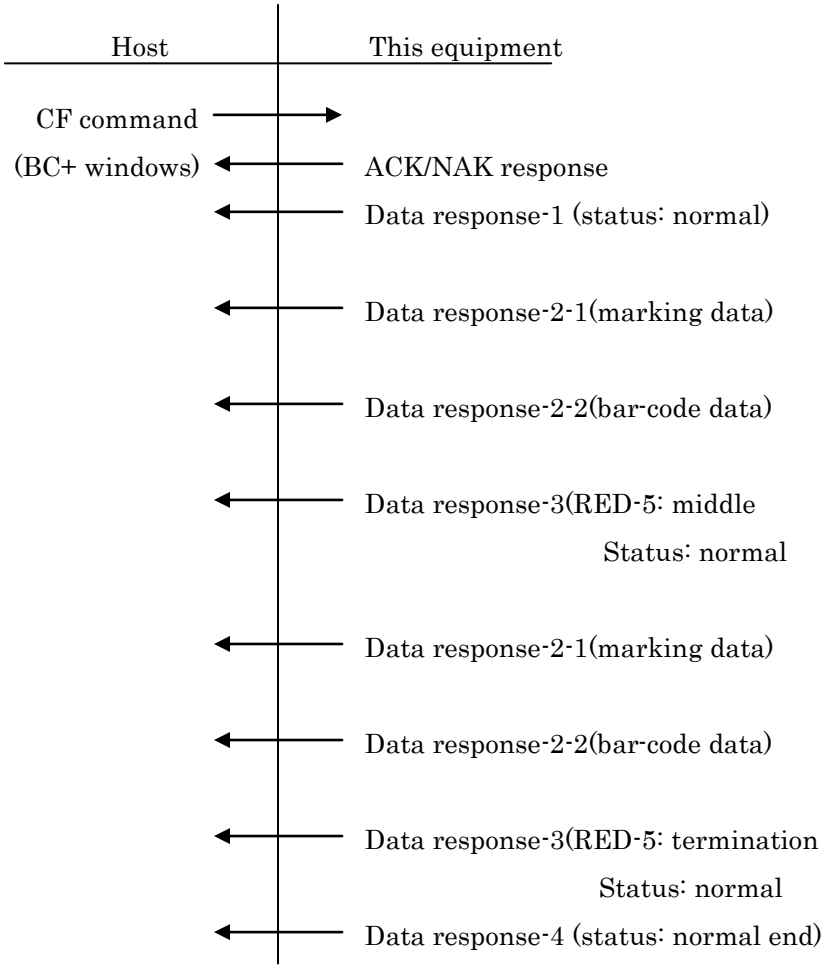


Figure 10 data response at document read normal10

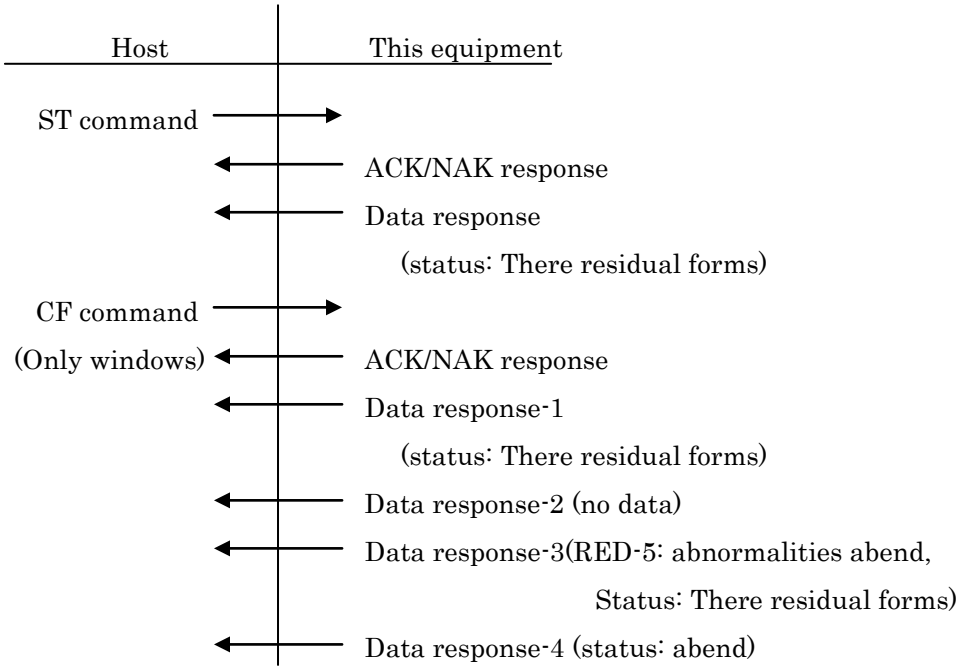


Figure 11 1 data response example at document read being11

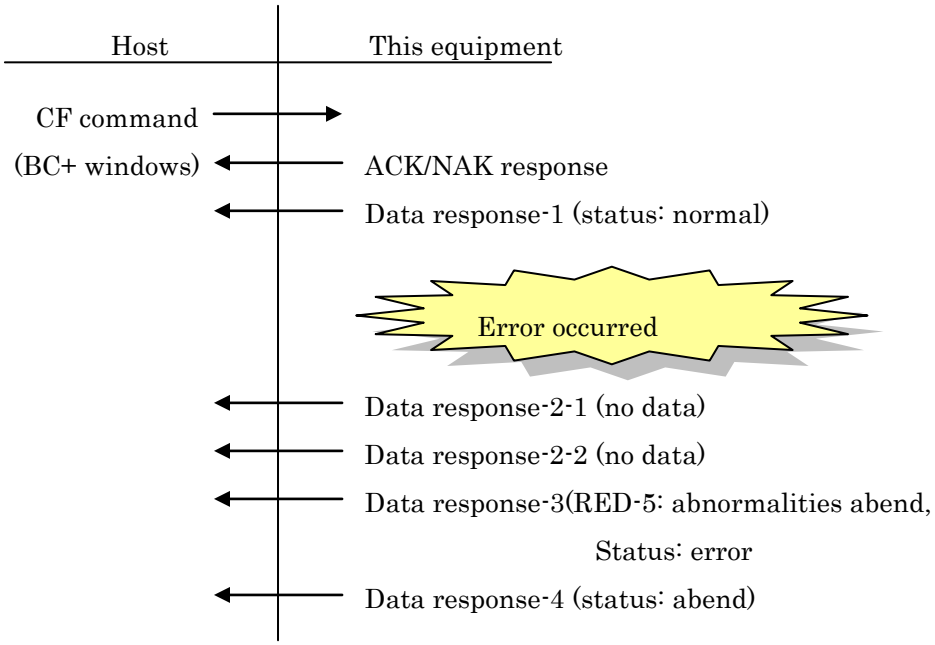
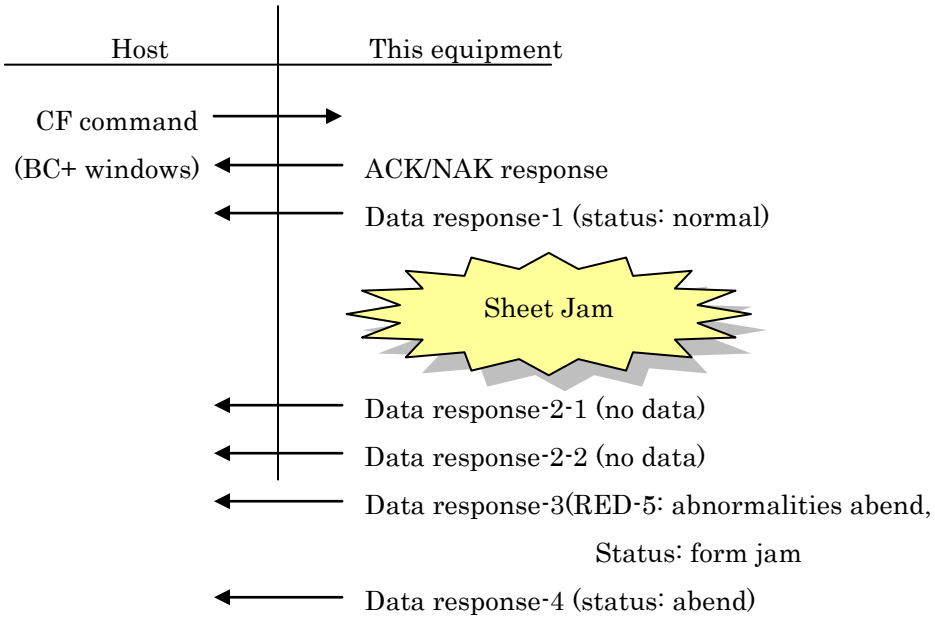
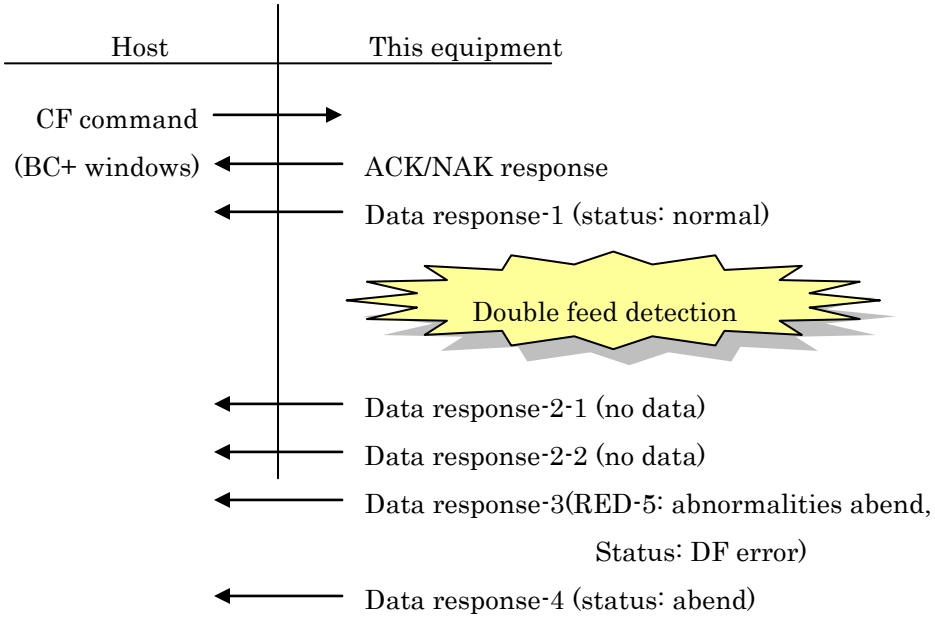


Figure 12 2 data response example at document read being12



* Similarly, the error non-standard sheet.

Figure 13 3 data response example at document read being13



*left end skew, timing mark error becomes same, too

Figure 14 4 data response example at document read being14

12.5 Canceling operation [CA]

[Function]

When this command is received in a continuous process to discharge the paper, to end the reading.

However, when this command is received before the start of transporting the paper, stop the feeding.

This command is exceptionally, ACK , the response of the data response is not.

(This command only supports "continuous-process function model".)

[Command Format]

No.	Abbreviations		Code	Note	
1	DAT	CMD	43 H	'C'	Canceling operational command
2			41 H	'A'	

