MiniDX3

Portable magstripe reader with rechargeable Battery

User's Manual

Revision A

2010-01-06

Standard Package:

a. MiniDX3

b. CD-ROM

c. Chain Sling

d. USB Cable

Trademark:

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statement:

Manual and manual content such as are subject to change without notice. This company does not warrant that the manual content. Between the product and the manual for any errors, omissions or differences which directly or indirectly caused damage, the company will not be responsible for compensation.

Note:

This manual display screen pictures and other pictures for reference only, and the actual product may vary.

Connections

FCC COMPLIANCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communication.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Read the instructions on your device before installing batteries

1. Insert batteries into your device properly, with the (+) and (-) terminals aligned correctly.
2. Always fully charge your batteries before use.
3. When you charge the batteries for the first time, or if the batteries have been stored for a long time, it normally takes about 3 charge and discharge cycles for the batteries to regain full capacity.
4. It is normal for batteries to become hot during charging and they will gradually cool down to room temperature after fully charged.
5. Store the batteries in a cool and dry place.
6. Remove batteries from the electrical device if the device is not going to be used for a long time.
7. Keep battery contact surfaces and battery compartment contacts clean by rubbing them with a clean pencil eraser or a rough cloth each time you replace batteries.
8. If the performance of the batteries decrease substantially, it is time to replace the batteries.
9. Keep batteries away from children. If swallowed, contact a physician at once.

Specifications

Magnetic Stripe Card :

TRACK 1 / IATA / 210 bpi / 79 Alphanumeric Characters
TRACK 2 / ABA / 75 bpi / 40 Numeric Characters
TRACK 3 / Thrift / 210 bpi / 107 Numeric Characters

RS232 Interface :

RS232 , Half-Duplex , 8N1 , 9600 bps

USB Interface

Full compliance with the USB Specification V 1.1
The device uses a Virtual Serial Port Driver, making it appear to have the software like a standard RS232 Serial Port.

CLOCK :

Real Time Clock (RTC) module and back-up capacitor

Memory Size for Storing Data :

CMOS Serial Flash Memory 512K bytes
Up to 2048 records (256 Bytes / Record)

Battery Power :

Rechargeable Lithium-ion Polymer Battery
Nominal Capacity: 250 mAH (Typical)
Nominal Voltage: 3.7 V
Cycle Life: 300 cycles (at least)
Low Battery Detect and Built-in Quick Charge Circuit

Power Supply for Charge :

DC 5V , 200mA (for RS-232) or USB Powered
Charging duration time : 1.5 ~ 2.5 hr
Working duration time after charge : 48 hr (always power on)

Environment :

Operating Temp : -0℃ ~ +60℃ (Discharge)
-0℃ ~ +45℃ (Charging)
Storage Temp : -10 ~ +65℃
Humidity : 10 ~ 90 % relative

Dimensions :

L 50 x W 23.5 x H 32.5 mm

Mounting :

Portable or Any surface

Display Information

Operational Indicator

Status	Green LED	Red LED	Buzzer *1	Read Card
Power On	Take turns blink 2 times		Beep. Beep.	X
Auto Power Off	Take turns blink 2 times		Beep. Beep.	X
Ready	On	Off	X	O
Read OK	Blink 1 times	Off	Beep.	X
Read Error	Off	Blink 1 times	Beep. Beep. Beep.	X
Inactive Battery	Off	Blink 3 times	Beep. Beep. Beep.	X
RTC No Setting	Take turns blink		X	X
Memory will be Full	Slow Blink	Off	X	O
Memory Full	Fast Blink	Off	X	X
Memory bad	Off	Blink	X	X
Firmware Management mode	Off	On	X	X

Battery Indicator

Status	Green LED	Red LED
Power On	Take turns blink 2 times	
Standby	Off	Off
Precharge in progress	Off	Slow Blink
Fast charge in progress	Off	On
Charge done	On	Off
Charge suspend (temperature ,Timer Fault)	Off	Fast Blink
Low Battery	Blink	Off
Inactive Battery	Take turns blink 2 times	

