

COMMANDS MANUAL

SCANNER PROTOCOL

CUSTOM[®]

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THE IMAGES USED IN THIS MANUAL ARE USED AS AN ILLUSTRATIVE EXAMPLES. THEY COULDN'T REPRODUCE THE DESCRIBED MODEL FAITHFULLY.

UNLESS OTHERWISE SPECIFIED, THE INFORMATION GIVEN IN THIS MANUAL ARE REFERRED TO ALL MODELS IN PRODUCTION AT THE ISSUE DATE OF THIS DOCUMENT.

GENERAL INSTRUCTIONS

CUSTOM S.p.A. declines all responsibility for accidents or damage to persons or property occurring as a result of tampering, structural or functional modifications, unsuitable or incorrect installations, environments not in keeping with the equipment's protection degree or with the required temperature and humidity conditions, failure to carry out maintenance and periodical inspections and poor repair work.

GENERAL SAFETY INFORMATION

Your attention is drawn to the following actions that could compromise the characteristics of the product:

- Read and retain the instructions which follow.
- Follow all indications and instructions given on the device.
- Make sure that the surface on which the device rests is stable. If it is not, the device could fall, seriously damaging it.
- Make sure that the device rests on a hard (non-padded) surface and that there is sufficient ventilation.
- Do not fix indissolubly the device or its accessories such as power supplies unless specifically provided in this manual.
- When positioning the device, make sure cables do not get damaged.
- [Only OEM equipment] The equipment must be installed in a kiosk or system that provides mechanical, electrical and fire protection.
- The mains power supply must comply with the rules in force in the Country where you intend to install the equipment.
- Make sure that there is an easily-accessible outlet with a capacity of no less than 10A closely to where the device is to be installed.
- Make sure the power cable provided with the appliance, or that you intend to use is suitable with the wall socket available in the system.
- Make sure the electrical system that supplies power to the device is equipped with a ground wire and is protected by a differential switch.
- Before any type of work is done on the machine, disconnect the power supply.
- Use the type of electrical power supply indicated on the device label.
- These devices are intended to be powered by a separately certified power module having an SELV, non-energy hazardous output. (IEC60950-1 second edition).
- [Only POS equipment] The energy to the equipment must be provided by power supply approved by CUSTOM S.p.A.
- Take care the operating temperature range of equipment and its ancillary components.
- Do not block the ventilation openings.
- Do not insert objects inside the device as this could cause short-circuiting or damage components that could jeopardize printer functioning.
- Do not carry out repairs on the device yourself, except for the normal maintenance operations given in the user manual.
- The equipment must be accessible on these components only to trained, authorized personnel.
- Periodically perform scheduled maintenance on the device to avoid dirt build-up that could compromise the correct, safe operation of the unit.
- Do not touch the head heating line with bare hands or metal objects. Do not perform any operation inside the printer immediately after printing because the head and motor tend to become very hot.
- Use consumables approved by CUSTOM S.p.A.



THE CE MARK AFFIXED TO THE PRODUCT CERTIFY THAT THE PRODUCT SATISFIES THE BASIC SAFETY REQUIREMENTS.

The device is in conformity with the essential Electromagnetic Compatibility and Electric Safety requirements laid down in Directives 2014/30/EU and 2014/35/EU inasmuch as it was designed in conformity with the provisions laid down in the following Standards:

- EN 55032 (*Electromagnetic compatibility of multimedia equipment - Emission Requirements*)
- EN 55024/EN55035 (*Electromagnetic compatibility of multimedia equipment - Immunity requirements*)
- EN IEC/EN62368-1 (*Audio/video, information and communication technology equipment*)

The device is in conformity with the essential requirements laid down in Directives 2014/53/EU about devices equipped with intentional radiators. The Declaration of Conformity and other available certifications can be downloaded from the site www.custom4u.it.



GUIDELINES FOR THE DISPOSAL OF THE PRODUCT

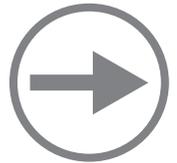
The crossed-out rubbish bin logo means that used electrical and electronic products shall NOT be mixed with unsorted municipal waste. For more detailed information about recycling of this product, refer to the instructions of your country for the disposal of these products.

- Do not dispose of this equipment as miscellaneous solid municipal waste, but arrange to have it collected separately.
- The re-use or correct recycling of the electronic and electrical equipment (EEE) is important in order to protect the environment and the wellbeing of humans.
- In accordance with European Directive WEEE 2012/19/EU, special collection points are available to which to deliver waste electrical and electronic equipment and the equipment can also be handed over to a distributor at the moment of purchasing a new equivalent type.
- The public administration and producers of electrical and electronic equipment are involved in facilitating the processes of the re-use and recovery of waste electrical and electronic equipment through the organisation of collection activities and the use of appropriate planning arrangements.
- Unauthorised disposal of waste electrical and electronic equipment is punishable by law with the appropriate penalties.
- For the waste sorting of the packaging materials, please check the local waste disposal laws.

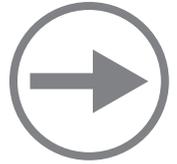


The format used for this manual improves use of natural resources reducing the quantity of necessary paper to print this copy.

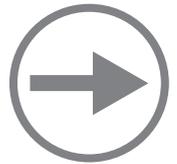
INTRODUCTION



SCANNER COMMANDS



VOID MANAGEMENT





INTRODUCTION

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3	FUNCTIONALITY OF COMMUNICATION PORT.....	10
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1 CONSULTATION OF COMMANDS MANUAL

Each command reported in this manual is described as shown in the following picture. In the first heading field is reported the hexadecimal command value and the ASCII command value. In the second heading field reported the command function. In the third heading field are listed the devices on which it is possible to use the command (for example, device AAAA).

[Link to index](#)

0x0D **<CR>**

Print and carriage return

Valid for AAAA
 BBBB
 CCCC

[Format] Hex 0x0D
 ASCII CR

[Range]

[Description] When Autofeed is "CR enabled", this command function in the same way as 0x0A, otherwise it is disregarded.

[Notes]

AAAA
BBBB

- This command sets the printing position to the beginning of the line.

CCCC

- This command is immediately executed even when the data buffer is full.
- This status is transmitted whenever data sequence is received.

[Default]

[Reference] 0x0A

[Example]

This command sets the printing position to the beginning of the line.

Command value

Command function

Devices that use the command

Information valid for devices AAAA, BBBB, CCC

Information valid only for devices AAAA, BBBB

Information valid only for device CCCC



The fields shown in the scheme of the previous figure have the following meaning:

[Format]	Hexadecimal and ASCII command value.
[Range]	Limits of the values the command and its variables can take.
[Description]	Description of command function.
[Notes]	Additional information about command use and settings.
[Default]	Default value of the command and its variables.
[Reference]	Pertaining commands related to described command.
[Example]	Example of using the command.

Listed below are the meanings of some of symbols that may be found in the command description:

0x	indicates the representation of the command hexadecimal value (for example 0x40 means HEX 40).
n, m, t, x, y	are optional parameters that can have different values.

The variable-length data fields, unless otherwise indicated, are to be considered expressed in Big endian (the most significant byte is the first MSB).



2 IDENTIFICATION OF THE MODELS

NOMENCLATURE	DESCRIPTION
SCAN105	B\W scanner A6 format with printing thermal head for ticket void
SCANNER A6	Colour A6 scanner with front/back scanning for document and check
KUBEIII SCANNER	KUBEIII base configuration (POS model with 200 dpi print head) with integrated SCANNER with printing thermal head for ticket void
KUBEIII SCANNER VERIPRINT	KUBEIII SCANNER VERIPRINT with VeriPrint® system

3 FUNCTIONALITY OF COMMUNICATION PORT

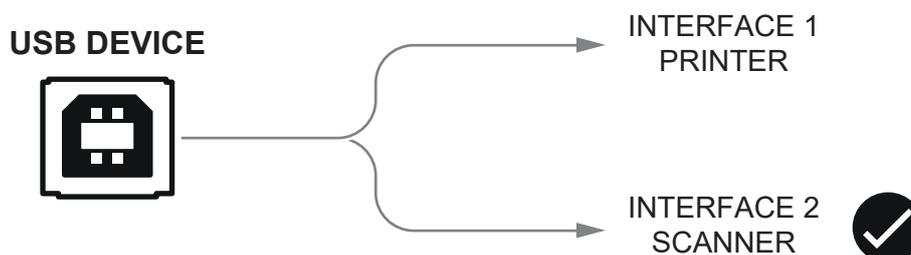
3.1 USB PORT

KUBEIII SCANNER AND KUBEIII SCANNER VERIPRINT

The device has an USB port for communication with the PC. These port provides two interfaces for communication to / from the printer or scanner:

- interface 1 to / from the printer
- interface 2 to / from the scanner

The following diagram shows the configuration of the device with the USB port:



The interface 1 (printer) is represented by the first pair of endpoints.
The interface 2 (scanner) is represented by the second pair of endpoints.

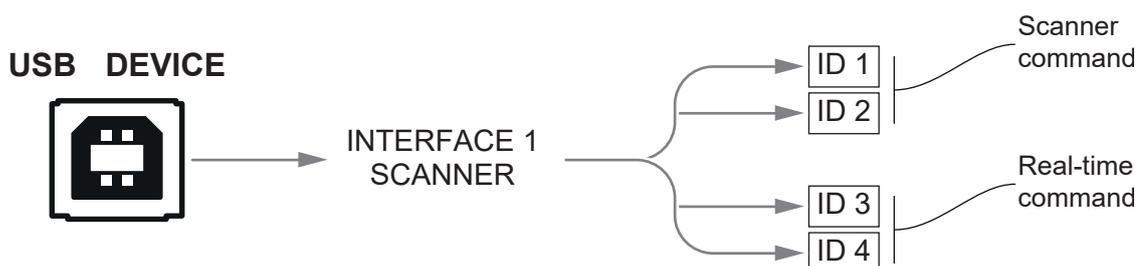
To communicate with the printer make sure using interface 1 for the commands referring to the commands manual code 0577100M000071_1.00 downloadable from the website www.custom4u.it.

To communicate with the scanner make sure using interface 2 using the commands described in this manual.

SCAN105. SCANNER A6

The scanner is configured as a vendor specific device with 4 bulk endpoints. The first pair of endpoints is used to communicate for scan commands, the second pair of endpoints is used for real-time commands.

The following diagram shows the configuration of the device with the USB port:



The following table details the device endpoints:

ENDPOINT	DIRECTION	DESCRIPTION
ID 1	IN (0x81)	Scanner commands (reading)
ID 2	OUT (0x02)	Scanner commands (writing)
ID 3	IN (0x83)	Real - time scanner commands (reading)
ID 4	OUT (0x04)	Real - time scanner commands (writing)

where:

Direction = IN indicates data flow from the device (scanner) to the host;
 Direction = OUT indicates data flow from the host to the device (scanner).

For the Real - time commands protocol see [paragraph 4](#).

3.2 ETHERNET PORT

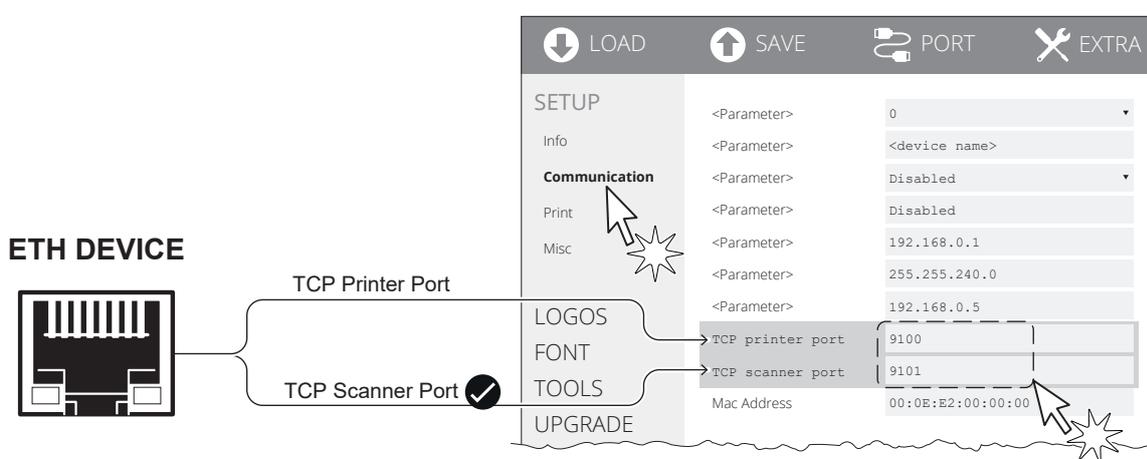
KUBEIII SCANNER AND KUBEIII SCANNER VERIPRINT

The device has an Ethernet port for communication with the PC.

The interface 1 (printer) is reachable through TCP port 9100. To identify the TCP port of the printer, launch the “Printer-Set” tool available on www.custom4u.it. The port number is reported in the Communication > TCP printer port section.

The interface 2 (scanner) is reachable through TCP port 9101. To identify the TCP port of the printer, launch the “Printer-Set” tool available on www.custom4u.it. The port number is reported in the Communication > TCP printer port section.

The following diagram shows the configuration of the device with the Ethernet port:





4 REAL-TIME USB COMMANDS

SCAN105, SCANNER A6

The scanner is configured as a vendor specific device with 4 bulk endpoints.

The first pair of endpoints is used to communicate for all commands on the scan endpoint, the second pair of endpoints is used for real-time commands.

For further information about endpoints configuration see [paragraph 3.1](#).

