



GuardScan Guard Tour Terminal with LCD User's Manual

Manual Part Number : TM951192 Rev : 02

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REGISTERED TO ISO 9001:2000

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REVISIONS

Rev Number	Date	Notes	
01	MAY. 07	Initial Release	
02	JAN , 08	Add RFID Scan Time Register	

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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.

Information

GS120 Series 125KHz RFID Reader



Read the instructions on your device before installing batteries

- 1. Insert batteries into your device properly, with the (+) and (-) terminals aligned correctly.
- 2. Discharged batteries should be removed from equipment to prevent possible damage.
- 3. Store the batteries in a cool and dry place. [Batteries should be stored at temperatures between 50°F (10°C) and 77°F (25°C), with relative humidity not exceeding 65 percent. Refrigeration of alkaline batteries is not necessary because of their very good capacity retention. Excessive temperature cycling and storage at temperatures greater than 77°F (25°C) should be avoided to maximize shelf life.]
- 4. Remove batteries from the electrical device if the device is not going to be used for a long time.
- 5. 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.
- 6. Keep batteries away from children. If swallowed, contact a physician at once.
- 7. Don't recharge a battery unless it is specifically marked "rechargeable". Attempts to recharge an alkaline battery may cause an imbalance within the cell, leading to gassing and possibly explosion on either charge or discharge cycles.
- 8. Don't dispose of batteries in a fire—they may rupture or leak.
- 9. Don't carry loose batteries in a pocket or purse with metal objects like coins, paper clips, etc. This will short-circuit the battery, generating high heat.

Standard Package



Main unit (GS120)



LR03-AAA ALKALINE 1.5V Battery (BAT-T0010)



CD-ROM



Chain Sling (TM09F1001)



RS232 Cable for GS120 series (WAS-T0017)



USB Cable for GS120U series (WAS-1571)

Technical and Operational Description

Front Panel and Operations



RFID Card Scan Area

Scan the RFID card to reader.

Operation LED Indicator

When encountering erroneous input, defective card, misread, bad memory or incorrectly encoded data and so on, the device will turn on the ERROR indicator.

• LCD Main Screen

Indicating the device is ready for use or low battery in operational mode.

Connector

For connection to host computer and external Power.

Battery Box

Put the battery in box and hold battery.

Operate Keypad

Turn the GS120 on/off power and Operate.

• Cha

Chain Sling Hole

Connect to chain sling.

LCD Display



Status Function Area

Main Display Area

Keypad Guidance Area

Status Function Area

1. Power Status



Battery Power Supply

Low Battery Power Supply External Power Supply

2. Scan Status

✓ or ∖ Scaning

3. Buzzer Status

٢

Buzzer ON

4. Decode Status

EM EM Card Decoded

5. Guidance Number

XXXXXX	Current Record Number When Scanning or Viewing Database
х	Main Menu Item When Operating Menu
x-x	Sub-Menu Item When Operating Submenu

Main Display Area

Display Date & Week & Time , Menu Item , Record Data , Parameter Setting , Other Information