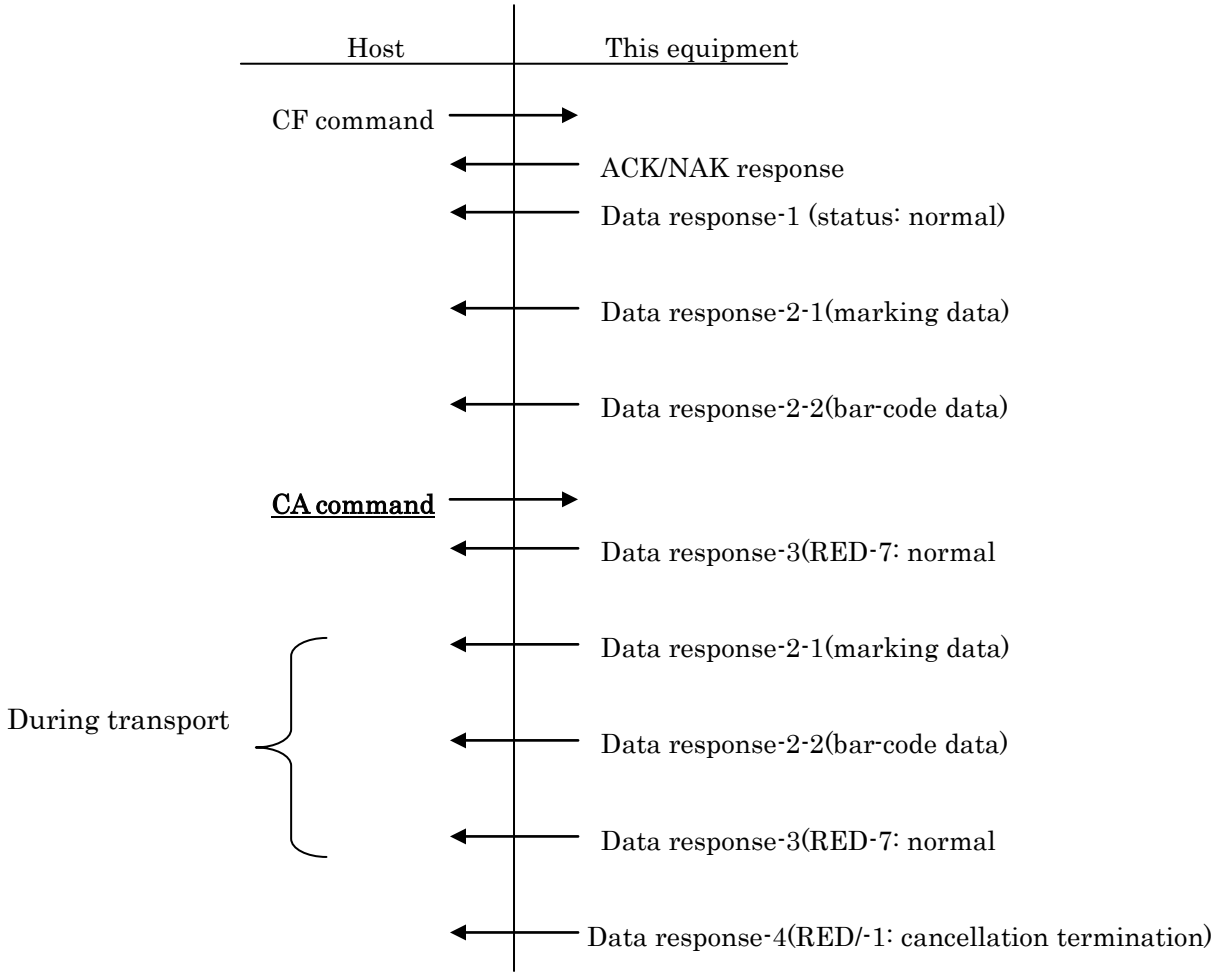


Figure 15 data response at document read cancellation15

12.6 Window information clearing[WC]

[Function]

All window relevant information that is set in machine is clear.

Set data is cleared in the following commands.

- Set ID control data(WM)Set ID control data[WM]
- Set ID data(WL)Set ID data[WL]
- Set Window area data (WD) Window area data [WD]

(This command only supports "continuous-process function model".)

[Command Format]

No.	Abbreviations		Code		Note
1	DAT	CMD	57 H	'W'	Windows information clearing command
2			43 H	'C'	

[Response Format]

No.	Abbreviations		Code		Note
1	DAT	RES	57 H	'W'	Windows information clearing command
2			43 H	'C'	
3		ST1	**H		OMR status code(Front Side Status) Refer to “14. Status information ” for details
4			**H		
5		ST2	**H		OMR status code(BackSide Status) Refer to “14. Status information ” for details
6			**H		

12.7 Move Hopper [HU]

[Function]

This command moves the hopper UP/Down

[Command Format]

No.	Abbrev.		Code		
3	DAT	CMD	48H	'H'	Move Hopper Command
4			55H	'U'	
5		PRM	**H	Specifies Hopper movement '0' (30H):Move Hopper Down '1' (31H):Move Hopper UP	

PRM: Specifies hopper movement (cannot be omitted).

[Response Format]

No.	Abbrev.		Code		
1	DAT	RES	48H	'H'	Move Hopper Command
2			55H	'U'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		

12.8 Eject Sheet [ER]

[Function]

This command eject a sheet after reading data.

"Immediate processing" ejects a sheet to the designated outlet. If "print order" is set, ejects after printing.

Once you select "Feed and Print," it will be valid until it is changed.

Please refer to "8.4 Eject Sheet," "8.6 Print After Feeding," and "8.7 Print while Feeding" for details.

[Response Format]

No.	Abbrev.		Code		
1	DAT	CMD	45H	'E'	Eject Sheet Command
2			52H	'R'	
3		PRM	**H	Specifies Sheet Eject action '1' (31H):Eject a sheet at Stop position to MainStacker(Immediate execution) '2' (32H):Eject a sheet at stop position to Select(Reject)stacker (Immediate execution) '3' (33H):Eject a sheet at stop position to Mainstacker when next Sheet Feed command is executed '4' (34H):Eject a sheet at stop position to Select(Reject)Stacker when next Sheet Feed command is executed	

PRM: Specifies sheet eject action (cannot be omitted).

[Response Format]

No.	Abbrev.		Code		
1	DAT	RES	45H	'E'	Eject Sheet Command
2			52H	'R'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		

12.9 Initial Setting [IS]

[Function]

This command reverts all parameters to Default. And then stores them into OMR initial memory

[Command Format]

No.	Abbrev.		Code		
1	DAT	CMD	49H	'I'	Initial Setting command
2			53H	'S'	

The parameters set by the following commands are initialized and reverted to a default values:

1)Set Number of Columns [NC]
2)Set Reading Method [RM]
3)Set Back Sensor Unit [BR]
4)Set Sheet Paper Weight [FT]
5)Set Warning Error [WE]
6)Set Panel Operation [PO]
7)Set Buzzer Configuration [BZ]
8)Set Identification Code [ID]
9) Set Image Reading [IR]
10) Printer Configuration [PR]
11) Bar Code Settings [BC]
12) Energy Saver Settings [ES]
13) Set Image Reading Sheet Length [IL]

[Response Format]

No.	Abbrev.		Code		
1	DAT	RES	49H	'I'	Initial Setting Command
2			53H	'S'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		

12.10 Clear Error [CE]

[Function]

This command clears errors found internally by the OMR.

However, this command does not clear hardware errors.

For which errors can be cleared by this command, please refer to “14. Status Information”.

[Command Format]

No.	Abbrev.		Code		
3	DAT	CMD	43H	‘C’	Clear Error Command
4			45H	‘E’	

[Response Format]

No.	Abbrev.		Code		
7	DAT	RES	43H	‘C’	Clear Error Command
8			45H	‘E’	
9		ST1	**H	OMR status code(Front side Status) Refer to “14. Status information “ for details	
10			**H		
11		ST2	**H	OMR status code(Back side Status) Refer to “14. Status information “ for details	
12			**H		

13 Data Request Command

13.1 Get mark Density [MD]

[Function]

This command requests mark density data that has already been processed.

The mark density information is converted and output in 16-level 1-byte data.

The data output range is the number of rows processed starting from the first row.