Operational Description

1. Powered by Battery

For normal use, the unit is powered by battery. Push the Power Switch Button for about 1.5 seconds to turn on the unit. Also push the Power Switch Button for about 1.5 seconds to turn off the unit. After the unit is turned on, the power would be turned off automatically if there is no swiping a card on the unit in 30 seconds. This means the unit would be turned off if no swiping a card again in every 30 seconds after every card swiping. It would have Low Battery Detect/Warning indication when the unit is powered by battery.

2. Powered by Cable

When the unit is connected with the PC through the communication Cable and the PC is running MiniDX3 software and open the COM PORT for the unit, then the unit will be turned on in about 0.5 second by the PC through the RS-232 COM PORT. Then you can do the unit Setting, Configuration or data downloading. When the software closes the COM PORT or exits, the power turn off from the PC immediately. When powered by cable from PC, the Power Switch would have no function and the unit would have no Low Battery Detect/Warning function.

3. Real Time Clock Setting

Before start using the unit, you must set the Real Time Clock (RTC) inside the unit to your local time. If there is no battery for quite a while or it is powered by cable for quite a while this would cause Real Time clock (RTC) malfunctioned due to no power supply. When put on the battery to turn on the unit and the Red/Green LED take turns blinking, this means the RTC is malfunctioning and you must do the RTC time setting before you use the unit.

4. Low Battery Detect

When powered by battery, it would have Low Battery Detect function. When the battery goes low, the LED would flash green once every 2 second and you must charge battery immediately, otherwise, the unit would shut down any time without pre-warning.

5. Charge Mode

There are three different charge modes for MiniDX3: low battery mode, real time mode and manual charge mode. Low battery charge mode is used when the battery hits low voltage, it starts to be charged automatically. Real time charge mode is whenever the MiniDX3 cable is connected to USB or Power adapter, it would be charged immediately. Manual charge mode is the charge is controlled by Demo software . User can use the software to start or stop charging.

6. Charge Status Indication

When MiniDX3 is in charge, Battery Status Indicator light show slow blink red that means the battery is in the pre-charge. When Battery Status Indicator light turns to red, it means the battery is in charge status. When Battery Status Indicator light turns to green, it means the charge is finished. If the charge process has unusual situation, Battery Status Indicator light will show red fast blink. If MiniDX3 cable is connected, and battery is not in charge, Battery Status Indicator light will turn off. The default set mode is on low battery charge mode.

7. Memory Low Warning

Log database memory is almost full (>90%). Adding new records is still possible but you are advised to free up the log database memory by uploading the data to the PC as soon as possible.

8. Memory Full Warning

Log database memory is full. You not be able to add any new records. Free the log database memory by uploading the data to the PC.

9. Firmware Management mode (FMM)

FMM allows you to quickly upgrade your MiniDX3's internal firmware via com port and also check validity of currently loaded firmware. Contact your dealer for most recent firmware upgrade files.

Card Data Format

CARD DATA STRING

TRACK 1			TRACK 2			TRACK 3			DATE & TIME					
SS	*TRACK1 DATA*	ES	SS	*TRACK2 DATA*	ES	SS	*TRACK3 DATA*	ES	SP	DATE	SP	TIME	SP	WEEK
%	*TRACK1 DATA*	?	;	*TRACK2 DATA*	?	+	*TRACK3 DATA*	?		DATE		TIME		WEEK

TRACK 1

%	CARD ID	?

1. SS is the start sentinel (%).
2. ES is the end sentinel (?).
3. Card Id up to 76 alphanumeric data characters.

Track 1 IATA	
Bits Per Inch	210
Bits Per Character	7
Alphanumeric Characters	79

TRACK 2

;	CARD ID	?