Keypad Guidance Area

1. Corresponding Key - 🔘

Power /Exit / Back / Cancel / No Key Function

2. Corresponding Key - 🙆

Up / Up scroll / Decrease/Scan Key Function

3. Corresponding Key - 🕥

Down / Down scroll / Increase/Event Key Function

4. Corresponding Key - 🕑

Menu / Enter / Save / Next / Yes Key Function

Function Menu

		Display Machine ID -
	1-1. Machine ID	2 Characters
		Default : 00
	1.2 Haan Nama	Display User Name -
	1-2. User Name	16 Characters Max
	1.2 Diambay Format	Display Mode -
1. Profiles	1-5. Display Format	ID Number
		Set View Mode -
	1-4. View Mode	Big or Small
		Default : Big
		Set Scan Mode -
	1-5. Scan Mode	Button or Continuous
		Default : Button
		Set Back Light Duration -
	2-1. BackLight	03~ 255 Seconds
		Default : 15 Seconds
		Set Auto Power Off Duration -
	2-2. Auto Power Off	03 ~ 255 Seconds
		Default : 30 Seconds
		Set Power Mode -
	2-3. Power Mode	Switch Mode or Auto Power Off Mode
2. Setting		Default : Switch Mode
	2-4. Sound	Set Operate Sound -
		ON or OFF
		Default : ON
	2-5. Reset	Reset Default -
		BackLight = 15 seconds
		Auto Power Off = 30 seconds
		Power Mode = Switch Mode
		Sound = ON
	2.1. 64-4	Display Memory Status -
2 Datahara	5-1. Status	Used Space, Unused Space, Total Space
5. Database	3-2. View	Display all records in memory
		Set Date Format Select -
		Vear / Month / Date
	4-1 Date Format	Date / Month / Year
		Month / Date / Year
4 Calendar		Default · Month / Date / Year
	4-2. Set Date/Time	Set Date -
		Vear Month Date
		Set Time -
		Week Hour Minute Second
		week, nour, winnute, becond
5. Information	5-1. Product Name, P	roduct Description, Firmware Version

Display Information

Exceptional Indication

LCD Display message	Description	Counterplot
Check RTC !	The RTC is malfunctioning (After scan card)	Set Date and Time
FLASH Full !	The record already is full. (After scan card)	Download Records and Erase Records
Check FLASH ! The record can't write into the FLASH memory. (After scan card)		Contact Agent
Decode Error ! Scan Card can't decode. (After scan card)		Scan Card again or Change Card
No Record ! No Record in FLASH memory. (Enter Database - View function)		Scan Card
Record not empty ! The FLASH memory not empty. (Enter Calendar function)		Download Records and Erase Records
ISP MODE	Enter FMM Mode (By communication command)	Update New Firmware

LED Indicator

Status	Green LED	Red LED	Buzzer	Read Card
Power On	Take turns blink 2 times		Beep. Beep.	X
Auto Power Off	Take turns blink 2 times		Beep. Beep.	X
Ready	Off	Off	Х	0
Read OK	Blink 1 time	Off	Beep.	Х
Read Error	Off	Blink 1 time	Beep. Beep. Beep.	Х
Firmware Management Mode	Off	On	X	X

Operational Description

1. Powered by Battery

For normal use, the unit is powered by battery. Push the Power Switch Button " \odot " for about 2 seconds to turn on the unit. Also push the Power Switch Button " \odot " for about 2 seconds to turn off the unit at Switch Mode. After the unit is turned on, the power would be turned off automatically if there is no scanning a card on the unit in 30 seconds (default) at Auto Power Off Mode. This means the unit would be turned off if no scanning a card again in every 30 seconds (default) after every card scanning. It would have Low Battery Detect/Warning indication when the unit is powered by battery.

2. Powered by Cable

When GS120 is connected/disconnected to external power adapter by the WAS-T0017 RS232 cable or USB port by the WAS-1571 USB cable,, it would be turned On/Off automatically. When the unit is connected with the PC through the communication Cable (WAS-T0017 or WAS-1571) and the PC is running GS120 software and the unit is turned on. Then you can do the unit Setting, Configuration or data downloading. When the device is 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 to blink, this means the RTC is malfunctioning and you must do the RTC time setting before you use the unit.

4. Low Battery Detection

When the device is powered by battery, it would have Low Battery Detection function. When the battery goes low, the LCD would display " — " and you must change battery immediately ; otherwise, the unit would shut down any time without pre-warning.

5. Scan RFID Card

When GS120 is in showing the current date and time on screen, it will enter scanning mode by pressing scan key function "③", After presenting a RFID card to GS120 reader, GS120 is displaying card ID and record(s) information on the screen immediately. You could present next RFID card in "Continuous" scan mode (good for 10 seconds) or press scan key function "④" and then read next RFID card in "Button " scan mode, When GS120 is not working for next card scan, GS120 reader will go back to default screen automatically.