The protocol used is formatted as follows:

<STX> <ID_Req> <Token> <Len Opt Data> <Opt Data>

where:

<STX>	1 byte	= packet start character, fixed to 0x02
<ID_Req>	1 byte	= command
<Token>	1 byte	= variable value that identifies the command sent. The response to the command will return the same token
<Len Opt Data>	1 byte	= number of bytes of the <Data> field that follow
<Opt Data>	n bytes	= data

The device provides a response to each request received, this response is always structured according to the following protocol:

<STX1> <ID_Req> <Token> <Ret_Code> <Len Opt Data> <Opt Data>

where:

<STX1>	1 byte	= packet start character, fixed to 0x82
<ID_Req>	1 byte	= identifier of the command received
<Token>	1 byte	= a byte that identifies the direct correspondence between received command and sent command
<Ret_Code>	1byte	= 1 byte indicating the return code returned by the received command
<Len Opt Data>	1 byte	= number of bytes of the <Data> field that follow
<Opt Data>	n bytes	= data

The following table lists the possible values of the <Ret_Code> parameter returned in responses to Real-time commands:

CODE	DESCRIPTION
0x06	ACK character, command executed successfully
0x15	NACK character,error in command executing
0x3F	? character, unrecognized command error
0x41	A character, scanning stopped





SCANNER COMMANDS

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1 COMMANDS LISTED IN ALPHANUMERIC ORDER

0x02 0x43	<STC C>	79
0x02 0x52	<STX R>	81
0x02 0x53	<STX S>	82
0x02 0x73	<STX s>	83
0x1B 0x2A	<ESC *>	54
0x1B 0x40	<ESC @>	77
0x1C 0x44	<FS D>	60
0x1C 0x53 0x43 0x47	<FS S C G>	21
0x1C 0x53 0x50 0x43	<FS S P C>	32
0x1C 0x53 0x50 0x45	<FS S P E>	36
0x1C 0x53 0x50 0x48	<FS S P H>	37
0x1C 0x53 0x50 0x4C	<FS S P L>	38
0x1C 0x53 0x50 0x53	<FS S P S>	39
0x1C 0x53 0x50 0x65 0x52	<FS S P e R>	46
0x1C 0x53 0x50 0x65 0x57	<FS S P e W>	50
0x1C 0x53 0x50 0x66	<FS S P f>	52
0x1C 0x53 0x53 0x31	<FS S S 1>	65
0x1C 0x53 0x53 0x32	<FS S S 2>	66
0x1C 0x53 0x53 0x37	<FS S S 7>	53
0x1C 0xEA		73
0x1D 0x2A	<GS *>	56
0x1D 0x2F	<GS />	57
0x1D 0x49	<GS l>	78
0x1D 0x76 0x30	<GS v 0>	58
0x1D 0x7C		61
0x1D 0xE3		74



0x1D 0xE4	75
0x1D 0xE5	76
0x1F 0x45..... <US E>	62
0x1F 0x51..... <US Q>	63
0x1F 0x65..... <US e>	64



2 COMMANDS LISTED BY FUNCTION

SCANNER COMMANDS

0x1C 0x53 0x43 0x47	.....<FS S C G>	21
Get scanner capability		
0x1C 0x53 0x50 0x43	.....<FS S P C>	32
Configure scanner		
0x1C 0x53 0x50 0x45	.....<FS S P E>	36
Eject paper		
0x1C 0x53 0x50 0x48	.....<FS S P H>	37
Retract paper		
0x1C 0x53 0x50 0x4C	.....<FS S P L>	38
Load paper		
0x1C 0x53 0x50 0x53	.....<FS S P S>	39
Start scan		
0x1C 0x53 0x50 0x65 0x52	.....<FS S P e R>	46
Non-volatile parameter reading		
0x1C 0x53 0x50 0x65 0x57	.....<FS S P e W>	50
Non-volatile parameter writing		
0x1C 0x53 0x50 0x66	.....<FS S P f>	52
Set factory default for non-volatile parameters		
0x1C 0x53 0x53 0x37	.....<FS S S 7>	53
Transmission MICR cheque data		

BIT IMAGE COMMANDS FOR VOID

0x1B 0x2A	.....<ESC *>	54
Select image print mode		
0x1D 0x2A	.....<GS *>	56
Define downloaded bit image		
0x1D 0x2F	.....<GS />	57
Print downloaded bit image		
0x1D 0x76 0x30	.....<GS v 0>	58
Print raster image		



VOID PRINthead MANAGEMENT COMMANDS

0x1C 0x44	<FS D>	60
Printing head test		
0x1D 0x7C		61
Set printing density		
0x1F 0x45	<US E>	62
Enable void printhead		
0x1F 0x51	<US Q>	63
Set offset of printing start for void		
0x1F 0x65	<US e>	64
Disable void printhead		

STATUS COMMANDS

0x1C 0x53 0x53 0x31	<FS S S 1>	65
Sensors scanner status transmission		
0x1C 0x53 0x53 0x32	<FS S S 2>	66
Scanner extended status transmission		
0x1C 0xEA		73
Transmit the device serial number		
0x1D 0xE3		74
Reading of length of printed paper		
0x1D 0xE4		75
Reading number of completed scans		
0x1D 0xE5		76
Reading number of power up		

MISCELLANEOUS COMMANDS

0x1B 0x40	<ESC @>	77
Initialize device		
0x1D 0x49	<GS I>	78
Transmit device ID		

USB REAL-TIME COMMANDS

0x02 0x43	<STC C>	79
Scan abort		



0x02 0x52	<STX R>	81
Hardware reset of the scanner		
0x02 0x53	<STX S>	82
Scanner sensors status transmission		
0x02 0x73	<STX s>	83
Extended status transmission of the scanner		



SCANNER COMMANDS

0x1C 0x53 0x43 0x47

<FS S C G>

Get scanner capability

Valid for KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT
SCAN105
SCANNER A6

[Format] Hex 1C 53 43 47
ASCII FS S C G

[Range]

[Description] Returns scanner capability. The device answer is structured as follows:

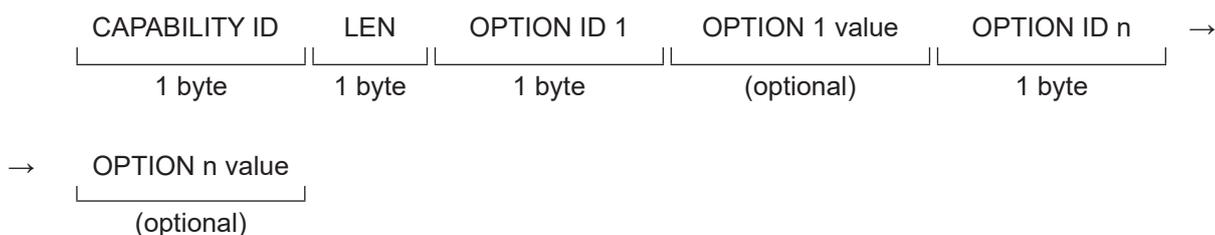


where:

LEN Data length, including this field. So, the length of all return packet.

CAPABILITY DATA Capability Data Descriptor.

[Notes] • The capability data are structured in a stream of data composed as specified by following protocol:



• For each [CAPABILITY ID] the LEN field indicates the number of bytes relating to that specific [CAPABILITY ID].

• The possible values of [CAPABILITY ID] in relation to the [Option ID 1] are as follows:



KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT

CAPABILITY ID	FUNCTION	OPTION ID 1	
0x80	Paper movement	0x01	Held ticket
		0x02	Move ticket forward (same direction of scanning)
		0x03	Move backward (same direction of scanning)
0x81	Paper sensors	0x03	Paper in center
		0x05	Paper in center (pre CIS)
0x82	Scanner sensors	0x01	Cover sensor
0x83	General options	0x03	CIS Back Side
		0x05	Print and void ticket
		0x06	Skew detection
0x84	Scan options	0x01	Red light
0x85	Scan type)	0x02	Scan grayscale (8 bpp)
0x86	Horizontal resolution	0x02	100 dpi
		0x03	150 dpi
		0x04	200 dpi
		0x05	250 dpi
		0x06	300 dpi
		0x87	Vertical resolution	0x02	100 dpi
0x03	150 dpi		
0x04	200 dpi		
0x05	250 dpi		
0x06	300 dpi		
0x88	Scan size	0x91		Max allowed width in dots(4 bytes)
		0x92	RESERVED (4 bytes)
0x89	Buffer size	0x91	Max internal image buffer size (4 bytes)
		0x92	Max internal transmission buffer size (4 bytes)
0x8A	CIS ID	0x91	CIS available on the device identified by the CIS position parameter (2 bytes) which corresponds to the value reported in the CAPABILITY ID 0x83 of this command and by the CIS number parameter (2 bytes) which corresponds to the value of the CIS field used in the configuration command 0x1C 0x53 0x50 0x43 . Data relating to OPTION ID 1 0x91 are repeated for the number of CIS present



SCAN105

CAPABILITY ID	FUNCTION	OPTION ID 1
0x80	Paper movement	0x01 Held ticket
		0x02 Move ticket forward (same direction of scanning)
		0x03 Move backward (same direction of scanning)
0x81	Paper sensors	0x03 Paper in center
		0x05 Paper in center (pre CIS)
		0x09 Paper out center
0x82	Scanner sensors	0x01 Cover sensor
0x83	General options	0x03 CIS Back Side
		0x05 Print and void ticket
		0x06 Skew detection
0x84	Scan options	0x01 Red light
		0x02 Green light
		0x03 Blue light
		0x05 White light
0x85	Scan type	0x01 Scan Black and white (1 bpp)
		0x02 Scan grayscale (8 bpp)
		0x03 Scan RGB (24 bpp)
0x86	Horizontal resolution	0x02 100 dpi
		0x03 150 dpi
		0x04 200 dpi
		0x05 250 dpi
		0x06 300 dpi
0x87	Vertical resolution	0x02 100 dpi
		0x03 150 dpi
		0x04 200 dpi
		0x05 250 dpi
		0x06 300 dpi
0x88	Scan size	0x91 Max allowed width in dots(4 bytes)
		0x92 RESERVED (4 bytes)
0x89	Buffer size	0x91 Max internal image buffer size (4 bytes)
		0x92 Max internal transmission buffer size (4 bytes)



CAPABILITY ID	FUNCTION	OPTION ID 1
0x8A	CIS ID	0x91 CIS available on the device identified by the CIS position parameter (2 bytes) which corresponds to the value reported in the ID CAPABILITY 0x83 of this command and by the CIS number parameter (2 bytes) which corresponds to the value of the CIS field used in the configuration command 0x1C 0x53 0x50 0x43 . Data relating to OPTION ID 1 0x91 are repeated for the number of CIS present

SCANNER A6

CAPABILITY ID	FUNCTION	OPTION ID 1
0x80	Paper movement	0x01 Held ticket
		0x02 Move ticket forward (same direction of scanning)
		0x03 Move backward (same direction of scanning)
0x81	Paper sensors	0x01 Paper in left
		0x02 Paper in right
		0x04 Internal left (pre CIS)
		0x06 Internal right (pre CIS)
		0x07 Paper out right
		0x09 Paper out center
0x82	Scanner sensors	0x01 Cover sensor
		0x02 Input paper detection held
		0x03 Multiple sheet ckeck
0x83	General options	0x02 MICR reader
		0x03 CIS Back Side
		0x04 CIS Front Side
0x84	Scan options	0x01 Red light
		0x02 Green light
		0x03 Blue light
		0x05 White light
0x85	Scan type	0x01 Scan Black and white (1 bpp)
		0x02 Scan grayscale (8 bpp)
		0x03 Scan RGB (24 bpp)



CAPABILITY ID	FUNCTION	OPTION ID 1	
0x86	Horizontal resolution	0x02	100 dpi
		0x03	150 dpi
		0x04	200 dpi
		0x05	250 dpi
		0x06	300 dpi
		0x87	Vertical resolution	0x02	100 dpi
0x03	150 dpi		
0x04	200 dpi		
0x05	250 dpi		
0x06	300 dpi		
0x88	Scan size			0x91	Max allowed width in dots(4 bytes)
		0x92	RESERVED (4 bytes)
0x89	Buffer size	0x91	Max internal image buffer size (4 bytes)
		0x92	Max internal transmission buffer size (4 bytes)
0x8A	CIS ID	0x91	CIS available on the device identified by the CIS position parameter (2 bytes) which corresponds to the value reported in the ID CAPABILITY 0x83 of this command and by the CIS number parameter (2 bytes) which corresponds to the value of the CIS field used in the configuration command 0x1C 0x53 0x50 0x43 . Data relating to OPTION ID 1 0x91 are repeated for the number of CIS present

[Default]

[Reference] [0x1C 0x53 0x50 0x43](#)

[Example] To know the scanner capability send command:
0x1C 0x53 0x43 0x47

The command returns

KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT

```
0x00 0x00 0x00 0x3F 0x80 0x03 0x01 0x02 0x03 0x81 0x02 0x03 0x05 0x82 0x01 0x01 0x83 0x02
0x03 0x05 0x84 0x01 0x01 0x85 0x01 0x02 0x86 0x01 0x06 0x87 0x01 0x06 0x88 0x0A 0x91 0x00
0x00 0x03 0xE0 0x92 b1 b2 b3 b4 0x89 0x0A 0x91 0x01 0x40 0x00 0x00 0x92 0x00 0x01 0x00 0x00
0x8A 0x05 0x91 0x00 0x03 0x00 0x02
```

where:



0x00 0x00 0x00 0x3F	4 bytes that specify the total length of Capability data (63 bytes)
0x80	Paper movement CAPABILITY ID
0x03	The setting length are 3 bytes (3 values)
0x01	Held ticket
0x02	Move ticket forward (same direction of scanning)
0x03	Move backward (same direction of scanning)
0x81	Paper sensors CAPABILITY ID
0x02	The setting length are 2 bytes (2 values)
0x03	Paper in center
0x05	Paper in center (pre CIS)
0x82	Scanner sensors CAPABILITY ID
0x01	The options of Scanner sensors is one byte (1 value)
0x01	Cover sensor
0x83	General options CAPABILITY ID
0x02	The setting length are two bytes (2 values)
0x03	CIS down
0x05	Print and void ticket
0x84	The Scan options CAPABILITY ID
0x01	The setting length is one byte (1 value)
0x01	Red light
0x85	Scan type CAPABILITY ID
0x01	The setting length is one byte (1 value)
0x02	Scan grayscale (8 bpp)
0x86	The Horizontal resolution CAPABILITY ID
0x01	The setting length is one byte (1 value)
0x06	300 dpi
0x87	The Vertical resolution CAPABILITY ID
0x01	The setting length is one byte (1 value)
0x06	300 dpi
0x88	The Scan size CAPABILITY ID
0x0A	The setting length are 10 bytes (10 values)
0x91	Max allowed width in dots (4 bytes)
0x00 0x00 0x03 0xE0	992 dots
0x92	RESERVED field of 4 bytes length
b1 b2 b3 b4	Field value (4 bytes)
0x89	The Internal buffer size CAPABILITY ID
0x0A	The setting length are 10 bytes (10 values)
0x91	Maximum size of the internal image buffer (4 bytes)
0x01 0x40 0x00 0x00	20 MBytes (20971520 bytes)



0x92	Maximum size of the internal transmission buffer (4 bytes)
0x00 0x01 0x00 0x00	65 kB (65536 bytes)
0x8A	CIS ID CAPABILITY ID
0x05	The setting length are 5 bytes (5 values)
0x91	CIS of the device
0x00 0x03	CIS position is CIS Back Side which corresponds to the value reported in the CAPABILITY ID 0x83 of this command
0x00 0x02	CIS number is CIS Back Side which corresponds to the value of the CIS field used in the configuration command 0x1C 0x53 0x50 0x43

SCAN105

0x00 0x00 0x00 0x4E 0x80 0x03 0x01 0x02 0x03 0x81 0x03 0x03 0x05 0x09 0x82 0x01 0x01 0x83 0x03 0x03 0x05 0x06 0x84 0x04 0x01 0x02 0x03 0x05 0x85 0x03 0x01 0x02 0x03 0x86 0x05 0x02 0x03 0x04 0x05 0x06 0x87 0x05 0x02 0x03 0x04 0x05 0x06 0x88 0x0A 0x91 0x00 0x00 0x05 0x10 0x92 b1 b2 b3 b4 0x89 0x0A 0x91 0x01 0x40 0x00 0x00 0x92 0x00 0x01 0x00 0x00 0x8A 0x05 0x91 0x00 0x03 0x00 0x02

where:

0x00 0x00 0x00 0x4E	4 bytes that specify the total length of Capability data (78 bytes)
0x80	Paper movement CAPABILITY ID
0x03	The setting length are 3 bytes (3 values)
0x01	Hold ticket
0x02	Move ticket forward (same direction of scanning)
0x03	Move backward (same direction of scanning)
0x81	Paper sensors CAPABILITY ID
0x03	The setting length are 3 bytes (3 values)
0x03	Central input sensor
0x05	Internal pre-CIS
0x09	Central output sensor
0x82	Scanner sensors CAPABILITY ID
0x01	The setting length is one byte (1 value)
0x01	Cover sensor
0x83	General options CAPABILITY ID
0x03	The setting length are 3 bytes (3 values)
0x03	CIS Back Side
0x05	Print and void ticket
0x06	Skew detection
0x84	The Scan options CAPABILITY ID
0x04	The setting length are 4 bytes (4 values)



0x01	Red light
0x02	Green light
0x03	Blue light
0x05	White light
0x85	Scan type CAPABILITY ID
0x03	The setting length are 3 bytes (3 values)
0x01	Black and white scan (1 bpp)
0x02	Scan grayscale (8 bpp)
0x03	RGB scan (24 bpp)
0x86	The Horizontal resolution CAPABILITY ID
0x05	The setting length are 5 bytes (5 values)
0x02	100 dpi
0x03	150 dpi
0x04	200 dpi
0x05	250 dpi
0x06	300 dpi
0x87	The Vertical resolution CAPABILITY ID
0x05	The setting length are 5 bytes (5 values)
0x02	100 dpi
0x03	150 dpi
0x04	200 dpi
0x05	250 dpi
0x06	300 dpi
0x88	The Scan size CAPABILITY ID
0x0A	The setting length are 10 bytes (10 values)
0x91	Max allowed width in dots (4 bytes)
0x00 0x00 0x05 0x10	1296 dots
0x92	RESERVED field of 4 bytes length
b1 b2 b3 b4	Field value (4 bytes)
0x89	The Internal buffer size CAPABILITY ID
0x0A	The setting length are 10 bytes (10 values)
0x91	Maximum size of the internal image buffer (4 bytes)
0x01 0x40 0x00 0x00	20 MBytes (20971520 bytes)
0x92	Maximum size of the internal transmission buffer (4 bytes)
0x00 0x01 0x00 0x00	65 kB (65536 bytes)
0x8A	CIS ID CAPABILITY ID
0x05	The setting length are 5 bytes (5 values)
0x91	CIS of the device
0x00 0x03	CIS position is CIS Back Side which corresponds to the value reported in the CAPABILITY ID 0x83 of this command



0x00 0x02

CIS number is CIS Back Side which corresponds to the value of the CIS field used in the configuration command **0x1C 0x53 0x50 0x43**

SCANNER A6

0x00 0x00 0x00 0x57 0x80 0x03 0x01 0x02 0x03 0x81 0x06 0x01 0x02 0x04 0x06 0x07 0x09 0x82 0x02 0x01 0x02 0x83 0x02 0x03 0x04 0x84 0x04 0x01 0x02 0x03 0x05 0x85 0x03 0x01 0x02 0x03 0x86 0x05 0x02 0x03 0x04 0x05 0x06 0x87 0x05 0x02 0x03 0x04 0x05 0x06 0x88 0x0A 0x91 0x00 0x00 0x05 0x00 0x92 b1 b2 b3 b4 0x89 0x0A 0x91 0x00 0x80 0x00 0x00 0x92 0x00 0x01 0x00 0x00 0x8A 0x0A 0x91 0x00 0x03 0x00 0x02 0x91 0x00 0x04 0x00 0x01

where:

0x00 0x00 0x00 0x57	4 bytes that specify the total length of Capability data (87 bytes)
0x80	Paper movement CAPABILITY ID
0x03	The setting length are 3 bytes (3 values)
0x01	Hold ticket
0x02	Move ticket forward (same direction of scanning)
0x03	Move backward (same direction of scanning)
0x81	Paper sensors CAPABILITY ID
0x06	The setting length are 6 bytes (6 values)
0x01	Left input sensor
0x02	Right input sensor
0x04	Internal left sensor (pre-CIS)
0x06	Internal right sensor (pre-CIS)
0x07	Left output sensor
0x09	Central output sensor
0x82	Scanner sensors CAPABILITY ID
0x01	The setting length is 2 bytes (2 values)
0x01	Cover sensor
0x02	Input paper detection held
0x83	General options CAPABILITY ID
0x02	The setting length are 2 bytes (2 values)
0x03	CIS Back Side
0x04	CIS Front Side
0x84	The Scan options CAPABILITY ID
0x04	The setting length are 4 bytes (4 values)
0x01	Red light
0x02	Green light
0x03	Blue light
0x05	White light
0x85	Scan type CAPABILITY ID



0x03	The setting length are 3 bytes (3 values)
0x01	Black and white scan (1 bpp)
0x02	Scan grayscale (8 bpp)
0x03	RGB scan (24 bpp)
0x86	The Horizontal resolution CAPABILITY ID
0x05	The setting length are 5 bytes (5 values)
0x02	100 dpi
0x03	150 dpi
0x04	200 dpi
0x05	250 dpi
0x06	300 dpi
0x87	The Vertical resolution CAPABILITY ID
0x05	The setting length are 5 bytes (5 values)
0x02	100 dpi
0x03	150 dpi
0x04	200 dpi
0x05	250 dpi
0x06	300 dpi
0x88	The Scan size CAPABILITY ID
0x0A	The setting length are 10 bytes (10 values)
0x91	Max allowed width in dots (4 bytes)
0x00 0x00 0x05 0x00	1280 dots
0x92	RESERVED field of 4 bytes length
b1 b2 b3 b4	Field value (4 bytes)
0x89	The Internal buffer size CAPABILITY ID
0x0A	The setting length are 10 bytes (10 values)
0x91	Maximum size of the internal image buffer (4 bytes)
0x00 0x80 0x00 0x00	8 MBytes (8388608 bytes)
0x92	Maximum size of the internal transmission buffer (4 bytes)
0x00 0x01 0x00 0x00	65 kB (65536 bytes)
0x8A	CIS ID CAPABILITY ID
0x0A	The setting length are 10 bytes (10 values)
0x91	CIS of the device
0x00 0x03	CIS position is CIS Back Side which corresponds to the value reported in the CAPABILITY ID 0x83 of this command
0x00 0x02	CIS number is CIS Back Side which corresponds to the value of the CIS field used in the configuration command 0x1C 0x53 0x50 0x43
0x91	CIS of the device
0x00 0x04	CIS position is CIS Front Side which corresponds to the value reported in the CAPABILITY ID 0x83 of this command



0x00 0x01

CIS number is CIS Front Side which corresponds to the value of the CIS field used in the configuration command [0x1C 0x53 0x50 0x43](#)



0x1C 0x53 0x50 0x43

<FS S P C>

Configure scanner

Valid for	KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT SCAN105 SCANNER A6
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[Format]	Hex 1C 53 50 43 d0...dn ASCII FS S P C d0...dn
----------	--

[Range] 0x00 ≤ d0, dn ≤ 0xFF

[Description] This command allows to configure the scanner; settings of this command take effect for the next scan.
• d0...dn configuration data. There are 15 bytes that specify the configuration settings and are structured based on the following scheme:



where:

KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT

- [OPT-P] indicates the paper movement after scan. Possible values are:
0x00 – hold ticket after scan)
0x01 – move forward after scan
0x02 – move backward after scan

- [OPT-S] indicates the optional configurations. Possible values are:
0x00 – disables paper skew detection
0x08 - enables paper skew detection

- [FLAGS] indicates the additional optional configurations. Possible values are:
0x00 - CIS calibration applied
0x02 - CIS calibration not applied

- [CIS] CIS number indicates the CIS which can make the scan. Possible values are:
0x02 - CIS Back Side

- [SCAN] indicates the Scan type to set. Possible values are:
0x01 – RED light scan (8bpp)

- [DPI X] Sets horizontal resolution in dot per inch (2 bytes - MSB first). Possible values are:
0x00 0x64 – set 100 dpi horizontal resolution
0x00 0x96 – set 150 dpi horizontal resolution
0x00 0xC8 – set 200 dpi horizontal resolution
0x00 0xFA – set 250 dpi horizontal resolution
0x01 0x2C – set 300 dpi horizontal resolution



[DPI Y]	Sets vertical resolution in dot per inch (2 bytes - MSB first). Possible values are: 0x00 0x64 – set 100 dpi vertical resolution 0x00 0x96 – set 150 dpi vertical resolution 0x00 0xC8 – set 200 dpi vertical resolution 0x00 0xFA – set 250 dpi vertical resolution 0x01 0x2C – set 300 dpi vertical resolution
[SIZE X]	Sets scan horizontal size in dot (2 bytes - MSB first) Max value is 992 pixels.
[SIZE Y]	Sets the maximum vertical size of the scan in dot (4 bytes - MSB first). Maximum allowed value is 35430 pixels (3000 mm). If this parameter, [SIZE Y] is 0 the default value for vertical dimension is used. To set this parameter to default value, set the value of the non-volatile parameter 0x0021 “Max scan length” in the command <code>0x1C 0x53 0x50 0x65 0x57</code> .

SCAN105

[OPT-P]	indicates the paper movement after scan. Possible values are: 0x00 – holds ticket after scan 0x01 – ticket ejected forward after scanning is complete 0x02 – ticket ejected backward after scanning is complete
[OTP-S]	indicates the optional configurations. Possible values are: 0x08 - enable paper skew detection
[FLAGS]	indicates the additional optional configurations. Possible values are: 0x00 - CIS calibration applied
[CIS]	CIS number indicates the CIS which can make the scan. Possible values are: 0x02 - CIS Back Side
[SCAN]	indicates the Scan type to set. Possible values are: 0x01 – Red light grayscale scan (8bpp) 0x02 –Green light grayscale scan (8bpp) 0x03 – Blue light grayscale scan (8bpp) 0x05 – White light grayscale scan (8bpp) 0x06 – RGB colour scan (24bpp) 0x08 – Red light BW scan (black and white 1bpp) 0x09 – Green light BW scan (black and white 1bpp) 0x0A – Blue light BW scan (black and white 1bpp) 0x0C – White light BW scan (black and white 1bpp)



[DPI X]	Sets horizontal resolution in dot per inch (2 bytes - MSB first). Possible values are: 0x00 0x64 – set 100 dpi horizontal resolution 0x00 0x96 – set 150 dpi horizontal resolution 0x00 0xC8 – set 200 dpi horizontal resolution 0x00 0xFA – set 250 dpi horizontal resolution 0x01 0x2C – set 300 dpi horizontal resolution
[DPI Y]	Sets vertical resolution in dot per inch (2 bytes - MSB first). Possible values are: 0x00 0x64 – set 100 dpi vertical resolution 0x00 0x96 – set 150 dpi vertical resolution 0x00 0xC8 – set 200 dpi vertical resolution 0x00 0xFA – set 250 dpi vertical resolution 0x01 0x2C – set 300 dpi vertical resolution
[SIZE X]	Sets scan horizontal size in dot (2 bytes - MSB first) Max value is 1296 dots.
[SIZE Y]	Sets the maximum vertical size of the scan in dot (4 bytes - MSB first). Maximum allowed value is 16181 dots (1371 mm). If this parameter, [SIZE Y] is 0 the default value for vertical dimension is used. To set this parameter to default value, set the value of the non-volatile parameter 0x0021 “Max scan length” in the command 0x1C 0x53 0x50 0x65 0x57 .