[Command Format]

No.	Abbrev.		Code		
1	DAT	CMD	4DH	'M'	Get Mark Density Command
2			44H	'D'	
3		PRM	**H	Specifies Data of Which side is requested '0' (30H):Front Side '1' (31H):Back Side	

PRM: Specifies the data of the side that is requested (cannot be omitted).

[Response Format]

Before sheet read, or when there's no reading result

No.	Abbrev.		Code		
1	DAT	RES	4DH	'M'	Get mark Density Command
2			44H	'D'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		

When There's reading result

No.	Abbrev.		Code		
1	DAT	RES	4DH	'M'	Get Mark Density Command
2			44H	'D'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		
7		RED1	**H	Refer to [explanation of Response]	
:		:	:		
n		REDn	**H		

[Explanation of Response]

The Reading result is output in the following format

Size	Abbrev.	Code	
1~48	RED1	**H : **H	Mark Density Data of the 1st row Data is output for pre-Specified number of columns to read. For mark density data interpretation, refer to "Table4" below.
1	‘,’	2CH	Separator between response Data
:	:	:	:
1	‘,’	2CH	Separator between response Data
1~48	REDn	**H : **H	Mark Density data of the nth row Data us output for pre-specified number of columns to read. For mark density data interpretation, refer to "Table4" below.

* Data is output for each row the OMR reads.

* Total number of reading result data is as follows:

Total number of data =(# of columns x # of rows) + {separator x (# of rows - 1)}

[Example of total number of data calculation]

If the number of columns to read is 48 and the number of rows to read is 80;

Total number of data = (# of columns x # of rows) +{separator x (# of rows - 1)}

= (48 x 80) + {1 x (80 - 1)} =(3,840) + (79) =3,919 bytes

Table4 Mark Density Data 16Level Conversion Table

Density Level	No mark	1	2	3	4	5
Code	‘0’ (30H)	‘1’ (31H)	‘2’ (32H)	‘3’ (33H)	‘4’ (34H)	‘5’ (35H)
Density Level	6	7	8	9	10	11
Code	‘6’ (36H)	‘7’ (37H)	‘8’ (38H)	‘9’ (39H)	‘:’ (3AH)	‘;’ (3BH)
Density Level	12	13	14	15	16	
Code	‘<’ (3CH)	‘=’ (3DH)	‘>’ (3EH)	‘?’ (3FH)	‘@’ (40H)	

13.2 BarCode Data Request [BD]

[Function]

Request the Barcode Data from a scan sheet that has been read

*"P2" error appear when no connect Barcode unit, or no installed Barcode unit

[Command Format]

No.	Abbrev.		Code		
1	DAT	CMD	42H	'B'	Barcode Data Request Command
2			44H	'D'	
3		PRM1	**H	Designates the Barcode data output format "1' (31H):Displays the number of Data '2' (32H):Displays the data	
4		','	2CH	Separator between Parameters	
5		PRM2	**H	Designates the requested Barcode Data '01' (30H 31H) ~ '10' (31H 30H)	
6			**H		

PRM1: Designates the data output format. (cannot be omitted).

* If PRM1 = "1", PRM2 can be omitted because they are ignored.

PRM2: Designates the requested bar code data.

* If PRM1 = "2", PRM2 cannot be omitted.

[PRM setting]

Process	PRM1	PRM2	
Request the number of Data	'1' (31H)		
Request Data	'2' (32H)	'01' (30H 31H) ~ '10' (31H 30H)	1st to 10th pages can be selected

[Response Format]

PRM1 = '1' (Request Number of Data)

No.	Abbrev.		Code		
1	DAT	RES	42H	'B'	Barcode Data Request Command
2			44H	'D'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		
7		RED1	31H	Barcode Data Output Format '1' (31H):Display number of Data	
8		','	2CH	Separator between Response Data	
9		RED2	**H	Normal number of read pages '00' (30H 30H) ~ '10' (31H 30H)	
10			**H		
11		','	2CH	Separator between response Data	
12		RED3	**H	Read Position Number Setting '01' (30H 31H) ~ '10' (31H 30H) **In the initial position only, this setting is fixed at '00'**	
13			**H		

PRM1 = ’2’ (Request Data)

When there is a read error, such as before a bar code has been read or when there is otherwise no read data

No.	Abbrev.		Code		
1	DAT	RES	42H	‘B’	Barcode Data Request Command
2			44H	‘D’	
3		ST1	**H	OMR status code(Front side Status) Refer to “14. Status information “ for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to “14. Status information “ for details	
6			**H		
7		RED1	32H	Barcode Data Output format ‘2’ (32H):Displays Data	
8		‘,’	2CH	Separator between response Data	
9		RED2	**H	Selected barcode Data ‘01’ (30H 31H) ~ ‘10’ (31H 30H)	
10			**H		
11		‘,’	2CH	Separator between response Data	
12		RED3	**H	Code by Barcode Type ‘@’ (40H):No Barcode Data read	

PRM1 = ’2’ (Request Data)

When There is read Data

No.	Abbrev.		Code		
1	DAT	RES	42H	‘B’	Barcode Data Request Command
2			44H	‘D’	
3		ST1	**H	OMR status code(Front side Status) Refer to “14. Status information “ for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to “14. Status information “ for details	
6			**H		
7		RED1	32H	Barcode Data output format ‘2’ (32H):Displays Data	
8		‘,’	2CH	Separator between response Data	
9		RED2	**H	Selected Barcode Data ‘01’ (30H 31H) ~ ‘10’ (31H 30H)	
10			**H		
11		‘,’	2CH	Separator between response Data	
12		RED3	**H	Code by Barcode Type See [Response Details]	
13		‘,’	2CH	Separator between response Data	
14		RED4	**H	Read Barcode Data (MAX 64bytes)	
:			:		
n			**H		

[Response Details]

(1). Code by Barcode Type

No.	Code by type	Barcode Type	Start/Stop Output	Output Model	
				Lengthwise(V)	Sideways(H)
1	'a' (61H)	CODE-39	-	o	o
2	'b' (62H)	ITF	-	o	o
3	'c' (63H)	NW-7	output	o	o
4	'd' (64H)	JAN/EAN/UPC	-	o	o
5	'e' (65H)	V:CODE-128 H:CODE-128/EAN-128	-	o	o
6	'f' (66H)	Industrial 2of5	-	o	x
7	'g' (67H)	COOP2of5	-	o	x
8	'h' (68H)	CODE-93	-	x	o

o:Reading x:No reading

(2). Read Results

Read result will vary according to read position settings

[Read BarCode]