6. Operating for Calendar

Before setting calendar function, please delete remaining records from GS120 reader, If there is any record stored in the memory in the GS120, "Record no empty" will display on the GS120's screen during your operation.

7. Memory Full Warning

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

8. Communication by WAS-T0017 (RS232 cable)

You must use an external power adaptor when the PC connects to GS120 by a WAS-T0017 RS232 cable, Otherwise when GS120 is not connected with an external power adaptor , the corresponding key for power on GS120 needs to be pressed all the time during the communications with the PC.

9. Firmware Management Mode (FMM)

FMM allows you to quickly upgrade your GS120 internal firmware via com port and also check the validity of currently loaded firmware. Contact your dealer for the most recent firmware upgrade files.



Note:

- 1. Read the instructions on your device before replace new battery.
- 2. GS120 can use Single-cell alkaline, nickel-cadmium (NiCd), or nickel-metal hydride (NiMH) Battery



1. Power turn off



4. Take new battery



2. Take the cover away



3. Take the battery away



5. Put new battery in



6. Fix the battery cover

Connections

WAS-T0017 RS232 interface cable



DSUB 9P POWER JACK	DSUB 9P FEMALE PIN	FUNCTION	MINI USB 4P
+		VCC +5V	1
	2	TXD	2
	3	RXD	3
-	5	GND	4

//////

Connect to PC

No use



External power DC +5V

Note:

- 1. When GS120 is connected/disconnected with an external power adapter, it would be turned On/Off automatically.
- 2. When GS120 is not connected with an external power adaptor , the corresponding key for power on GS120 needs to be pressed all the time during the communications with the PC.

WAS-1571 USB interface cable



USB 4P FEMALE PIN	FUNCTION
1	VCC
3	D -
2	D +
4	GND

MINI USB 4P	FUNCTION
1	VCC
2	RXD
3	TXD
4	GND

Connect to PC



Note:

1. When GS120 is connected/disconnected with USB port, it would be turned On/Off automatically.

Card Data Format

CARD DATA STRING



DATE & TIME

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

1. SP is the SPACE characters (20h).

2. TIME is 24hrs .

CARD TYPE

CARD TYPE		
EM 125K	5	

Specifications



125KHz RFID Card for GS120

EM compatible64 bits, ASK Manchester coding. Reading distance 10~50mm (depends on card).



RS232 Interface

RS232, Half-Duplex, 8N1, 19200 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.



LCD Display

LCD type : FSTN Dot arrangement :101 x 67 Dots Matrix LCD Module Viewing direction : 6 O'clock



Communication Protocol :

Version 1.2 (GNET V1.2)



CLOCK

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



Memory Size for Storing Data

CMOS Serial Flash Memory 512K bytes Up to 8192 records (32 Bytes / Record)



Battery Power

Single-cell alkaline, nickel-cadmium (NiCd), or nickel-metal hydride (NiMH) battery .



Power Supply from Cable

DC 5V, 200mA (for RS-232) or USB Powered



Dimensions

L 58 x W 20 x H 47 mm



Environment

Operating Temp : $0 \sim +55^{\circ}$ C Storage Temp : $-10 \sim +60^{\circ}$ C Humidity : $10 \sim 90$ % relative



Mounting

Portable or Any surface

Communication Protocol

Handshaking



PACKET



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	Od	^M	Carriage Return
REPLY	(78) 65	(4e) 41	(N) A	(Negative) Acknowledge

GS120 Terminal has an extensive list of Commands that allow manipulating its internal database, setting

functional parameters and getting data on its current status. There are 2 levels of access to the GS120 : User and Supervisor. Supervisor level is protected by a Password. Sensitive data can be downloaded or altered only on the Supervisor level. General Terminal data is available on the User level as well.