SCANNER A6

[OPT-P]	indicates the paper movement after scan. Possible values are: 0x00 – holds ticket after scan 0x01 – ticket ejected forward after scanning is complete 0x02 – ticket ejected backward after scanning is complete
[OTP-S]	indicates the optional configurations. Fixed value to 0x00.
[FLAGS]	indicates the additional optional configurations. Possible values are: 0x00 - CIS calibration applied
[CIS]	CIS number indicates the CIS which can make the scan. Possible values are: 0x01 - CIS Front Side 0x02 - CIS Back Side
[SCAN]	indicates the Scan type to set. Possible values are: 0x01 – Red light grayscale scan (8bpp) 0x02 –Green light grayscale scan (8bpp) 0x03 – Blue light grayscale scan (8bpp) 0x05 – White light grayscale scan (8bpp) 0x06 – RGB colour scan (24bpp) 0x08 – Red light BW scan (black and white 1bpp) 0x09 – Green light BW scan (black and white 1bpp) 0x0A – Blue light BW scan (black and white 1bpp) 0x0C – White light BW scan (black and white 1bpp)



[DPI X]	Sets horizontal resolution in dot per inch (2 bytes - MSB first). Possible values are: 0x00 0x64 – set 100 dpi horizontal resolution 0x00 0x96 – set 150 dpi horizontal resolution 0x00 0xC8 – set 200 dpi horizontal resolution 0x00 0xFA – set 250 dpi horizontal resolution 0x01 0x2C – set 300 dpi horizontal resolution
[DPI Y]	Sets vertical resolution in dot per inch (2 bytes - MSB first). Possible values are: 0x00 0x64 – set 100 dpi vertical resolution 0x00 0x96 – set 150 dpi vertical resolution 0x00 0xC8 – set 200 dpi vertical resolution 0x00 0xFA – set 250 dpi vertical resolution 0x01 0x2C – set 300 dpi vertical resolution
[SIZE X]	Sets scan horizontal size in dot (2 bytes - MSB first) Max value is 1280 dots.
[SIZE Y]	Sets the maximum vertical size of the scan in dot (4 bytes - MSB first). Maximum allowed value is 6553 dots (555 mm). If this parameter, [SIZE Y] is 0 the default value for vertical dimension is used. To set this parameter to default value, set the value of the non-volatile parameter 0x0021 “Max scan length” in the command 0x1C 0x53 0x50 0x65 0x57 .

- [Notes]
- The settings configurations on the scanner take effect for the next scan.
 - If command is successful the device transmits the ACK (0x06), otherwise returns NACK (0x15).

[Default]

[Reference] [0x1C 0x53 0x50 0x65 0x57](#), [0x1C 0x53 0x50 0x53](#)

[Example]



0x1C 0x53 0x50 0x45

<FS S P E>

Eject paper

Valid for	KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT SCAN105 SCANNER A6
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[Format]	Hex	1C	53	50	45
	ASCII	FS	S	P	E

[Range]

[Description] This command ejects the ticket from the scanner in the scanning direction of the device.

[Notes] • If command is successful the device transmits the ACK (0x06), otherwise returns NACK (0x15).

[Default]

[Reference]

[Example]



0x1C 0x53 0x50 0x48

<FS S P H>

Retract paper

Valid for KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT
SCAN105
SCANNER A6

[Format] Hex 1C 53 50 48
 ASCII FS S P H

[Range]

[Description] This command retracts the ticket in the opposite direction to the scan direction.

[Notes] • If command is successful the device transmits the ACK (0x06), otherwise returns NACK (0x15).

[Default]

[Reference]

[Example]



0x1C 0x53 0x50 0x4C

<FS S P L>

Load paper

Valid for KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT
SCAN105
SCANNER A6

[Format] Hex 1C 53 50 4C
 ASCII FS S P L

[Range]

[Description] This command allows to load the paper into the scanner without starting a scan.

[Notes]

- Do not use this command before a scan.
- During the normal acquisition and scanning phase it is not necessary to send this command because the paper is loaded automatically.
- If this command is sent before the scan command [0x1C 0x53 0x50 0x53](#), the scanned image will be partial.
- If command is successful the device transmits the ACK (0x06), otherwise returns NACK (0x15).

[Default]

[Reference]

[Example]



0x1C 0x53 0x50 0x53

<FS S P S>

Start scan

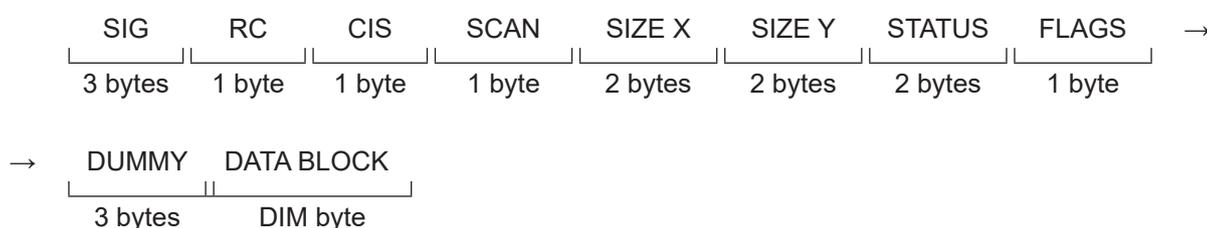
Valid for	KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT SCAN105 SCANNER A6
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[Format]	Hex	1C	53	50	53
	ASCII	FS	S	P	S

[Range]

[Description] This command starts scanning ticket using the scan settings defined by the [0x1C 0x53 0x50 0x43](#) command.

- The response sent is composed of a header block, followed by data block repeated until the scan is complete, structured according to the following scheme:



where:

KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT

- [SIG] indicates the Signature with fixed value to 'I' 'M' 'G'
- [RC] indicates the return code of the data transmission. Possible values are:

VALUE	DESCRIPTION
0x00	No errors (other data to send)
0xFF	No errors (there is no more data to send)
0x41	(A) Scan abort
0x42	(B) Scanner busy
0x43	(C) Cover open
0x4A	(J) Paper jam error
0x53	(S) Skew detected error
0x54	(T) Timeout error

- [CIS] CIS number indicates the CIS which can make the scan. Possible value are:
0x02 - CIS Back Side



[SCAN] indicates the scan type of the data packet. Possible values are:

VALUE	SCAN TYPE
0x01	Red light grayscale scan (8bpp)

[SIZE X] indicates the horizontal size in pixels of the data packet (2 bytes)

[SIZE Y] indicates the vertical size in points of the current data packet (2 bytes). Every packet that arrives referred to the height in pixels of that block. The total length of the image, in pixels, will be calculated as the sum of the heights (SIZE Y) of each packet.

[STATUS] return the status of all sensors. For the bit mask refer to STS1 field of the command [0x1C 0x53 0x53 0x32](#).

[FLAGS] indicates the calibration status. Possible value are:
 0x00 - CIS Calibration is active
 0x02 - CIS Calibration is not active

[DUMMY] unused bytes (3 bytes)

[DATA BLOCK] image data package (d1...dk). The size in bytes of the image data depends on the [SIZE X], [SIZE Y] and [SCAN] parameters.

If the [SCAN] parameter is set to:

- 8bpp (0x01, 0x02, 0x03, 0x04), the data size is defined as [SIZE X] * [SIZE Y];
- 24bpp (0x06) the data size is defined as [SIZE X] * [SIZE Y] * 3;
- 1bpp (0x08, 0x09, 0x0A, 0x0C) the data size is defined as [SIZE X] / 8 * [SIZE Y].

SCAN105

[SIG] indicates the Signature with fixed value to 'I' 'M' 'G'

[RC] indicates the return code of the data transmission. Possible values are:

VALUE	DESCRIPTION
0x00	No errors (other data to send)
0xFF	No errors (there is no more data to send)
0x41	(A) Scan abort
0x42	(B) Scanner busy
0x43	(C) Cover open
0x4A	(J) Paper jam error
0x4C	(L) Blinded input sensor (The ambient light is too strong to allow the sensor to work properly)
0x53	(S) Skew detected error
0x54	(T) Timeout error

[CIS] CIS number indicates the CIS which can make the scan. Possible value are:
 0x02 - CIS Back Side



[SCAN] indicates the scan type of the data packet. Possible values are:

VALUE	SCAN TYPE
0x01	Red light grayscale scan (8bpp)
0x02	Green light grayscale scan (8bpp)
0x03	Blue light grayscale scan (8bpp)
0x05	White light grayscale scan (8bpp)
0x06	RGB colour scan (24bpp)
0x08	Red light BW scan (black and white 1bpp)
0x09	Green light BW scan (black and white 1bpp)
0x0A	Blue light BW scan (black and white 1bpp)
0x0C	White light BW scan (black and white 1bpp)

[SIZE X] indicates the horizontal size in pixels of the data packet (2 bytes)

[SIZE Y] indicates the vertical size in pixels of the current data packet (2 bytes). Every packet that arrives referred to the height in dots of that block. The total length of the image, in pixels, will be calculated as the sum of the heights (SIZE Y) of each packet.

[STATUS] return the status of all sensors. For the bit mask refer to STS1 field of the command [0x1C 0x53 0x53 0x32](#).

[FLAGS] indicates the calibration status. Fixed value to 0x00.

[DUMMY] Unused bytes (3 bytes)

[DATA BLOCK] image data package (d1...dk). The size in bytes of the image data depends on the [SIZE X], [SIZE Y] and [SCAN] parameters.

If the [SCAN] parameter is set to:

- 8bpp (0x01, 0x02, 0x03, 0x04), the data size is defined as [SIZE X] * [SIZE Y];
- 24bpp (0x06) the data size is defined as [SIZE X] * [SIZE Y] * 3;
- 1bpp (0x08, 0x09, 0x0A, 0x0C) the data size is defined as [SIZE X] / 8 * [SIZE Y].

SCANNER A6

[SIG] indicates the Signature with fixed value to 'I' 'M' 'G'

[RC] indicates the return code of the data transmission. Possible values are:

VALUE	DESCRIPTION
0x00	No errors (other data to send)
0xFF	No errors (there is no more data to send)
0x41	(A) Scan abort
0x42	(B) Scanner busy
0x43	(C) Cover open
0x4A	(J) Paper jam error



0x53	(S) Skew detected error
0x54	(T) Timeout error

[CIS] CIS number indicates the CIS which can make the scan. Possible value are:
 0x01 - CIS Front Side
 0x02 - CIS Back Side

[SCAN] indicates the scan type of the data packet. Possible values are:

VALUE	SCAN TYPE
0x01	Red light grayscale scan (8bpp)
0x02	Green light grayscale scan (8bpp)
0x03	Blue light grayscale scan (8bpp)
0x05	White light grayscale scan (8bpp)
0x06	RGB colour scan (24bpp)
0x08	Red light BW scan (black and white 1bpp)
0x09	Green light BW scan (black and white 1bpp)
0x0A	Blue light BW scan (black and white 1bpp)
0x0C	White light BW scan (black and white 1bpp)

[SIZE X] indicates the horizontal size in pixels of the data packet (2 bytes)

[SIZE Y] indicates the vertical size in pixels of the current data packet (2 bytes). Every packet that arrives referred to the height in pixels of that block. The total length of the image, in pixels, will be calculated as the sum of the heights (SIZE Y) of each packet.

[STATUS] return the status of all sensors. For the bit mask refer to STS1 field of the command [0x1C 0x53 0x53 0x32](#).

[FLAGS] indicates the calibration status. Fixed value to 0x00.

[DUMMY] Unused bytes (3 bytes)

[DATA BLOCK] image data package (d1...dk). The size in bytes of the image data depends on the [SIZE X], [SIZE Y] and [SCAN] parameters.

If the [SCAN] parameter is set to:

- 8bpp (0x01, 0x02, 0x03, 0x04), the data size is defined as [SIZE X] * [SIZE Y];
- 24bpp (0x06) the data size is defined as [SIZE X] * [SIZE Y] * 3;
- 1bpp (0x08, 0x09, 0x0A, 0x0C) the data size is defined as [SIZE X] / 8 * [SIZE Y].