No.	Read Position	Type	Read Data
1	Item 1	CODE-39	12345
2	Item 2	ITF	67890
3	Item 3	NW-7	123
4	Item 4	JAN/EAN/UPC	456

1) Settings for Initial read position only

Read	Output Format	RED1	RED2	RED3	RED4
All Data Read	No of Data	1	04	00	
	Data	2	01	a	12345
		2	02	b	67890
		2	03	c	123
		2	04	d	456
		2	05	@	
		2	06	@	
		2	07	@	
		2	08	@	
		2	09	@	
		2	10	@	
Items 2 and 3 Read	No of Data	1	02	00	
	Data	2	01	b	67890
		2	02	c	123
		2	03	@	
		2	04	@	
		2	05	@	
		2	06	@	
		2	07	@	
		2	08	@	
		2	09	@	
		2	10	@	

2) Setting Areas to be Read/Ignored

Read	Output format	RED1	RED2	RED3	RED4
All Data read	No of Data	1	04	04	
	Data	2	01	a	12345
		2	02	b	67890
		2	03	c	123
		2	04	d	456
		2	05	@	
		2	06	@	
		2	07	@	
		2	08	@	
		2	09	@	
		2	10	@	
Item 2 and 3 Read	No of Data	1	02	04	
	Data	2	01	@	
		2	02	b	67890
		2	03	c	123
		2	04	@	
		2	05	@	
		2	06	@	
		2	07	@	
		2	08	@	
		2	09	@	
		2	10	@	

13.3 Get Status Information [ST]

[Function]

This command requests current status information

[Command format]

No.	Abbrev.		Code		
1	DAT	CMD	53H	'S'	Get Status information command
2			54H	'T'	

[Response Format]

No.	Abbrev.		Code		
1	DAT	RES	53H	'S'	Get Status information Command
2			54H	'T'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		

13.4 Get Sensor information [DS]

[Function]

This Command request output status information of various detection sensors

[Command format]

No.	Abbrev.		Code		
1	DAT	CMD	44H	'D'	Get sensor information command
2			53H	'S'	

[Response format]

No.	Abbrev.		Code		
1	DAT	RES	44H	'D'	Get sensor information command
2			53H	'S'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		
7		RED	**H	Sensor info-1	Refer to [Explanation of Response]
8			**H	Sensor info-2	
9			**H	Sensor info-3	
10			**H	Sensor info-4	

[Example of Response]

Sensor information is output in the following format

Category	Bit	Abbrev.	Description	High	Low
Sensor info-1 (Mainbody / Position sensor)	bit 7	—	(Fixed at Low)	—	Fixed
	bit 6	—	(Fixed at High)	Fixed	—
	bit 5	OUTPS	Mainbody Paper eject detection	Y	N
	bit 4	RDPS	Reading Start Detection	Y	N
	bit 3	INPS	Sheet Feed Start Detection	Y	N
	bit 2	PS0	0Paper detection on Hoper	Y	N
	bit 1	UPPS	Hopper upper limit detection	Y	N
	bit 0	DWPS	Hopper lower limit detection	Y	N
Sensor info-2 (Mainbody door. error detection sensors)	bit 7	—	(Fixed at Low)	—	Fixed
	bit 6	—	(Fixed at High)	Fixed	—
	bit 5	—	(Reserve:Fixed at Low)	—	Fixed
	bit 4	SKS	Skew Sensor	Y	N
	bit 3	—	(Reserve:Fixed at Low)	—	Fixed
	bit 2	—	(Reserve:Fixed at Low)	—	Fixed
	bit 1	—	(Reserve:Fixed at Low)	—	Fixed
	bit 0	MAIN-CVR	Mainbody door Open/Close detection	Open	Close
Sensor info-3 (Stacker unit position sensor)	bit 7	—	(Fixed at Low)	—	Fixed
	bit 6	—	(Fixed at High)	Fixed	—
	bit 5	SPS3*3	Stacker position sensor 3	Y	N
	bit 4	SPS2*3	Stacker position sensor 2	Y	N
	bit 3	SPS1*3	Stacker position sensor 1	Y	N
	bit 2	SPS	Select Paper Eject	Y	N
	bit 1	MPS	Main Paper Eject	Y	N
	bit 0	P2PS	Detect Print Start	Y	N
Sensor info-4 (Stacker unit door)	bit 7	—	(Fixed at Low)	—	Fixed
	bit 6	—	(Fixed at High)	Fixed	—
	bit 5	—	(Reserve:Fixed at Low)	—	Fixed
	bit 4	SRPS*3	Select tray remaining paper detection sensor	Y	N
	bit 3	MRPS*3	Main tray remaining paper detection sensor	Y	N
	bit 2	SPS5*3	Stacker position sensor 5	Y	N
	bit 1	SPS4*3	Stacker position sensor 4	Y	N
	bit 0	STK-CVR1	Select stacker front door detection	Open	Close

* '@@@@' (40H 40H 40H 40H) would output if all sensors are no response or no output

*1, SR-1800 does not have UPPS、DWPS sensors, and not supported select stacker. so, these detection is described as LOW

*2, SR-3500 HYBRID, SR-6500 HYBRID does not have skew sensor, so SKS detection is described as LOW

*3, SPS1 to 5, SRPS, MRPS is SR-11000 support only.

13.5 Get Device Information [DI]

[Function]

This command requests OMR'S device Status information

[Command Format]

No.	Abbrev.		Code		
1	DAT	CMD	44H	'D'	Get Device Information Command
2			49H	'I'	

[Response Format]

No.	Abbrev.		Code		
1	DAT	RES	44H	'D'	Get Device Information Command
2			49H	'I'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		
7		RED1	**H	Reading Sensor Type '0' (30H):Red Visible '1' (31H):Near Infrared * '@' (40H) is output when failed to recognize	
8		','	2CH	Separator between response Data	
9		RED2	**H	Reading Sensor Pitch '1' (31H):1/6 (0.166) inch '2' (32H):0.2 inch '3' (33H):0.2 inch S '4' (34H):0.25 inch '5' (35H):0.3 inch '6' (36H):0.3 inch F '7' (37H):6mm '8' (38H):0.2 inch K '9' (39H):0.2 inch special 'A' (41H):0.2 inch C * '@' (40H) is output when failed to recognize	
10		','	2CH	Separator between response Data	
11		RED3	**H	Back Sensor unit '0' (30H):Not connected '1' (31H): Connected	
12		','	2CH	Separator between response Data	
13		RED4	**H	Barcode unit '0' (30H):Not connected '1' (31H):Vertical '2' (32H):Horizontal '3' (33H):Barcode unit reader is not connected	
14		','	2CH	Separator between response Data	
15		RED5	**H	Printer Unit '0' (30H):Not connected '1' (31H):Connected '2' (32H):Printer Cartridge is not connected	
16		','	2CH	Separator between response Data	
17		RED6	**H	Select Stacker unit '0' (30H):Not connected '1' (31H):Connected '2' (32H):Printer Cartridge is not connected	