Topic	Cor	nmand	Contents	Description	
Access Security Commands					
	U	L	4 Characters for Login(0000)	Login	
ACCESS		0	-	Logout	
	S	Р	New four characters password	Set Password	
Database Commands					
DATABASE	υ	N	_	Get Number of Record	
	s	G	Number	Read Record by Number	
	s	E	_	Erase All Record	
	s	R	-	Rollback Record	
	S	М	-	Recovery All Record	
General Commands					
	U	F	-	Get Product Version	
SETTING	S	S	Date, Time, Week	Set Date, Time and Week	
	υ	Т	-	Get Date and Time	
	S	J	_	Set Machine ID	
	U	I	_	Get Machine ID	
	U	X	_	Enter Firmware Management Mode	
	S	В	-	Get Register	
	S	С	-	Set register	

Command Index Table

Reply Index Table

Reply	Contents
Α	Reply Information
С	Checksum Error
D	Access Denied
I	Invalid Command or Data
F	Command Execution Failed
E	Database is Empty

LOGIN : (for	Supervis	or Acces	s Level))			
₽→ � [STX	L	PASS	SWORD	CR]	
₽- �	STX	A or D	or I	CR]		
[PASSWO	RD 4 Ch	aracters	s for Logir	n. 0000=1r	nitial value	
EXAMPLE							
₽→ �	02	L	0000	Od]		4
₽- \$	02	A	Od				
Login pass	sword : 00	00					
₽ - @	02	D	Od				
Login pass	sword com	mand is r	not exec	uted.			
₽- �	02	1	0d				
Invalid pa	ssword.						

LOGOUT :



Access Security Commands



SET PASSWORD :



EXAMPLE
□ → 🌚 02 P 1234 0d
Set new password : 1234
□ ← � O2 D Od
Set new password is not executed.
STX A NUMBER CR
NUMBER Record Count . 4 Bytes Width (0000h ~ 0800h)
EXAMPLE
□ ← 🏟 02 A 000C 0d
The total of record count : 12
READ RECORD BY NUMBER :
□→ STX G CR
STX E or D or F CR
DATA 20h + Record Data
$\square \rightarrow \bigotimes 02 G Od$
□ C A 20070530 103923 20 ABCDEF1234 0d
DATE : 20070530 , TIME : 10:39:23 , DATA: ABCDEF1234

ERASE ALL RECORD :



ROLLBACK DATABASE READOUT TRANSACTION :



RECOVERY ALL DATABASE READOUT TRANSACTION :



GET PRODUCT VERSION :



SET DATE AND TIME :



	Teal (2000 - 20XX)
MM	Month (01 - 12)
DD	Date (01 - 31)
hh	Hour (00 - 23)
mm	Minute (00 - 59)
SS	Second (00 - 59)





SET MACHINE ID:



GET MACHINE :



ENTER FIRMWARE MANAGEMENT MODE :



SET REGISTER :



GET REGISTER :



REGISTER TABLE

Register	Function	Description	
10h	Auto Off Duration(Low byte)	00~FFh (0~ 255 second)	
11h	Auto Off Duration(High byte)	-	
12h	Power Mode	00h: Auto Power Off FFh: Switch	
13~14h	*	*	
15h	RTC cal. value	00 ~ FFh	
16h	*	*	
17h	*		
18h	Back Light Duration	00~FFh (0~ 255 second)	
19h	Buzzer	00h: Off FFh: On	
1Ah	Date Format	00h: mm/dd/yyyy FFh: yyyy/mm/dd other: dd/mm/yyyy	
1Bh	Display Mode	ID Number	
1Ch	*	*	
1Dh	RFID scan time	05~FEh (5~254 second) FFh : 10 second	
1Eh	*	*	
1Fh	Scan Mode	00h: continuous Mode other: Button Mode	
20~2Fh	User Name	16 Characters	
30~1FBh	*	*	
1FC~1FFh	Password	4 Characters	