1. SS is the start sentinel (;).
2. ES is the end sentinel (?).
3. Card Id up to 37 numeric data characters.

Track 2 ABA	
Bits Per Inch	75
Bits Per Character	5
Numeric Characters	40

TRACK 3

+	CARD ID	?

1. SS is the start sentinel (+).
2. ES is the end sentinel (?).
3. Card Id up to 104 numeric data characters.

Track 3 Thrift	
Bits Per Inch	210
Bits Per Character	5
Numeric Characters	107

DATE&TIME&WEEK

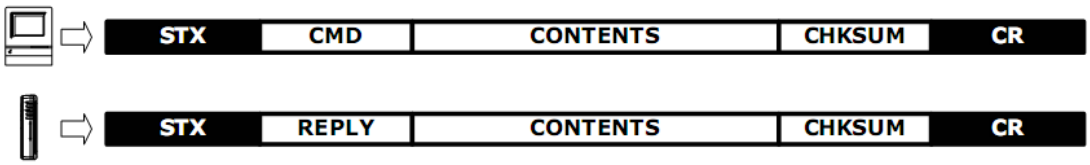
SP	DATE	SP	TIME	SP	WEEK
	YYYY/MM/DD	SP	HH:MM:SS	SP	W

1. SP is the SPACE characters (20h).
2. TIME is 24hr .

WEEK	
SUN	1
MON	2
TUE	3
WED	4
THU	5
FRI	6
SAT	7

Communication Protocol

Packet Format



ITEM	Dec	Hex	Control Key	Function
STX	2	02	^B	Start of Text
CMD	Ascii	Ascii	Ascii	Command Code
CONTENTS	Ascii	Ascii	Ascii	Contents Data
CHKSUM	Ascii	Ascii	Ascii	Check Sum
CR	13	0d	^M	Carriage Return
REPLY	(78) 65	(4e) 41	(N) A	(Negative) Acknowledge

Command Index Table

Topic	Command	Contents	Description
SETTING	**L**	4 Characters for Login(0000)	Login
	O	-	Logout
	P	New four digit password	Set Password
	B	-	Get Register
	C	-	Set register
	F	-	Get Product Version
	S	Date,Time,Week	Set Date,Time and Week
	T	-	Get Date and Time
DATABASE	**N**	-	Get Number of Record
	G	Number	Read Record by Number
	E	-	Erase All Record

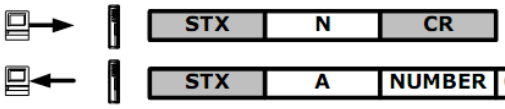
Reply Index Table

Topic	Reply	Contents	Description
ACK	**A**	Reply Information	ACK+Information
NAK	**N**	See Error Index Table	NAK+Information

Error Index Table (For Reply NAK)

Topic	Error Index	Description
ACCESS LEVEL	**00**	Access Denied or Password Error
COMMAND CODE	**01**	Command packet is too long
	02	Command packet is empty
	03	Command code is out of range
	04	Illegal Command or Data
DATABASE	**05**	Database and Register is Empty
	06	Record number is out of range
	07	Check Sum Error
	08	Memory Not Enough
	09	Action Failure
FILE	**0A**	File Not Exist

1. GET NUMBER OF RECORD :

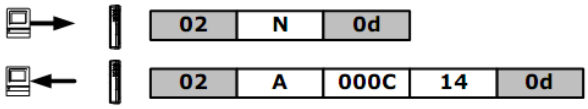


STX	N	CR

STX	A	NUMBER	CHKSUM	CR

NUMBER	Record Count . 4 Bytes Width (0000h ~ 0080h)