(Added only for Image reading OMR)

18	DAT	‘,’	2CH	Separator between response Data
19		RED7	**H	Image sensor ‘0’ (30H):Not Connected ‘1’ (31H):Connected (Front side CIS installed) ‘2’ (32H):Connected (Back side CIS installed) ‘3’ (33H):Connected (Both sides CIS installed)
20		‘,’	2CH	Separator between response Data
21		RED8	**H	Option possible by the Image reading bit7 : (0 fixed) bit6 : (0 fixed) bit5 : (1 fixed) bit4 : (1 fixed) bit3 : (Unused) bit2 : (Reserve) bit1 : (Reserve) bit0 : Image Reduction mode function 0/1 = without function/with function

* A communication error with the reading unit, when unable to recognize the read sensor type and reading sensor pitch, as dummy data '@' (40H) is output.

*No.18~21 is added to only the model with the Image Reading Capability.

13.6 Get Machine Name [MN]

[Function]

This command requests the OMR's machine name

[Command Format]

No.	Abbrev.		Code		
1	DAT	CMD	4DH	'M'	Get Machine Name Command
2			4EH	'N'	

[Response Format]

No.	Abbrev.		Code		
1	DAT	RES	4DH	'M'	Get Machine Name Command
2			4EH	'N'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		
7		RED	53H	'S'	Machine name (ex:SR-3500) 'SR-3500'
8			52H	'R'	
9			2DH	'-'	
10			33H	'3'	
11			35H	'5'	
12			30H	'0'	
13			30H	'0'	

	Machine name
SR-3500	'SR-3500'
SR-6000	'SR-6000'
SR-6500	'SR-6500'
SR-1800	'SR-1800'
SR-3500 HYBRID	'SR-3500 HYBRID'
SR-6500 HYBRID	'SR-6500 HYBRID'
SR-11000	'SR-11000'

13.7 Get Firmware Version [FV]

[Function]

This command requests the firmware version of each OMR unit

[Command Format]

No.	Abbrev.		Code		
1	DAT	CMD	46H	'F'	Get Firmware version Command
2			56H	'V'	
3		PRM	**H		Specifies Unit '0' (30H):Mainbody '1' (31H):Front Sensor Unit '2' (32H):Back Sensor Unit '3' (33H):barcode Unit '4' (34H):Printer Unit '5' (35H):Select Stacker Unit '6' (36H):Image sensor Unit1(CPU) * '7' (37H):Image sensor Unit2(FPGA) *

PRM :Specifies unit (can not be omitted)

* PRM 6/7 can apply for SR-3500 HYBRID only. NAK response would be reply by other OMR

[Response Format]

No.	Abbrev.		Code		
1	DAT	RES	46H	'F'	Get Firmware Version Command
2			56H	'V'	
3		ST1	**H		OMR status code(Front side Status) Refer to "14. Status information " for details
4			**H		
5		ST2	**H		OMR status code(Back side Status) Refer to "14. Status information " for details
6			**H		
7		RED	56H	'V'	Firmware Version 'V**' ↑ '**': indicate the firmware number
8			**H	'*'	
9			**H	'*'	

- In cases of communication error with individual units due to unrecognizable firmware, the dummy data "@@@" (40H 40H 40H) will be displayed.

13.8 Get Image Sensor Parameter [HS]

[Function]

This command requests the Parameter of Image sensor (for SR-3500 HYBRID only)

[Command Format]

No.	Abbrev.		Code		
1	DAT	CMD	48H	'H'	Get Image Sensor Parameter
2			53H	'S'	
3		PRM1	**H	Specifies Front/Back image sensor (not omitted) '0' (30H):Front side image sensor '1' (31H):Back side image sensor	
4		','	2CH	Separator between Parameter	
5		PRM2	**H	Specifies Light source (not omitted) '0' (30H):Red Light sourse, single color '1' (31H):Green light sourse, single color '2' (32H):Blue light sourse, single color '3' (33H):White '4' (34H):Black	
6		','	2CH	Separator between Parameter	
7		PRM3	**H	Specifies DPI setting (not omitted) '1' (31H):300dpi	

[Response format]

No.	Abbrev.		Code		
1	DAT	CMD	48H	'H'	Get Image sensor Parameter
2			53H	'S'	
3		ST1	**H	OMR status code(Front side Status) Refer to "14. Status information " for details	
4			**H		
5		ST2	**H	OMR status code(Back side Status) Refer to "14. Status information " for details	
6			**H		
7		RED1	**H	Image sensor Parameter (n=2808byteFixed)	
8			**H		
9			**H		
10			**H		
:			**H		
n-4			**H		
n-3			**H		
n-2			**H		
n-1			**H		
n			**H		

14 Status Information

The status information has two categories ("error" and "warning").

The error has the following 4 categories.

1) OMR hardware errors
2) Communication errors
3) Cover open errors
4) Paper jam errors

The waring has the following 3 categories.

1) When the device received an unexpected command.
2) When paper feed had some trouble.
3) When wrong operation was performed.

The "normal" status without errors or warnings is as follows.

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'00'	'00'	Normal	—	—

* "ST1" indicates a status regarding the front side of the sheet, and "ST2" indicates a status regarding the back side of the sheet.

ST1 and ST2 are described in decimal character strings, and the OMR transmits them in the following manner:

"00" = 30H 30H "A1" = 41H 31H

* Regarding the status information "B1" to "E5", there are cases when "ST1" and "ST2" are output as separate codes. Other errors and warnings are output as a combined code as described in the following tables.

* It need approx 200msec wait time if cancel errors by command

14.1 Main Body Errors

[Mainbody]

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'A1'	'A1'	Memory Error 1	Internal Memory Error –1	・Turn on the power again. ・If it cannot solve the error, replace the control board.
'A2'	'A2'	Memory Error 2	Internal Memory Error –2	・Turn on the power again. ・If it cannot solve the error, replace the control board.
'A3'	'A3'	Hopper Drive Error	Hopper Operating Error	・Turn on the power again. ・Check a condition of the hopper upper / lower limit sensor.
'A4'	'A4'	Download Error	Error while Downloading to the mainbody	・Turn on the power again. ・Check that the download file is correct.
'A5'	'A5'	Sensor type Error	The specifications of the front side reading sensor and the back side reading sensor are mismatch. Only the back side reading sensor is responding.	・Turn on the power again. ・Install the sensors of same specifications.
'A6'	'A6'	Optional error	Option detection Error	・Turn on the power again. ・Check that the optional unit is being connected properly.
'A8'	'A8'	Power supply error	An abnormality was detected in the power supply supervision voltage of the control board.	・Turn on the power again. ・If it cannot solve the error, replace the control board.