[Notes] If the scan is RGB colours (parameter [SCAN] = 0x06), the data arrives for colour (RGB) and each complete row, in this order:
 1st complete row, red component
 1st complete row, green component
 1st complete row, blue component
 2nd complete row, red component



SCAN105

0x49 0x4D 0x47 0x00 0x02 0x05 0x05 0x10 0x00 0x32 0x05 0x18 →
 ┌──────────┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┐
 [SIG] [RC] [CIS] [SCAN] [Size X] [Size Y] [STATUS]

→ 0x00 0x00 0x00 0x00 d1...dk
 ┌──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┐
 [FLAGS] [DUMMY] [DATA BLOCK]

where:

VALUE	FIELD	DESCRIPTION
0x49 0x4D 0x47	[SIG]	Signature field with fixed value to 'I' 'M' 'G'
0x00	[RC]	No error (other data to send)
0x02	[CIS]	CIS Back Side
0x01	[SCAN]	Red light grayscale scan (8bpp)
0x05 0x00	[Size X]	Image width 1280 pixels
0x00 0x32	[Size Y]	Following data packet consists of 50 lines
0x05 0x18	[STATUS]	The sensors used are the following: <ul style="list-style-type: none"> Paper present on the internal sensor pre-CIS (0x04) and on the input sensor (0x01) Motor movement (0x10) and scan in progress (0x08)
0x00	[FLAGS]	CIS Calibration active
0x00 0x00 0x00	[DUMMY]	Unused bytes (3 bytes)
d1... dk	[DATA BLOCK]	Image data



SCANNER A6

0x49 0x4D 0x47 0x00 0x02 0x01 0x05 0x00 0x00 0x01 0x30 0x18 →
 └──────────┘ └──┘ └──┘ └──┘ └──┘ └──┘ └──┘ └──┘
 [SIG] [RC] [CIS] [SCAN] [Size X] [Size Y] [STATUS]

→ 0x00 0x00 0x00 0x00 d1...dk
 └──┘ └──┘ └──┘ └──┘ └──┘
 [FLAGS] [DUMMY] [DATA BLOCK]

where:

VALUE	FIELD	DESCRIPTION
0x49 0x4D 0x47	[SIG]	Signature field with fixed value to 'I' 'M' 'G'
0x00	[RC]	No error (other data to send)
0x02	[CIS]	CIS Back Side
0x01	[SCAN]	Red light grayscale scan (8bpp)
0x05 0x00	[Size X]	Image width 1280 pixels
0x00 0x01	[Size Y]	Following data packet consists only in one line
0x30 0x18	[STATUS]	The sensors used are the following: <ul style="list-style-type: none"> • Paper present on the paper output left sensor (0x10) and on the paper output right sensor (0x20) • Motor movement (0x10) and scan in progress (0x08)
0x00	[FLAGS]	CIS Calibration active
0x00 0x00 0x00	[DUMMY]	Unused bytes (3 bytes)
d1, d2,... dk	[DATA BLOCK]	Image data



0x1C 0x53 0x50 0x65 0x52

<FS S P e R>

Non-volatile parameter reading

Valid for KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT
SCAN105

[Format] Hex 1C 53 50 65 52 ParID
ASCII FS S P e R ParID

[Range] **KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT**
ParID = 0x00 0x14, 0x00 0x20, 0x00 0x21

SCAN105

0x00 0x02 ≤ ParID ≤ 0x00 0x05, 0x00 0x10 ≤ ParID ≤ 0x00 0x12
ParID = 0x00 0x07, 0x00 0x14, 0x00 0x20, 0x00 0x21

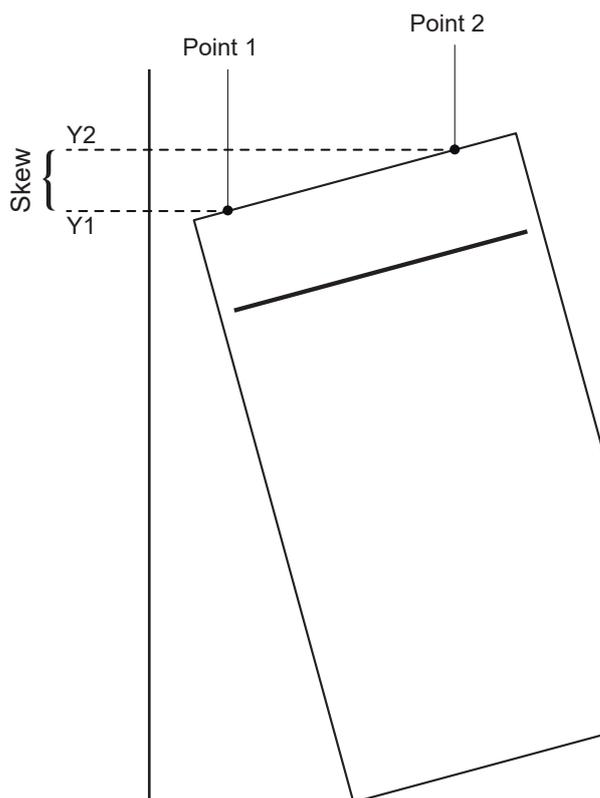
[Description] This command returns the parameters of the non-volatile memory based on the value of ParID, where ParID represents the identifier of the parameter (see table PARAMETER ID) as shown in the following table:

- ParID = parameter identifier (2 bytes expressed in hexadecimal value as nH and nL)
- DIM byte specifies the length in bytes of the response.

KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT

PARAMETER ID	DIM byte	DESCRIPTION
0x00 0x14	2	Skew recognition threshold (default: 50 dots)
0x00 0x20	2	Minimum ticket length supported in mm (default: 75 mm)
0x00 0x21	2	Max scan length in mm (default: 300 mm)

Example of the misalignment threshold between two fixed points

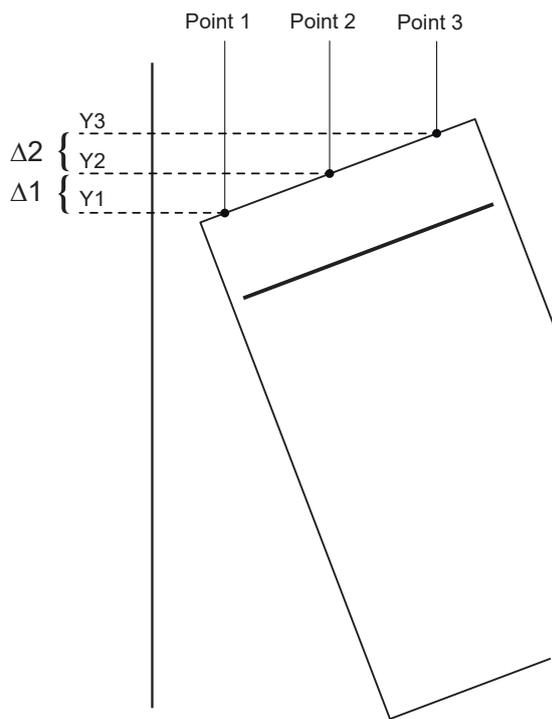


If, during insertion, the inclination is higher than the maximum inclination value, the ticket is ejected out.

SCAN105

PARAMETER ID	DIM	byte	DESCRIPTION
0x00 0x02	1		Dark pixel compensation % (added to offset) (default: 0 %)
0x00 0x03	1		White pixel compensation % RED (subtracted from gain) (default: 0 %)
0x00 0x04	1		White pixel compensation % GREEN (subtracted from gain) (default: 0 %)
0x00 0x05	1		White pixel compensation % BLUE (subtracted from gain) (default: 0 %)
0x00 0x07	1		Default threshold for black and white recognition, possible values between 0 and 255 (default: 128)
0x00 0x10	2		Horizontal coordinate of the point 1 of skew detection, defined at 300 dpi (default: 350)
0x00 0x11	2		Horizontal coordinate of the point 2 of skew detection, defined at 300 dpi (default: 630)
0x00 0x12	2		Horizontal coordinate of the point 3 of skew detection, defined at 300 dpi (default: 910)
0x00 0x14	2		Skew detect threshold (default: 31)
0x00 0x20	2		Minimum ticket length supported in mm (default: 75 mm)
0x00 0x21	2		Max scan length in mm (default: 300 mm)

Example of the misalignment threshold between three fixed points



If, during insertion, the inclination ($\Delta 1$ or delta $\Delta 2$) is higher than the maximum inclination value, the ticket is ejected out.

[Notes]

- If the command is successful the device transmits the ACK (0x06) followed by 1 byte or 2 bytes according to the value of DIM byte as specified in the previous table:
 - with "PARAMETER ID" = 0x02, 0x03, 0x04, 0x05 and 0x07 the answer will be 0x06 (ACK) followed by 1 byte;
 - for the other values the answer will be 0x06 (ACK) followed by 2 bytes.
- If the command is not successful the device transmits NACK (0x15).

[Default]

[Reference]

[Example 1]

KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT

To read the default threshold for skew detection, send the command:
0x1C 0x53 0x50 0x65 0x52 0x00 0x14

The answer will be: 0x06 0x00 0x32

where:

0x06	ACK character
0x00 0x32	2 bytes that specify the skew recognition threshold value (50 dots). The skew recognition threshold is the maximum distance, in dots, that can be seen in the previous image between Y1 and Y2



[Example 2]

SCAN105

To read the default threshold for skew detection, send the command:

0x1C 0x53 0x50 0x65 0x52 0x00 0x14

The answer will be: 0x06 0x00 0x32

where:

0x06	ACK character
0x00 0x32	2 bytes that specify the skew recognition threshold value (50 dots). The skew recognition threshold is the maximum distance, in dots, that can be seen in the previous image between Y1, Y2 and Y3

[Example 3]

SCAN105

To read the horizontal position of the first inclination recognition point, send the command:

0x1C 0x53 0x50 0x65 0x52 0x00 0x10

The answer will be: 0x06 0x00 0xC8

where:

0x06	ACK character
0x00 0xC8	2 bytes that specify the value of horizontal coordinate of the first point of sheet inclination recognition (x = 200)

[Example 4]

SCAN105

To read the dark pixel compensation, send the command:

0x1C 0x53 0x50 0x65 0x52 0x00 0x02

The answer will be: 0x06 0x0A

where:

0x06	ACK character
0x0A	1 byte indicating dark pixel compensation is 10%



0x1C 0x53 0x50 0x65 0x57

<FS S P e W>

Non-volatile parameter writing

Valid for	KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT SCAN105							
-----------	---	--	--	--	--	--	--	--

[Format]	Hex	1C	53	50	65	57	ParID	ParValue
	ASCII	FS	S	P	e	W	ParID	ParValue

[Range]	KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT ParID = 0x0014							
	SCAN105 0x0002 ≤ ParID ≤ 0x0005, 0x0010 ≤ ParID ≤ 0x0012 ParID = 0x00 0x07, 0x00 0x14, 0x00 0x20, 0x00 0x21							

0x00 ≤ ParValue ≤ 0xFF

[Description]	This command writes the value specified by ParValue to the non-volatile parameter identified by ParID.							
---------------	--	--	--	--	--	--	--	--

- ParID = parameter identifier (2 bytes expressed in hexadecimal value as nH and nL)
- DIM byte = specifies the length in bytes of the value to be set.

KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT

PARAMETER ID	DIM byte	DESCRIPTION
0x00 0x14	2	Skew recognition threshold (default: 50 dots)

SCAN105

PARAMETER ID	DIM byte	DESCRIPTION
0x00 0x02	1	Dark pixel compensation % (added to offset) (default: 0 %)
0x00 0x03	1	White pixel compensation % RED (subtracted from gain) (default: 0 %)
0x00 0x04	1	White pixel compensation % GREEN (subtracted from gain) (default: 0 %)
0x00 0x05	1	White pixel compensation % BLUE (subtracted from gain) (default: 0 %)
0x00 0x07	1	Default threshold for black and white recognition, possible values between 0 and 255 (default: 128)
0x00 0x10	2	Horizontal coordinate of the point 1 of skew detection, defined at 300 dpi (default: 350)
0x00 0x11	2	Horizontal coordinate of the point 2 of skew detection, defined at 300 dpi (default: 630)
0x00 0x12	2	Horizontal coordinate of the point 3 of skew detection, defined at 300 dpi (default: 910)
0x00 0x14	2	Skew detect threshold in points, defined at 300 dpi (default: 31)
0x00 0x20	2	Minimum ticket length supported in mm (default: 75 mm)
0x00 0x21	2	Max scan length in mm (default: 300 mm)



[Notes] If command is successful the device transmits the ACK (0x06), otherwise returns NACK (0x15).

[Default]

[Reference]

[Example 1]

KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT

To set skew recognition threshold of the scanner to 60 dots, send the command:

0x1C 0x53 0x50 0x65 0x57 0x00 0x14 0x00 0x3C

where:

0x1C 0x53 0x50 0x65 0x57	command to set parameter
0x00 0x14	the identifier of the parameter (see previous table PARAMETER ID)
0x00 0x3C	2 bytes that specify the skew recognition threshold value = 60 dots

The answer will be 0x06 (ACK character)

[Example 2]

SCAN105

To set the dark pixel compensation to 10%, send the command:

0x1C 0x53 0x50 0x65 0x57 0x00 0x02 0x0A

where:

0x1C 0x53 0x50 0x65 0x57	command to set parameter
0x00 0x02	the identifier of the parameter (see previous table PARAMETER ID)
0x0A	1 byte indicating dark pixel compensation is 10%

The answer will be 0x06 (ACK character)

[Example 3]

SCAN105

To read the dark pixel compensation, send the command:

0x1C 0x53 0x50 0x65 0x57 0x00 0x10 0x00 0xDC

where:

0x1C 0x53 0x50 0x65 0x57	command to set parameter
0x00 0x10	the identifier of the parameter (see previous table PARAMETER ID)
0x00 0xDC	2 bytes that specify the value of horizontal coordinate of the first point of sheet inclination recognition (x = 200)

The answer will be 0x06 (ACK character)



0x1C 0x53 0x50 0x66

<FS S P f>

Set factory default for non-volatile parameters

Valid for	KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT SCAN105 SCANNER A6				
[Format]	Hex	1C	53	50	66
	ASCII	FS	S	P	f
[Range]					
[Description]	This command sets the default value for all non-volatile device parameters related to the 0x1C 0x53 0x50 0x65 0x52 and 0x1C 0x53 0x50 0x65 0x57 commands.				
[Notes]	If command is successful the device transmits the ACK (0x06), otherwise returns NACK (0x15).				
[Default]					
[Reference]	0x1C 0x53 0x50 0x65 0x52 , 0x1C 0x53 0x50 0x65 0x57				
[Example]					



0x1C 0x53 0x53 0x37

<FS S S 7>

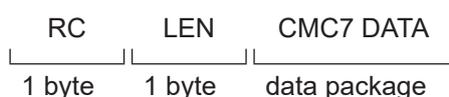
Transmission MICR cheque data

Valid for SCANNER A6 (only for models with MICR reader)

[Format]	Hex	1C	53	53	37
	ASCII	FS	S	S	7

[Range]

[Description] This command returns the last reading of the magnetic stripe of the MICR (Magnetic Ink Character Recognition) check. The response sent is structured according to the following scheme:



where:

[RC] indicates the return code of the data transmission, which is always sent. Possible values are:

VALUE	DESCRIPTION
ACK (0x06)	CMC7 magnetic stripe decoded
NACK (0x15)	CMC7 not found / not decoded
ENQ (0x05)	CMC7 decoding in progress

[LEN] total length of the data package sent (only if the RC field returns ACK 0x06)

[CMC7 DATA] data package of the magnetic stripe of the cheque which correspond to the encoded CMC7 data (only if the RC field returns ACK 0x06)

[Notes]

- This command is active only for models that mount the MICR reader.
- The SCANNER A6 can only read characters encoded with the CMC7 standard.
- To check the presence of the MICR reader, use the command [0x1C 0x53 0x43 0x47](#) and read the value reported in the ID CAPABILITY 0x83 General options.