EXAMPLE

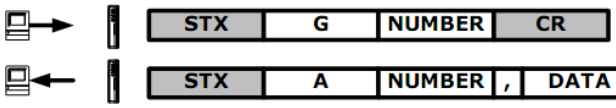


02	N	0d

02	A	000C	14	0d

The Total of Record Count : 12

2. READ RECORD BY NUMBER :

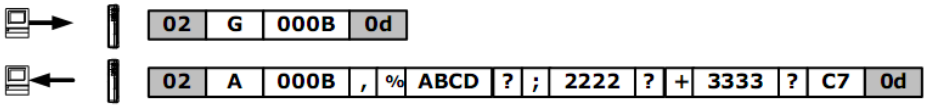


STX	G	NUMBER	CR

STX	A	NUMBER	,	DATA	CHKSUM	CR

NUMBER	Record Count . 4 Bytes Width (0000h ~ 007Fh)
DATA	Record Data (TRACK1 , TRACK2 , TRACK3)

EXAMPLE

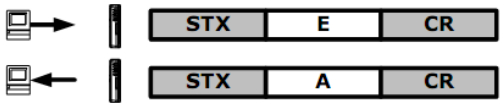


02	G	000B	0d

02	A	000B	,	%	ABCD	?	;	2222	?	+	3333	?	C7	0d

Read Record Number : 11
TRACK1 ID : ABCD , TRACK2 ID : 2222 , TRACK3 ID : 3333

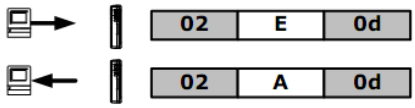
3. ERASE ALL RECORD :



STX	E	CR

STX	A	CR

EXAMPLE

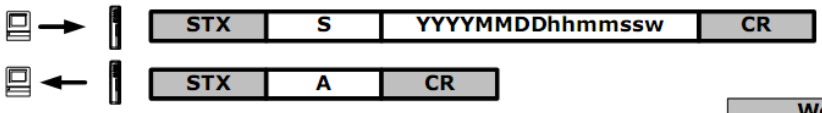


02	E	0d

02	A	0d

ERASE ALL RECORD

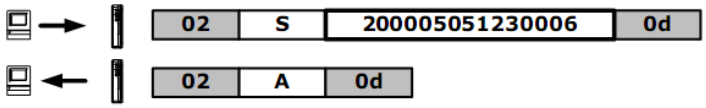
4. SET DATE AND TIME :



YYYY	Year (1980 - 20xx)
MM	Month (01 - 12)
DD	Date (01 - 31)
hh	Hour (00 - 23)
mm	Mintue (00 - 59)
ss	Second (00 - 59)
W	Week (1 - 7)

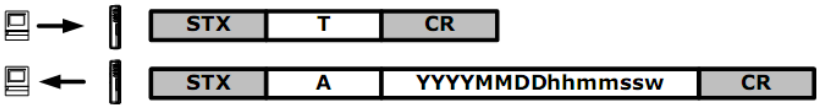
Week	
SUN	1
MON	2
TUE	3
WED	4
THU	5
FRI	6
SAT	7

EXAMPLE

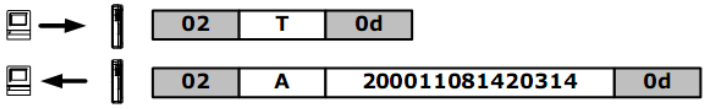


Set Date = 2000 / 5 / 5
Set Time = 12 : 30 : 00 , Friday

5. GET DATE AND TIME:

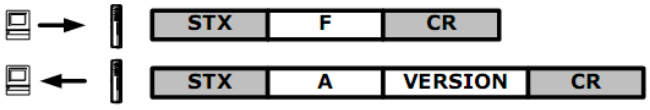


EXAMPLE



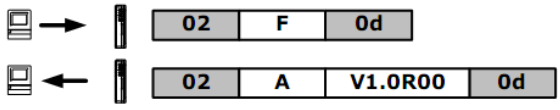
Get Date : 2000 / 11 / 8
Get Time : 14 : 20 : 31 , Wednesday