[Reading sensor]

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'B1'	'00'	Communication Error	A communication error occurred between the device and the front side reading sensor.	・Check the connection cable between the main body and the reading sensor. ・Turn on the power again. ・Replace the reading sensor or the control board of the main body.
'00'	'B1'		A communication error occurred between the device and the back side reading sensor.	
'B2'	'00'	Internal Com Error	The front side reading sensor is not responding.	
'00'	'B2'		The back side reading sensor is not responding.	
'B3'	'00'	Memory Error	Front side reading sensor memory error	
'00'	'B3'		Back side reading sensor memory error	
'B4'	'00'	Correction value error	The correction value of the front side reading sensor exceeds acceptable level.	
'00'	'B4'		The correction value of the back side reading sensor exceeds acceptable level.	
'B5'	'00'	Download Error	Front side reading sensor download error	
'00'	'B5'		Back side reading sensor download error	
'B6'	'00'	Internal Error	Front side reading sensor internal error	
'00'	'B6'		Back side reading sensor internal error	
'B7'	'00'	Version Error	The version of the front side reading sensor does not match with the main body. The version of the front side reading sensor does not match with the back side reading sensor.	
'00'	'B7'		The version of the back side reading sensor does not match with the main body. The version of the back side reading sensor does not match with the front side reading sensor.	

[Barcode Unit]

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'C1'	'C1'	Communication error	A communication error occurred between the device and the barcode unit.	・Check the connection cable between the main body and the barcode unit. ・Turn on the power again. ・Replace the barcode unit or the control board of the main body.
'C2'	'C2'	Internal communication error	The barcode unit is not responding.	
'C3'	'C3'	Memory error	Barcode unit memory error	
'C4'	'C4'	Sensor error	Barcode sensor error	
'C5'	'C5'	Download error	Barcode unit download error	
'C6'	'C6'	Internal error	Barcode unit internal error.	
'C7'	'C7'	Version error	The version of the barcode unit does not match with the main body.	

[Printer Unit]

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'D1'	'D1'	Communication error	A communication error occurred between the device and the printer unit.	・Check the connection cable between the main body and the printer unit. ・Turn on the power again. ・Replace the printer unit or the control board of the main body.
'D2'	'D2'	Internal communication error	The printer unit is not responding.	
'D3'	'D3'	Memory error	Printer unit memory error	
'D4'	'D4'	Download error	Printer download error	
'D5'	'D5'	Internal error	Printer internal error	
'D6'	'D6'	Version error	The version of the printer unit does not match with the main body.	

[Stacker unit]

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'E1'	'E1'	Communication Error	A communication error occurred between the device and the stacker unit.	・Check the connection cable between the main body and the stacker unit. ・Turn on the power again. ・Replace the stacker unit or the control board of the main body.
'E2'	'E2'	Internal Com Error	The stacker unit is not responding.	
'E3'	'E3'	Memory Error	Stacker unit memory error	
'E4'	'E4'	Download Error	Stacker unit download error	
'E5'	'E5'	Internal Error	Stacker unit internal error	
'E6'	'E6'	Version Error	The version of the stacker unit does not match with the main body.	
'E7'	'E7'	Drive error	Stacker unit drive part error	

[Image Sensor unit] (SR-3500 HYBRID/SR-6500 HYBRID only)

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'J1'	'J1'	Download Error	Error while Downloading to the Image Sensor Unit	・Check the connection cable between the main body and the Image sensor unit. ・Turn on the power again. ・Replace the Image sensor unit or the control board of the main body.
'J2'	'J2'	Internal Com Error1	No response from Image sensor Unit	
'J3'	'J3'	Internal Com Error2	Image sensor unit detected No response	
'J4'	'J4'	Memory Error 1	Flash Rom Read Error	
'J5'	'J5'	Memory Error 2	Flash Rom load Error	
'J6'	'J6'	Memory Error 3	E^2PROM Read Error	
'J7'	'J7'	Memory Error 4	E^2PROM Load Error	
'J8'	'J8'	IC Error	IC(E^2PROM、Flash) Error	
'J9'	'J9'	CIS Error	CIS error	
'K1'	'K1'	FPGA Error	FPGA error	
'K2'	'K2'	Power Supply Error	Power supply problem in the Image Sensor unit	
'K3'	'K3'	Version Error	Image sensor Unit version not compatible with main body	

14.2 Communication errors

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'F5'	'F5'	Command error	An unexpected command code was received.	・Press the CLEAR switch (or execute the CE command). ・Check that an application has not output an unexpected command / an unexpected parameter and same command.
'F6'	'F6'	Parameter error	An unexpected parameter was received.	
'F7'	'F7'	Protocol error	While processing a command, it received other command.	

* When a communication error occurred, all data that the OMR received is nullified.

14.3 Cover open errors

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'G1'	'G1'	Main body cover open	The top cover of the main body is open.	・Shut the top cover of the main body.
'G2'	'G2'	Stacker unit door open	The front door of the stacker unit is open	・Shut the front door of the stacker unit.

14.4 Paper Jam errors

[Main body]

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'H1'	'H1'	Non feed	Paper feed is not performed though paper feed operation has started.	・Reset sheets. ・Press the CLEAR switch (or execute the CE command). ・Refer to section 4-4(2) "Adjustment of upper limit position of hopper". ・Clean the paper feed roller. ・Replace rollers if there are flaw, crack, wear, etc.
'H2'	'H2'	Jam on the paper feed detection sensor	A paper jam occurred on the paper feed detection sensor.	・Remove the jammed sheet. ・Press the CLEAR switch (or execute the CE command). ・Check that the jammed sheet has not been damaged. ・Check that there are no foreign matters in the inside of the device.
'H3'	'H3'	Jam on the reading start detection sensor	A paper jam occurred on the reading start detection sensor.	
'H4'	'H4'	Jam on the main body paper discharge detection sensor	A paper jam occurred on the main body paper discharge detection sensor.	
'H5'	'H5'	Sheet interval error	While continuous processing is performed, paper feed that sheet interval is too short was detected on the start detection sensors. ※Only SR-11000	・Remove the jammed sheet. ・Press the CLEAR switch (or execute the CE command). ・Clean rollers. ・Replace rollers if there are flaw, crack, wear, etc.