[Default]

[Reference] [0x1C 0x53 0x43 0x47](#)

[Example]



BIT IMAGE COMMANDS FOR VOID

0x1B 0x2A

<ESC *>

Select image print mode

Valid for KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT
SCAN105

[Format] Hex 1B 2A m nL nH d1...dk
ASCII ESC * m nL nH d1...dk

[Range] m = 0x00, 0x01, 0x20, 0x21
0x00 ≤ nL ≤ 0xFF
0x00 ≤ nH ≤ 0x03
0x00 ≤ d ≤ 0xFF

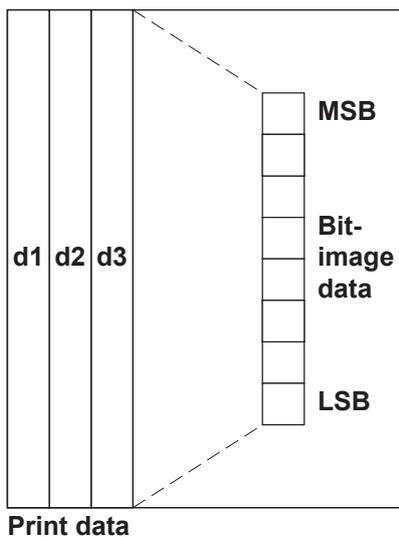
[Description] Selects a bit image mode using m for the number of dots specified by nL and nH, as follows:

m	MODE	VERTICAL DIRECTION		HORIZONTAL DIRECTION (*1)	
		N. dots	DPI	DPI	N. data (k)
0x00	8 dot single density	8	67	100	nL + nH x 256
0x01	8 dot double density	8	67	200	nL + nH x 256
0x20	24 dot single density	24	200	100	(nL + nH x 256) x 3
0x21	24 dot double density	24	200	200	(nL + nH x 256) x 3

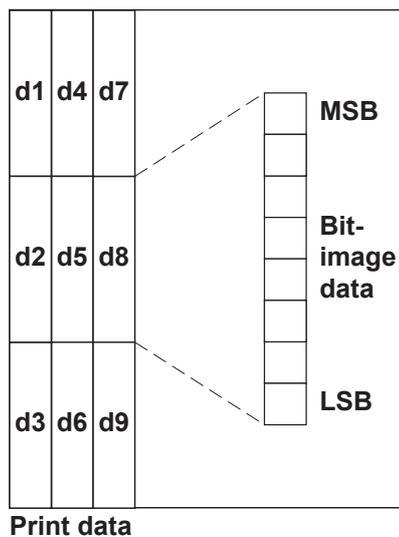
- [Notes]
- The nL and nH commands indicate the number of dots of the bit image in the horizontal direction. The number of dots is calculated using: nL + nH × 256.
 - If the bit image data input exceeds the number of dots to be printed on a line, the excess data is ignored.
 - d indicates the bit image data. Set a corresponding bit to 1 to print a dot, or to 0 to not print the dot.
 - If the value of m is outside the specified range, nL and data following it are processed as normal data.
 - After printing a bit image, the device returns to normal data processing mode.
 - This command is not affected by the bold, double-strike, underline (etc.) print modes, except for the upside-down mode.

- The relationship between the image data and the dots to be printed is as follows:

8-dot bit image



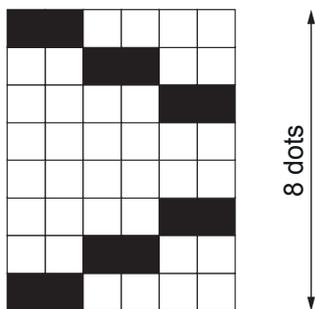
24-dot bit image



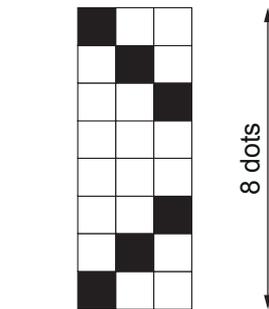
[Default]

[Reference]

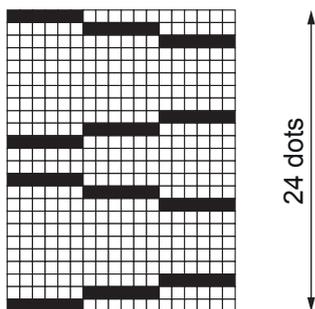
[Example]



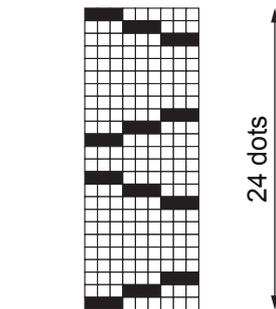
8 dots single density



8 dots double density



24 dots single density



24 dots double density

0x1D 0x2A

<GS *>

Define downloaded bit image

Valid for KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT
SCAN105

[Format] Hex 1D 2A x y d1...d(x × y × 8)
ASCII GS * x y d1...d(x × y × 8)

[Range] 0x01 ≤ x ≤ 0xFF
0x01 ≤ y ≤ 0x30
x × y ≤ 1536
0x00 ≤ d ≤ 0xFF

[Description] Defines a downloaded bit image using the number of dots specified by x and y.

- x specifies the width of the image in millimetres.
- y specifies the height of the image in millimetres.

[Notes]

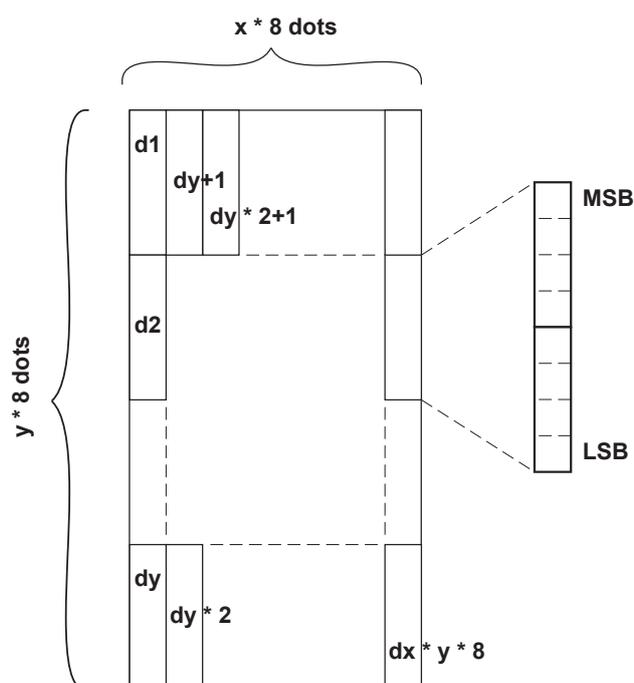
- The number of dots in the horizontal direction is x × 8, in the vertical direction it is y × 8.
- If x × y is out of the specified range, this command is disabled.
- The d indicates bit image data. Data (d) specifies a bit printed to 1 and not printed to 0.
- The downloaded bit image definition is cleared when:
 - 0x1B 0x40 is executed.
 - Device is reset or the power is turned off.

[Default]

[Reference] 0x1D 0x2F

[Example]

- The following figure shows the relationship between the downloaded bit image and the printed data.





0x1D 0x2F

<GS />

Print downloaded bit image

Valid for KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT
SCAN105

[Format] Hex 1D 2F m
ASCII GS / m

[Range] 0x00 ≤ m ≤ 0x03
0x30 ≤ m ≤ 0x33

[Description] Prints a downloaded bit image using the mode specified by m. m selects a mode from the table below:

m	MODE
0x00, 0x30	Normal
0x01, 0x31	Double width
0x02, 0x32	Double height
0x03, 0x33	Quadruple

[Notes]

- This command is ignored if a downloaded bit image has not been defined.
- In standard mode, this command is effective only when there is no data in the print buffer.
- This command has no effect in the print modes (bold, underline, character size, or white/black reverse printing), except for upside-down printing mode (180° rotation).
- If the downloaded bit image to be printed exceeds the printable area, the excess data is not printed
- If the printing area width is less than one line in vertical, the following processing is performed only on the line in question:
 - 1) The printing area width is extended to the right up to one line in vertical. In this case, printing does not exceed the printable area.
 - 2) If the printing area width cannot be extended by one line in vertical, the left margin is reduced to accommodate one line in vertical.

[Default]

[Reference] [0x1D 0x2A](#)

[Example]



0x1D 0x76 0x30

<GS v 0>

Print raster image

Valid for	KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT SCAN105									
-----------	---	--	--	--	--	--	--	--	--	--

[Format]	Hex	1D	76	30	m	xL	xH	yL	yH	d1...dk
	ASCII	GS	v	0	m	xL	xH	yL	yH	d1...dk

[Range]

$0x00 \leq m \leq 0x03$, $0x30 \leq m \leq 0x33$
 $0x00 \leq xL \leq 0xFF$
 $0x00 \leq xH \leq 0xFF$ ($1 \leq xL + xH \times 256 \leq 65535$)
 $0x00 \leq yL \leq 0xFF$
 $0x00 \leq yH \leq 0x08$ ($1 \leq yL + yH \times 256 \leq 2047$)
 $0x00 \leq d \leq 0xFF$
 $k = (xL + xH \times 256) + (yL + yH \times 256)$
 (except for $k = 0$)

[Description] Selects raster bit image mode. The value of m selects the mode as follows:

m	MODE
0x00, 0x30	Normal
0x01, 0x31	Double-width
0x02, 0x32	Double-height
0x03, 0x33	Quadruple

- xL, xH selects the number of data bits ($xL + xH \times 256$) in the horizontal direction for the bit image.
- yL, yH selects the number of data bits ($yL + yH \times 256$) in the vertical direction for the bit image.
- k shows the number of data of the image. It's an explanation parameter so it isn't necessary to transmit it.
- d shows the data of the image.

- [Notes]
- In standard mode for receipt paper, this command is effective only when there is no data in the print buffer.
 - The data (d) identify as 1 a printed bit and as 0 a non printed bit.
 - If a raster bit image is longer than one line, the surplus data aren't printed.
 - This command has no effect in all print modes (character size, bold, upside-down, underline, white/black reverse printing, etc.) for raster bit image, except the reverse mode (90° anticlockwise rotation).
 - This command feed the paper as much as is necessary to print the raster bit image.
 - Don't use this command during a macro execution because it can't be included in a macro.
 - After the printing, the printing position moves to the beginning of the line.



- The following table shows the report between the image data and the printing result:

d1	d2	...	dx
dX+1	dX+2	...	dX x 2
:	:	...	:
...	dk-2	dk-1	d

[Default]

[Reference]

[Example]



VOID PRINTHEAD MANAGEMENT COMMANDS

0x1C 0x44

<FS D>

Printing head test

Valid for	SCAN105		
[Format]	Hex	1C	44
	ASCII	FS	D
[Range]			
[Description]	The device returns two bytes that represent the number of printing head dots not working.		
[Notes]	To perform the test, the printing head must have been enabled with the 0x1F 0x45 command.		
[Default]			
[Reference]	0x1F 0x45		
[Example]			

0x1D 0x7C

Set printing density

Valid for SCAN105

[Format] Hex 1D 7C n
 ASCII GS 0x7C n

[Range] $0x02 \leq n \leq 0x06$
 $0x32 \leq n \leq 0x36$

[Description] Sets print density. n specifies print density as follows:

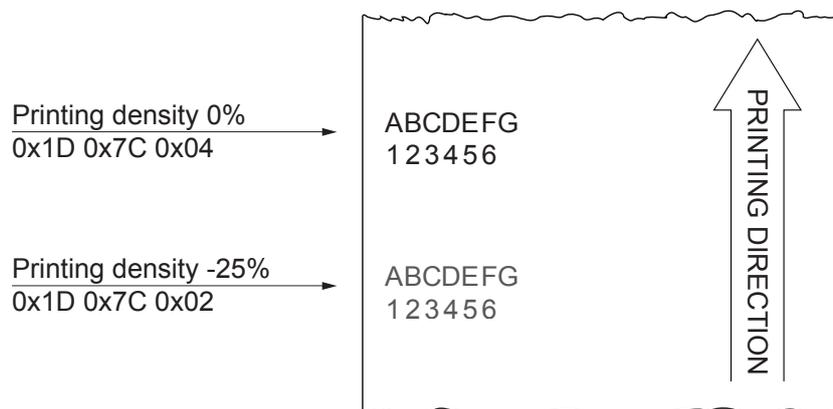
n	PRINT DENSITY
0x02, 0x32	- 25%
0x03, 0x33	- 12.5%
0x04, 0x34	0%
0x05, 0x35	+ 12.5%
0x06, 0x36	+ 25%

[Notes] Print density reverts to the default value when device is reset or turned off.