6. GET PRODUCT VERSION :



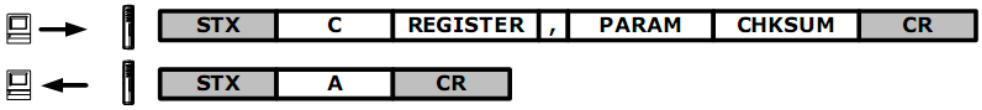
VERSION	VxxRmm , Vxx : Firmware Version x.x , Rmm : Modify mm Times

EXAMPLE



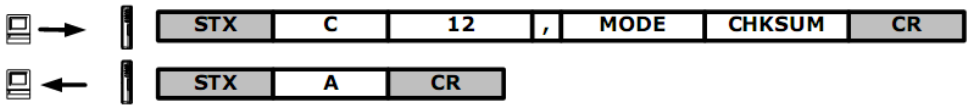
Firmware Version = 1.0
Modify times = 0

7. SET REGISTER :



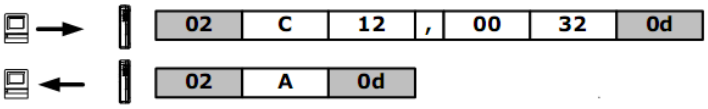
REGISTER	Register Address . 2 Bytes Width (00h ~ FFh)
PARAM	Set Parameters of Register
CHKSUM	C + REGISTER + , + PARAM

7-1. SET POWER MODE :



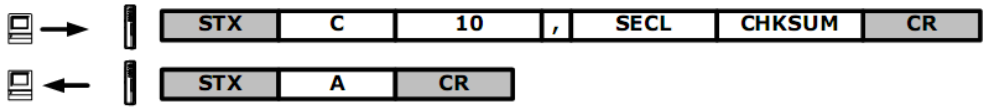
MODE	
"00"	Real Control
"01~FE"	Auto Power OFF
"FF"	Always Power ON

EXAMPLE



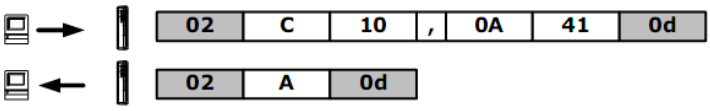
Write to Parameter Table Address : 12 h
Set Power Mode : Real Control
CHKSUM= 43h(C) + 31h(1)+ 32h(2) + 2Ch(,) +30h(0) + 30h(0) = 132h
= 33h(3) + 32h(2)

7-2. SET AUTO POWER OFF TIME (LOW BYTE) :



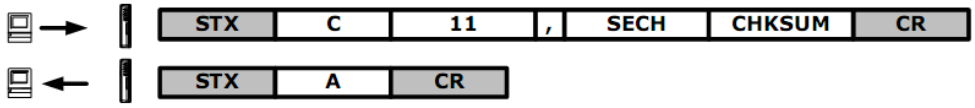
SECL	
"00-FF"	00h-FFh (0-255)/2 Second

EXAMPLE



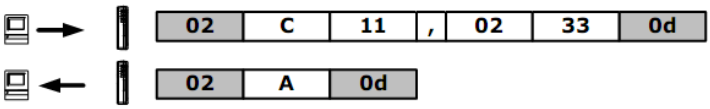
Write to Parameter Table Address : 10 h
Auto Power Off Time (Low Byte) : 5 Seconds

7-3. SET AUTO POWER OFF TIME (HIGH BYTE) :



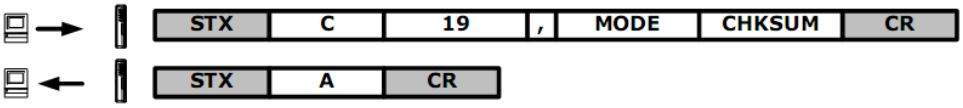
SECH	
"00-FF"	(00-FF)/2 *256 Seconds

EXAMPLE



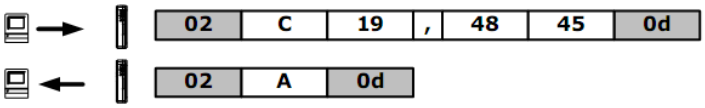
Write to Parameter Table Address : 11 h
Auto Power Off Time (High Byte) : 2/2*256 Seconds