[Select Stacker Unit]

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'I1'	'I1'	Jam on the printer start detection sensor	A paper jam occurred on the printer start detection sensor.	・Remove the jammed sheet. ・Press the CLEAR switch (or execute the CE command). ・Check that the jammed sheet has not been damaged. ・Check that there are no foreign matters in the inside of the device.
'I2'	'I2'	Jam on the main paper discharge detection sensor	A paper jam occurred on the main paper discharge detection sensor.	
'I3'	'I3'	Jam on the selection paper discharge detection sensor	A paper jam occurred on the selection paper discharge detection sensor.	
'I4'	'I4'	Jam on the paper conveyance path upper position detection sensor	A paper jam occurred on the paper conveyance path upper position detection sensor. ※Only SR-11000	
'I5'	'I5'	Jam on the paper conveyance path lower position detection sensor	A paper jam occurred on the paper conveyance path lower position detection sensor. ※Only SR-11000	
'I6'	'I6'	Sheet interval error	Sheet interval is too short. ※Only SR-11000	

14.5 Device Configration Error

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'P1'	'P1'	Back side reading sensor non connection	The back side reading sensor is unconnected.	・Check that the back side reading sensor is connected properly. ・Press the CLEAR switch (or execute the CE command).
'P2'	'P2'	Barcode unit non connection	The barcode unit is unconnected. The barcode reader is unconnected.	・Check that the barcode unit is connected properly. ・Press the CLEAR switch (or execute the CE command).
'P3'	'P3'	Printer unit non connection	The printer unit is unconnected. The printer cartridge is unconnected.	・Check that the printer unit is connected properly. ・Press the CLEAR switch (or execute the CE command).
'P4'	'P4'	Stacker unit non connection	The stacker unit is unconnected.	・Check that the stacker unit is connected properly. ・Press the CLEAR switch (or execute the CE command).
'P5'	'P5'	Image sensor unit non connection	Image Sensor Unit is not installed (Only detects SR-3500 HYBRID)	・Check if the Image Sensor unit is installed ・Press CLEAR button (Or execute CE command)

14.6 Sheet Drive Related Error

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'Q1'	'Q1'	Sheet Empty	There is no sheet in the hopper or the inside of the device.	・Press the CLEAR switch (or execute the CE command). ・Check that the error sheet has not been damaged. ・Check that the setting of paper weight is correct. ・Replace rollers if there are flaw, crack, wear, etc.
'Q2'	'Q2'	Double Feed Error	2 or more sheets were fed simultaneously.	
'Q3'	'Q3'	Left End Skew Error	A sheet was fed skewing.	
'Q4'	'Q4'	Mark Skew Error	A mark that density is lower than the set value was detected in the set area.	

14.7 Operation Related Error

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'R1'	'R1'	Hopper emergency stop	The interlock switch on the side of the paper feed roller operated.	・Release the interlock switch. ・Press the CLEAR switch (or execute the CE command)
'R2'	'R2'	Drawing error	After paper feed was performed, a sheet was drawn out.	・Press the CLEAR switch (or execute the CE command)
'R3'	'R3'	Timeout	A sheet has not been fed within the set time.	
'R4'	'00'	Timing mark error	The read number of timing mark on the front side of a sheet was 3 or less.	・Check the set direction of the sheet. ・Press the CLEAR switch (or execute the CE command)
'00'	'R4'		The read number of timing mark on the back side of a sheet was 3 or less.	
'R5'	'00'	Setting error of reading	When reading marks on the front side of a sheet by the timing control reading method, the next timing mark is detected within the set reading area.	・Check that the setting of reading method matches the reading sheet. ・Press the CLEAR switch (or execute the CE command)
'00'	'R5'		When reading marks on the back side of a sheet by the timing control reading method, the next timing mark is detected within the set reading area.	
'R6'	'R6'	Memory overflow	Feed the sheet longer than the spec.	・Check Sheet Length ・Press CLEAR button (Or execute CE command)
'R7'	'R7'	USB connection error	An abnormality of USB communication was detected. ※Only SR-11000	・Reconnect the USB cable. ・Check that the host computer is USB 2.0 High Speed compliant. ・Check that an application which makes internal processing of a computer heavy is not operating.
'R8'	'R8'	Setting error of sheet size	While continuous processing is performed, a sheet size that exceeds the set value was detected. ※Only SR-11000	・Remove the sheet remaining in the inside of the device. ・Press the CLEAR switch (or execute the CE command) ・Perform the setting of sheet size so that it matches the reading sheet.
'S2'	'00'	Black level Error	There is stain on the front side reading sensor.	・Clean this sensor ・Press the CLEAR switch (or execute the CE command)
'00'	'S2'		There is stain on the back side reading sensor.	
'S3'	'S3'	Read sensor stain Error	There is stain on the reading detection sensor.	・Clean each Sensors ・Press CLEAR button (Or execute CE command)
'S4'	'S4'	Skew Sensor Stain Error	Attached dust or stain on the skew sensor	Clean the skew sensor and turn on power.

ST1	ST2	Error	Explanation	Procedure for solving and clearing errors
'T1'	'T1'	Remaining sheet on the paper feed detection sensor	A sheet remains on the paper feed detection sensor. (INPS)	・Remove the sheet remaining in the inside of the device. ・Press the CLEAR switch (or execute the CE command) ・If there is no sheet on the sensor, the following sensor may be abnormal. Clean the following sensor, and readjust it if this error is not solved by the cleaning. 'T1': Double feed sensor 'T2'/'T3': Skew sensor Reading start detection sensor (RDPS)
'T2'	'T2'	Remaining sheet on the reading start detection sensor	A sheet remains on the reading start detection sensor. (RDPS)	
'T3'	'T3'	Remaining sheet on the main body paper discharge detection sensor	A sheet remains on the main body paper discharge detection sensor. (OUTPS)	
'T4'	'T4'	Remaining sheet on the printing part	A sheet remains on the printing start detection sensor. (P2PS)	・Remove the sheet remaining in the inside of the device. ・Press the CLEAR switch (or execute the CE command)
'T5'	'T5'	Remaining sheet on the main paper discharge sensor	A sheet remains on the main paper discharge sensor. (MPS)	
'T6'	'T6'	Remaining sheet on the selection paper discharge sensor	A sheet remains on the selection paper discharge sensor. (SPS)	

OPTICAL MARK READER
SR-3500/6000/6500, SR-1800, SR-3500 HYBRID, SR-6500 HYBRID
,SR-11000

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