[Default] n = 0x04

[Reference]

[Example]





0x1F 0x45

<US E>

Enable void printhead

Valid for KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT
SCAN105

[Format] Hex 1F 45
 ASCII US E

[Range]

[Description] This command enable void printhead.

[Notes]

[Default]

[Reference] [0x1F 0x65](#)

[Example]



0x1F 0x51

<US Q>

Set offset of printing start for void

Valid for	KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT SCAN105				
[Format]	Hex	1F	45	nL	nH
	ASCII	US	E	nL	nH
[Range]	0x00 ≤ nL, nH ≤ 0xFF (nH × 256) + nL < 2400				
[Description]	Set offset of printing start respect to the first dot line of the scanned image. In particular, the offset is in pixels and refers to the last scanned image.				
[Notes]	See the VOID MANAGEMENT section.				
[Default]					
[Reference]					
[Example]					



0x1F 0x65

<US e>

Disable void printhead

Valid for KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT
SCAN105

[[Format] Hex 1F 65
 ASCII US e

[Range]

[Description] This command disable void printhead.

[Notes]

[Default]

[Reference] [0x1F 0x45](#)

[Example]



STATUS COMMANDS

0x1C 0x53 0x53 0x31

<FS S S 1>

Sensors scanner status transmission

Valid for	KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT SCAN105 SCANNER A6				
[Format]	Hex	1C	53	53	31
	ASCII	FS	S	S	1
[Range]					
[Description]	Returns the status of the scanner sensors. The device returns 2 bytes corresponding to the [STS1] field of the 0x1C 0x53 0x53 0x32 command.				
[Notes]	To know the complete sensor status, use the command 0x1C 0x53 0x53 0x32 .				
[Default]					
[Reference]	0x1C 0x53 0x53 0x32				
[Example]					



0x1C 0x53 0x53 0x32

<FS S S 2>

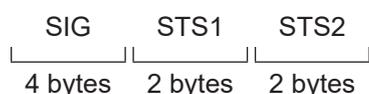
Scanner extended status transmission

Valid for KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT
SCAN105
SCANNER A6

[Format] Hex 1C 53 53 32
ASCII FS S S 2

[Range]

[Description] Returns scanner extended status transmission. The device returns 8 bytes specifying the status as follows:



where:

KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT

[SIG] indicates the Signature (4 bytes) with fixed value fixed to 'S' 'T' 'S' '2'

[STS1] Sensor status, 2 bytes coded as follows:

1st byte = Paper sensor status

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Paper not present on the input sensor
	On	01	Paper present on the input sensor
1	Off	00	Not used. Fixed to off
2	Off	00	Paper not present on the internal sensor (pre-CIS)
	On	04	Paper present on the internal sensor (pre-CIS)
3	Off	00	Not used. Fixed to off
4	Off	00	Not used. Fixed to off
5	Off	00	Not used. Fixed to off
6	Off	00	Not used. Fixed to off
7	Off	00	Not used. Fixed to off



2nd byte = Device status

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Cover closed
	On	01	Cover opened
1	Off	00	Free paper path
	On	02	Paper jam
2	Off	00	Not used. Fixed to off
3	Off	00	No scan in progress
	On	08	Scan in progress
4	Off	00	Scanner motor off
	On	10	Scanner motor on
5	Off	00	No scan timeout
	On	20	Scan timeout
6	Off	00	No skew detect
	On	40	Skew detect
7	Off	00	No paper removed
	On	80	Paper removed

[STS2] Machine status, 2 bytes coded as follows:

1st byte

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	No scan in progress
	On	01	Scan in progress
1	Off	00	No eject
	On	02	Eject in progress
2	Off	00	No retract
	On	04	Retract in progress
3	Off	00	No calibration in progress
	On	08	Calibration in progress
4	Off	00	Not used. Fixed to off
5	Off	00	Not used. Fixed to off
6	Off	00	Not used. Fixed to off
7	Off	00	Not used. Fixed to off



2nd byte

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Minimum ticket length ok
	On	01	Minimum ticket length error, the ticket is too short
1	Off	00	Maximum ticket length ok
	On	02	Maximum ticket length error, the ticket is too long
2	Off	00	Not used. Fixed to off
3	Off	00	Not used. Fixed to off
4	Off	00	Not used. Fixed to off
5	Off	00	Not used. Fixed to off
6	Off	00	Not used. Fixed to off
7	Off	00	Not used. Fixed to off

SCAN105

[SIG] indicates the Signature (4 bytes) with fixed value fixed to 'S' 'T' 'S' '2'

[STS1] Sensor status, 2 bytes coded as follows:

1st byte = Paper sensor status

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Paper not present on the input sensor
	On	01	Paper present on the input sensor
1	Off	00	Not used. Fixed to off
2	Off	00	Paper not present on the internal sensor (pre-CIS)
	On	04	Paper present on the internal sensor (pre-CIS)
3	Off	00	Not used. Fixed to off
4	Off	00	Paper not present on the paper output sensor
	On	10	Paper present on the paper output sensor
5	Off	00	Not used. Fixed to off
6	Off	00	Not used. Fixed to off
7	Off	00	Not used. Fixed to off



2nd byte = Device status

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Cover closed
	On	01	Cover opened
1	Off	00	Free paper path
	On	02	Paper jam
2	Off	00	Not used. Fixed to off
3	Off	00	No scan in progress
	On	08	Scan in progress
4	Off	00	Scanner motor off
	On	10	Scanner motor on
5	Off	00	No scan timeout
	On	20	Scan timeout
6	Off	00	No skew detect
	On	40	Skew detect
7	Off	00	No paper removed
	On	80	Paper removed

[STS2] Machine status, 2 bytes coded as follows:

1st byte

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	No scan in progress
	On	01	Scan in progress
1	Off	00	No eject
	On	02	Eject in progress
2	Off	00	No retract
	On	04	Retract in progress
3	Off	00	No calibration in progress
	On	08	Calibration in progress
4	Off	00	Not used. Fixed to off
5	Off	00	Not used. Fixed to off
6	Off	00	Not used. Fixed to off
7	Off	00	Not used. Fixed to off



2nd byte

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Minimum ticket length ok
	On	01	Minimum ticket length error, the ticket is too short
1	Off	00	Maximum ticket length ok
	On	02	Maximum ticket length error, the ticket is too long
2	Off	00	Not used. Fixed to off
3	Off	00	Paper input sensor ok
	On	08	Blinded paper input sensor. The ambient light is too strong to allow the sensor to work properly
4	Off		Head positioning ok
	On	00	Cancellation head positioning error
5	Off		FPGA version ok
	On	00	FPGA version error inconsistent with firmware. All modules need to be updated
6	Off	00	Not used. Fixed to off
7	Off	00	Not used. Fixed to off

SCANNER A6

[SIG] indicates the Signature (4 bytes) with fixed value fixed to 'S' 'T' 'S' '2'

[STS1] Sensor status, 2 bytes coded as follows:

1st byte = Paper sensor status

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Paper not present on the paper input left sensor
	On	01	Paper present on the paper input left sensor
1	Off	00	Paper not present on the paper input right sensor
	On	02	Paper present on the paper input right sensor
2	Off	00	Paper not present on the internal left sensor (pre-CIS)
	On	04	Paper present on the internal left sensor (pre-CIS)
3	Off	00	Paper not present on the internal right sensor (pre-CIS)
	On	08	Paper present on the internal right sensor (pre-CIS)
4	Off	00	Paper not present on the paper output left sensor
	On	10	Paper present on the paper output left sensor
5	Off	00	Paper not present on the paper output right sensor
	On	20	Paper present on the paper output right sensor
6	Off	00	Not used. Fixed to off
7	Off	00	Not used. Fixed to off



2nd byte = Device status

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Cover closed
	On	01	Cover opened
1	Off	00	Free paper path
	On	02	Paper jam
2	Off	00	No multiple sheet detected
	On	04	Multiple sheet detected
3	Off	00	No scan in progress
	On	08	Scan in progress
4	Off	00	Scanner motor off
	On	10	Scanner motor on
5	Off	00	No scan timeout
	On	20	Scan timeout
6	Off	00	No skew detect
	On	40	Skew detect
7	Off	00	No paper out removed
	On	80	Paper out removed

[STS2] Machine status, 2 bytes coded as follows:

1st byte

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	No scan in progress
	On	01	Scan in progress
1	Off	00	No eject
	On	02	Eject in progress
2	Off	00	No retract
	On	04	Retract in progress
3	Off	00	No calibration in progress
	On	08	Calibration in progress
4	Off	00	Not used. Fixed to off
5	Off	00	Not used. Fixed to off
6	Off	00	Not used. Fixed to off
7	Off	00	Not used. Fixed to off



2nd byte

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Minimum ticket length ok
	On	01	Minimum ticket length error, the ticket is too short
1	Off	00	Maximum ticket length ok
	On	02	Maximum ticket length error, the ticket is too long
2	Off	00	No error, the ticket was collected correctly
	On	04	Ticket held detected (the ticket was collected during the scan before it was finished)
3	Off	00	Not used. Fixed to off
4	Off	00	Not used. Fixed to off
5	Off	00	Not used. Fixed to off
6	Off	00	Not used. Fixed to off
7	Off	00	Not used. Fixed to off

[Notes]

- The minimum ticket length is set by the [0x1C 0x53 0x50 0x65 0x57](#) command.
- The maximum ticket length is set by the [0x1C 0x53 0x50 0x65 0x57](#) command.

Default]

[Reference] [0x1C 0x53 0x50 0x65 0x57](#)

[Example]



0x1C 0xEA

Transmit the device serial number

Valid for	KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT SCAN105 SCANNER A6
-----------	---

[Format]	Hex 1C EA n ASCII FS 0xEA n
----------	--

[Range] n = 0x52, 0x72

[Description] Transmits the device serial number.

[Notes] • The serial number is a string of 16 alphanumeric characters.

SCAN105

The device transmits ACK (0x06) followed by 16 characters of the serial number. Therefore the total length of the characters transmitted is 17.

• If the printer serial number is not defined, the device returns a string of 16 characters with a value of 0x00.

[Default]

[Reference]

[Example] To read the device serial number the command sequence is:
0x1C 0xEA 0x52

KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT, SCANNER A6

The device returns a string of 16 alphanumeric characters just like the following:
'ABC0123456789012'

SCAN105

The device returns a string of 17 alphanumeric characters just like the following:
0x06 'ABC0123456789012'



0x1D 0xE3

Reading of length of printed paper

Valid for	SCAN105		
[Format]	Hex	1D	E3
	ASCII	GS	0xE3
[Range]			
[Description]	Reading of the length expressed in centimetres of the printed paper by the device for the internal void.		
[Notes]	The command returns a string indicating how much paper is printed by the device for the internal void.		
[Default]			
[Reference]			
[Example]	If the device produced about 2515,5 m, the answer will be: '251550cm'.		



0x1D 0xE4

Reading number of completed scans

Valid for	SCAN105, KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT		
[Format]	Hex	1D	E4
	ASCII	GS	0xE4
[Range]			
[Description]	The command returns a string indicating the number of scans completed by the device.		
[Notes]	KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT The number of scans are those performed by the external scanner.		
[Default]			
[Reference]			
[Example]	If the device has completed 512 scans, the answer will be: '512'		



0x1D 0xE5

Reading number of power up

Valid for SCAN105
 SCANNER A6

[Format] Hex 1D E5
 ASCII GS 0xE5

[Range]

[Description] Reading number of power up of the device.

[Notes] The command returns a string indicating the number of device power ups.

[Default]

[Reference]

[Example] If the device is turned on 512 times, the answer will be:
 '512on'



MISCELLANEOUS COMMANDS

0x1B 0x40

<ESC @>

Initialize device

Valid for	KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT SCAN105 SCANNER A6
-----------	---

[Format]	Hex	1B	40
	ASCII	ESC	@

[Range]

[Description] Clears the data in the print buffer and resets the device mode to that in effect when power was turned on.

[Notes]

- The data in the receiver buffer is not cleared.
- The macro definitions are not cleared.

[Default]

[Reference]

[Example]



0x1D 0x49

<GS I>

Transmit device ID

Valid for KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT
SCAN105
SCANNER A4, SCANNER A6

[Format] Hex 1D 49 n
ASCII GS I n

[Range] n = 0x01, 0x03, 0x05, 0x31, 0x33, 0x35
n = 0xFF

[Description] Transmits the device ID specified by n follows:

n	DEVICE ID	SPECIFICATION
0x01, 0x31	Device model ID (1 byte)	0xFF (resend the command with n=0xFF)
0x03, 0x33	ROM version ID (4 bytes)	Depends on ROM version (4 character)
0xFF	Device model ID (2 bytes)	0x02 0x4C (KUBEIII SCANNER) 0x02 0x79 (KUBEIII SCANNER VERIPRINT) 0x41 0x08 (SCAN105) 0x41 0x02 (SCANNER A6)

[Notes] • This command is executed when the data is processed in the data buffer. Therefore, there could be a time lag between command reception and data transmission, depending on data buffer status.