7-4. SET BUZZER ON/OFF :



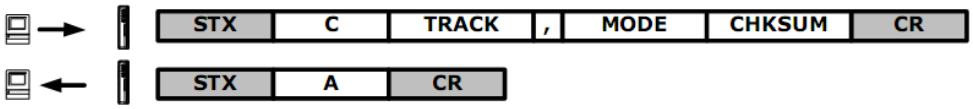
MODE	
"FF"	BUZZER OFF
"xx"	BUZZER ON

EXAMPLE



Write to Parameter Table Address : 19 h
xx : any value

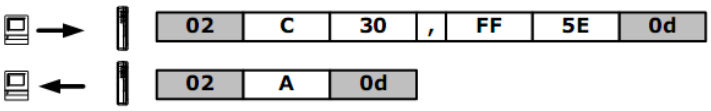
7-5. SET TRACK ACTIVE MODE :



TRACK	
"30"	TRACK 1
"31"	TRACK2
"32"	TRACK3

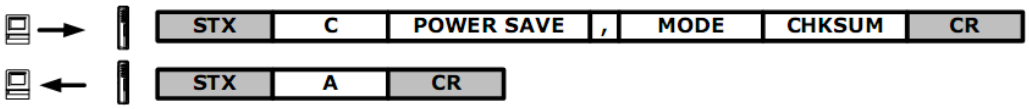
MODE	
"FF"	ENABLE
"00"	DISABLE
"01"	REQUIRED

EXAMPLE



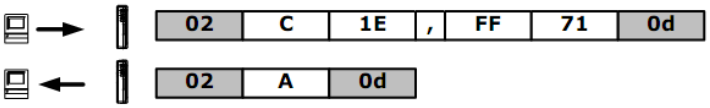
Write to Parameter Table Address : 30 h
TRACK ACTIVE MODE : TRACK 1 ENABLE .

7-6. SET POWER SAVE MODE :



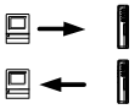
MODE	
"FF"	DISABLE
"00~FE"	ENABLE

EXAMPLE



Write to Parameter Table Address : 1E h
Power Save Mode : Power Save Mode Disable .

8. GET REGISTER :

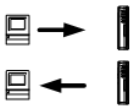


STX	B	REGSTER	CR

STX	A	PARAM	CHKSUM	CR

REGSTER	Register Address . 2 Bytes Width (00h ~ FFh)
PARAM	Set Parameters of Register

8-1. GET POWER MODE :



STX	B	12	CR

STX	A	MODE	CHKSUM	CR

Same 7-1. SET POWER MODE

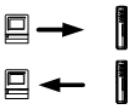
EXAMPLE

02	B	12	0d

02	A	00	A1	0d

Write to Parameter Table Address : 12 h
Get Power Mode : Real Control

8-2. GET AUTO POWER OFF TIME (LOW BYTE) :



STX	B	10	CR

STX	A	SECL	CHKSUM	CR

Same 7-2. SET AUTO POWER OFF TIME (LOW BYTE)

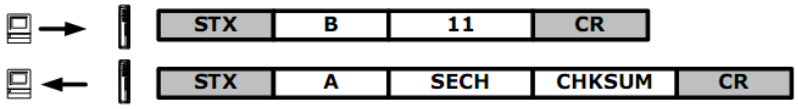
EXAMPLE

02	B	10	0d

02	A	0A	B2	0d

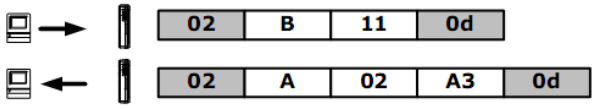
Get Parameter From Parameter Table Address : 10 h
Auto Power Off Time Period (Low Byte) : 5 Seconds