[Default]

[Reference]

[Example]



USB REAL-TIME COMMANDS

0x02 0x43

<STC C>

Scan abort

Valid for	SCAN105
	SCANNER A6

[Format]	Hex	02	43	tk	00
	ASCII	STX	C	tk	NUL

[Range] 0x00 ≤ tk ≤ 0xFF

[Description] This command allows you to stop scanning the ticket.

- The tk parameter is a byte that identifies the command sent; its value is defined by the user.

The device will respond as follows:

0x82 0x43 tk Ret_Code

where:

tk	1 byte that specifies the Token of the received command
Ret_Code	1 byte indicating the return code returned by the received command

[Notes]

- If the ticket scan [0x1C 0x53 0x50 0x53](#) command is active on the other interface, the command will return as Ret_Code the 'A' character - Cancel retcode.
- See the [paragraph 4](#) at the beginning of this manual for the format of the response transmitted by the command.
- See the [paragraph 4](#) at the beginning of this manual to find out on which endpoints to send the command.

[Default]

[Reference]

[Example] To stop scanning an active ticket on the other interface, the command sequence is:
0x02 0x43 0x04 0x00

where:

0x02	packet start character
0x43	command
0x04	identifier of the command sent
0x00	There is no subsequent data

the response sent by the device will be composed as follows:

0x82 0x43 0x04 0x41 0x00



where:

0x82	packet start character
0x43	command
0x04	identifier of the command sent
0x41	character 'A' indicating interrupted scanning
0x00	no data sent



0x02 0x52

<STX R>

Hardware reset of the scanner

Valid for	SCAN105				
	SCANNER A4, SCANNER A6				

[Format]	Hex	02	52	tk	00
	ASCII	STX	R	tk	NUL

[Range] 0x00 ≤ tk ≤ 0xFF

[Description] This command cancels the scan and resets the scanner.

- The tk parameter is a byte that identifies the command sent; its value is defined by the user.

The device will respond as follows:
0x82 0x52 tk Ret_Code

where:

tk	1 byte that specifies the Token of the received command
Ret_Code	1 byte indicating the return code returned by the received command

[Notes]

- If the ticket scan [0x1C 0x53 0x50 0x53](#) command is active on the other interface, the command will return the 'A' character - Cancel retcode as Ret_Code.
- See the [paragraph 4](#) at the beginning of this manual for the format of the response transmitted by the command.
- See the [paragraph 4](#) at the beginning of this manual to find out on which endpoints to send the command.
- The reset will take place 2 seconds after receiving the scan reset command.

[Default]

[Reference]

[Example]



0x02 0x53

<STX S>

Scanner sensors status transmission

Valid for	SCAN105 SCANNER A4, SCANNER A6																								
[Format]	Hex	02	53	tk	00																				
	ASCII	STX	S	tk	NUL																				
[Range]	0x00 ≤ tk ≤ 0xFF																								
[Description]	<p>Transmits the current status of the scanner sensors upon receipt of this command.</p> <ul style="list-style-type: none"> The tk parameter is a byte that identifies the command sent; its value is defined by the user. <p>The device will respond as follows: 0x82 0x53 tk Ret_Code 0x02 STS1</p> <p>where:</p> <table border="1"> <tr> <td>tk</td> <td>1 byte that specifies the Token of the received command</td> </tr> <tr> <td>Ret_Code</td> <td>1 byte indicating the return code returned by the received command</td> </tr> <tr> <td>STS1</td> <td>2 bytes returned by the command 0x1C 0x53 0x53 0x32</td> </tr> </table>					tk	1 byte that specifies the Token of the received command	Ret_Code	1 byte indicating the return code returned by the received command	STS1	2 bytes returned by the command 0x1C 0x53 0x53 0x32														
tk	1 byte that specifies the Token of the received command																								
Ret_Code	1 byte indicating the return code returned by the received command																								
STS1	2 bytes returned by the command 0x1C 0x53 0x53 0x32																								
[Notes]	<ul style="list-style-type: none"> The device returns 2 bytes which are the same as identified by the scanner sensor 1 status command. See the paragraph 4 at the beginning of this manual for the format of the response transmitted by the command. 																								
[Default]																									
[Reference]	0x1C 0x53 0x53 0x32																								
[Example]	<p>To know in real time the status of sensor 1 of the scanner, the command sequence is: 0x02 0x53 0x04 0x00</p> <p>where:</p> <table> <tr> <td>0x02</td> <td>packet start character</td> </tr> <tr> <td>0x53</td> <td>status command</td> </tr> <tr> <td>0x04</td> <td>identifier of the command sent</td> </tr> <tr> <td>0x00</td> <td>There is no subsequent data</td> </tr> </table> <p>the response sent by the device will be composed as follows: 0x82 0x53 0x04 0x06 0x02 0x00 0x00</p> <p>where:</p> <table> <tr> <td>0x82</td> <td>packet start character</td> </tr> <tr> <td>0x53</td> <td>status command</td> </tr> <tr> <td>0x04</td> <td>identifier of the command sent</td> </tr> <tr> <td>0x06</td> <td>command response code executed</td> </tr> <tr> <td>0x02</td> <td>2 bytes follow</td> </tr> <tr> <td>0x01 0x00</td> <td>2 bytes of sensor 1 status indicating paper present on the input sensor</td> </tr> </table>					0x02	packet start character	0x53	status command	0x04	identifier of the command sent	0x00	There is no subsequent data	0x82	packet start character	0x53	status command	0x04	identifier of the command sent	0x06	command response code executed	0x02	2 bytes follow	0x01 0x00	2 bytes of sensor 1 status indicating paper present on the input sensor
0x02	packet start character																								
0x53	status command																								
0x04	identifier of the command sent																								
0x00	There is no subsequent data																								
0x82	packet start character																								
0x53	status command																								
0x04	identifier of the command sent																								
0x06	command response code executed																								
0x02	2 bytes follow																								
0x01 0x00	2 bytes of sensor 1 status indicating paper present on the input sensor																								



0x02 0x73

<STX s>

Extended status transmission of the scanner

Valid for	SCAN105 SCANNER A4, SCANNER A6												
[Format]	Hex	02	73	tk	00								
	ASCII	STX	s	tk	NUL								
[Range]	0x00 ≤ tk ≤ 0xFF												
[Description]	<p>Transmits the extended status of the scanner in real time upon receipt of this command.</p> <ul style="list-style-type: none"> The tk parameter is a byte that identifies the command sent; its value is defined by the user. <p>The device will respond as follows: 0x82 0x73 tk Ret_Code 0x04 STS</p> <p>where:</p> <table border="1"> <tr> <td>tk</td> <td>1 byte that specifies the Token of the received command</td> </tr> <tr> <td>Ret_Code</td> <td>1 byte indicating the return code returned by the received command</td> </tr> <tr> <td>STS</td> <td>4 bytes: 2 bytes of the [STS1] field returned by the command 0x1C 0x53 0x53 0x32 2 bytes of the [STS2] field returned by the command 0x1C 0x53 0x53 0x32</td> </tr> </table>					tk	1 byte that specifies the Token of the received command	Ret_Code	1 byte indicating the return code returned by the received command	STS	4 bytes: 2 bytes of the [STS1] field returned by the command 0x1C 0x53 0x53 0x32 2 bytes of the [STS2] field returned by the command 0x1C 0x53 0x53 0x32		
tk	1 byte that specifies the Token of the received command												
Ret_Code	1 byte indicating the return code returned by the received command												
STS	4 bytes: 2 bytes of the [STS1] field returned by the command 0x1C 0x53 0x53 0x32 2 bytes of the [STS2] field returned by the command 0x1C 0x53 0x53 0x32												
[Notes]	<ul style="list-style-type: none"> The device returns 4 bytes which are the same as identified by the scanner extended status command. See the paragraph 4 at the beginning of this manual for the format of the response transmitted by the command. 												
[Default]													
[Reference]	0x1C 0x53 0x53 0x32												
[Example]	<p>To know in real time the extended status of the scanner, the command sequence is: 0x02 0x73 0x04 0x00</p> <p>where:</p> <table border="1"> <tr> <td>0x02</td> <td>packet start character</td> </tr> <tr> <td>0x73</td> <td>extended status command</td> </tr> <tr> <td>0x04</td> <td>identifier of the command sent</td> </tr> <tr> <td>0x00</td> <td>There is no subsequent data</td> </tr> </table> <p>the response sent by the device will be composed as follows: 0x82 0x73 0x05 0x06 0x04 0x01 0x00 0x01 00</p>					0x02	packet start character	0x73	extended status command	0x04	identifier of the command sent	0x00	There is no subsequent data
0x02	packet start character												
0x73	extended status command												
0x04	identifier of the command sent												
0x00	There is no subsequent data												



where:

0x82	packet start character
0x53	status command
0x04	identifier of the command sent
0x06	command response code executed
0x04	4 bytes follow, specifying the extended status of the scanner
0x01 0x00	2 bytes of sensor 1 status indicating paper present on the input sensor
0x01 0x00	2 bytes of sensor 2 status indicating scanning in progress



VOID MANAGEMENT

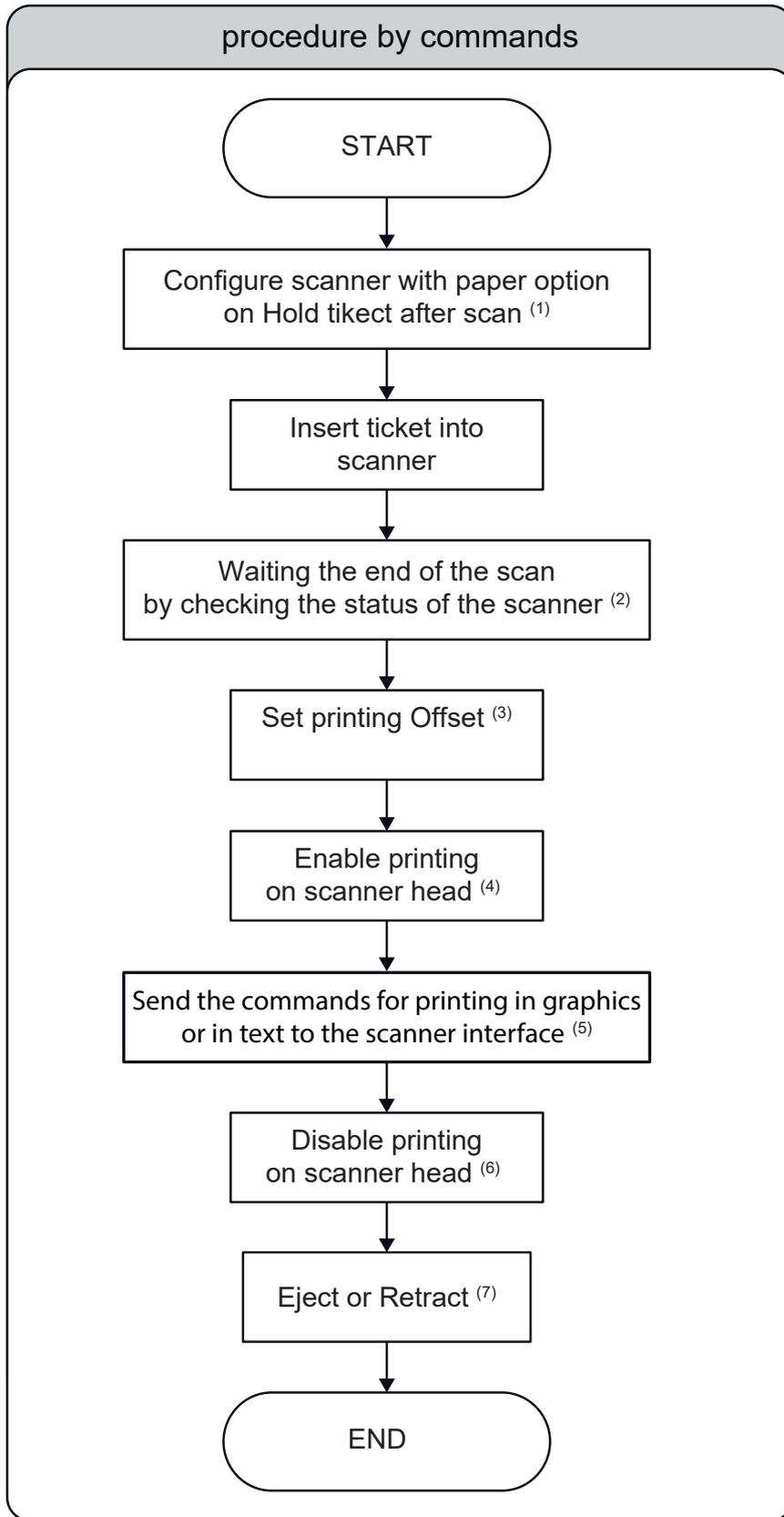
1	VOID	86
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1 VOID

KUBEIII SCANNER, KUBEIII SCANNER VERIPRINT, SCAN105

“Void print“ procedure





NOTES:

- (1) See `0x1C 0x53 0x50 0x43` command and set the OTP-P parameter = 0x00.
- (2) See `0x1C 0x53 0x53 0x32` command.
- (3) See `0x1F 0x51` command.
- (4) See `0x1F 0x45` command.
- (5) use the graphics + text commands for the SCAN105.
use the text commands for the KUBEIII SCANNER and KUBEIII SCANNER VERIPRINT.
- (6) See `0x1F 0x65` command.
- (7) See `0x1C 0x53 0x50 0x45` and `0x1C 0x53 0x50 0x48` commands.

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