8-3. GET AUTO POWER OFF TIME (HIGH BYTE) :



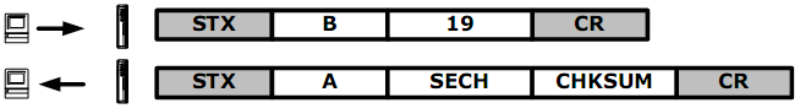
Same 7-3. SET AUTO POWER OFF (HIGH BYTE)

EXAMPLE

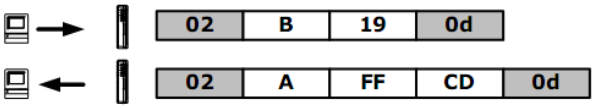


Get Parameter From Parameter Table Address : 11 h
Auto Power Off Time Period (High Byte) : 2*256/2 Seconds

8-4. GET SOUND MODE :

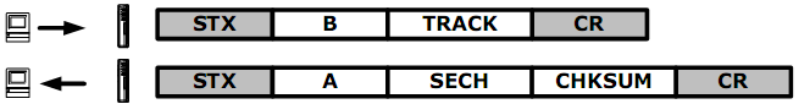


EXAMPLE



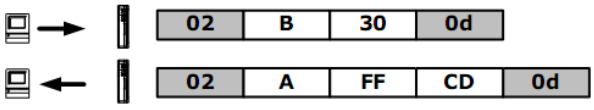
Get Parameter From Parameter Table Address : 19 h
SOUND MODE : ENABLE

8-5. GET TRACK ACTIVE MODE :



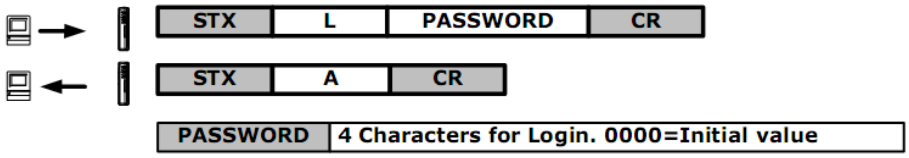
TRACK	
"30"	TRACK 1
"31"	TRACK2
"32"	TRACK3

EXAMPLE

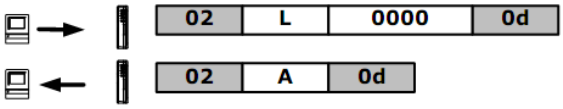


Get Parameter From Parameter Table Address : 30 h
TRACK 1 ACTIVE MODE : ENABLE

9. LOGIN :

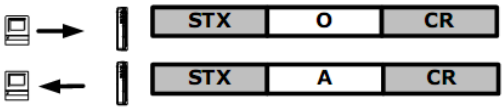


EXAMPLE

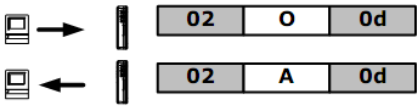


Login password : 0000

10. LOGOUT :

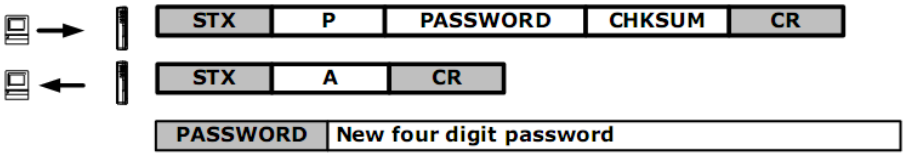


EXAMPLE

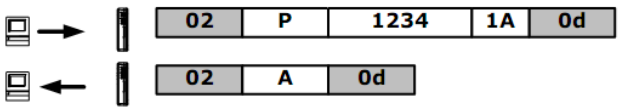


Logout

11. SET PASSWORD :



EXAMPLE



Set new password : 1234