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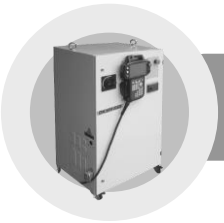
WARNING

THE INSTALLATION SHALL BE MADE BY QUALIFIED INSTALLATION PERSONNEL AND SHOULD CONFORM TO ALL NATIONAL AND LOCAL CODES.

Hyundai Robot

Hi5AB120701FMEN1



Hi5 Controller Function Manual

Automatic Backup

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Contents

Contents

List of Figures

List of Tables

1 Overview

1.1. Preparatory Knowledge

The users shall be well-informed of the following knowledge to fully understand this manual.

- Basic instructions of Hyundai's Hi5 Robot Controller

1.2. About an Automatic Backup

This automatic backup is the function of automatically storing all files of Hi5 controller's main board on the flash memory as a backup, based on the set conditions in advance. The user may restore the system by selecting one of backed-up points. When the files of Hi5 Controller are cleared or damaged by breakdowns or users' mistakes, these backed-up data are used.

There are 3 methods of setting the conditions for performing the backup.

(1) Set date and time (A maximum of 4)
(2) When the designated assigned input signal is switched on
(3) When a manual mode changes into an automatic mode

2

Use of an Automatic Backup

2.1. Settings

Open menus as follows: [F2: System] – 2: Control Parameter - 11: Screens of Automatic Backup & Recovery.

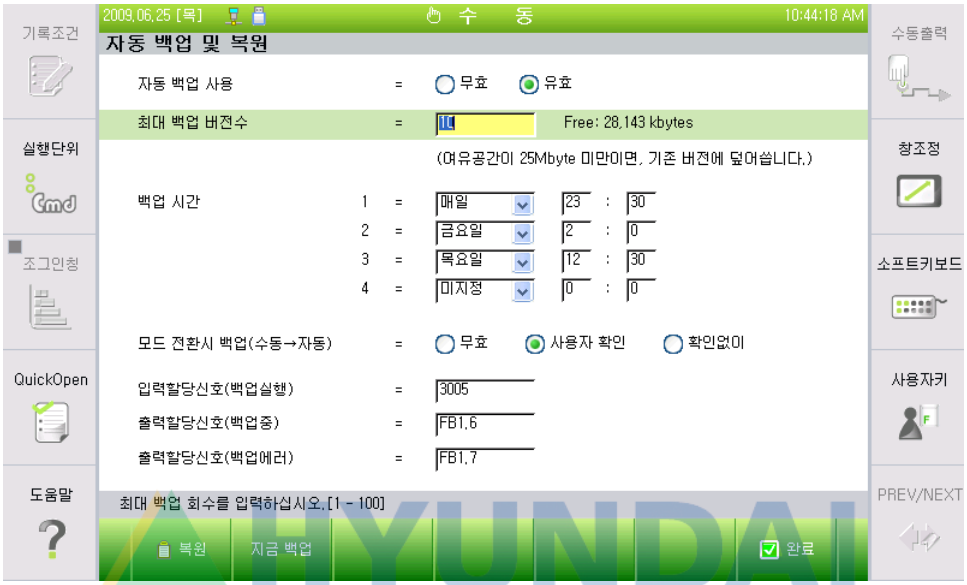

Figure 2.1 Screen of an Automatic Backup and Recovery

If the user presses the (F2: BackUp Now) key, a backup is immediately performed regardless of the settings. If the user presses the ［F2: Completed］key after setting the items on the screen, the set values are saved and applied. Each item means as follows.

Table 2-1 Automatic Backup Setting Items

Item	Description		Note
Use of an automatic backup	Invalid: turn off the automatic backup Valid: turn on the automatic backup		-
Max number of backups	Set the maximum number of backup points to manage. If the number is over the designated number, the oldest backed-up point is removed during the backup operation.		1~100
Backup time	Set the backup to be automatically performed at a specific time everyday or on a specific day. A maximum of 4 schedules may be input. Select the unused schedules as undesignated.		00:00 ~ 23:59
Backup during mode conversion (Manual to Automatic)	The moment a manual mode changes into an automatic, select whether to perform the backup.		-
	- Invalid:	Do not perform the backup	
	- User check:	A dialogue box pops up to ask whether the user wants the backup. If the user answers “Yes”, the backup is run.	
	- Without check:	Without any display of dialogue boxes for the user check, immediately the backup is run.	
Assigned input signal (backup in operation)	When the designated input signal is turned on, the backup is run.		-
Assigned output signal (backup in progress)	The designated output signal is turned on during the backup operation.		-
Assigned output signal (errors in backup)	When an error in the backup operation occurs, this signal is turned on. If the user presses the [Reset] key twice or [Reset] [0] [ENTER] in turn, it is cleared.		-

The examples of inputting the set values of the assigned signals are as follows.

Table 2-2 Methods of Setting Assigned Signals

Types of signals	Example of settings	Results of settings
Logic signal (PLC ON) Hard-wired signal (PLC OFF)	135	135 (No. 135 signal)
Field bus	5.220	FB5.220 (CC-Link I/O No. 220 signal)
Built-in field bus	.35.94	FN35.94 (No. 94 signal of No. 35 node)

2.2. Running an Automatic Backup

When backup conditions are met, the backup is run. The backup is performed under such circumstances as setting screen, teaching, jog operation, and robot playback in an automatic mode. However, while the backup or recovery is already being performed, the backup is not undertaken.

The following message appears during the backup. Please, stop any operations and wait until the message disappears.

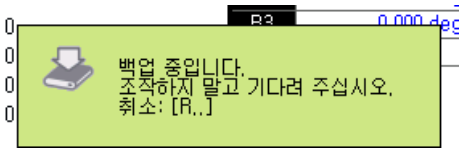

Figure 2.2 Results of Selecting USB on Applet Screen

The keypad or touch screen of a teach pendant is not operating during the backup operation. The exceptionally permitted operations are as follows.

(1) Teach pendant control panel: MOTOR ON, START, STOP, EMERGENCY STOP, and MODE CONVERSION
(2) ENABLE SWITCH, JOG KEY, STEP FWD/BWD
(Please stop the JOG motion for safety if possible.)
(3) R..[NO] : The backup is cancelled. All of already backed-up files are removed.

The playback and monitoring screens are in normal operation during the backup. But, the screen display slows down due to the increased communications between the teach pendant and the main board.
The backup location is the built-in flash memory of the teach pendant as seen in the following table.

Table 2-3 Backup Location

Path name	/ResidentFlash/backup/	Backup/ under the T/P item on the File Management screen
Created subfolder name	Form of b{date}_{time}	A prefix b stands for backup.

example) /ResidentFlash/backup/ab20090609_1200/

When the teach pendant's built-in flash memory space is less than 25 Mbyte, the oldest backed-up point is removed, then the backup is undertaken. If the space lacks during the backup operation, the backup stops. If the users press the (Previous Screen) key twice and open the previous screen of the teach pendant, they may see the records of the start and end of backup, and errors.

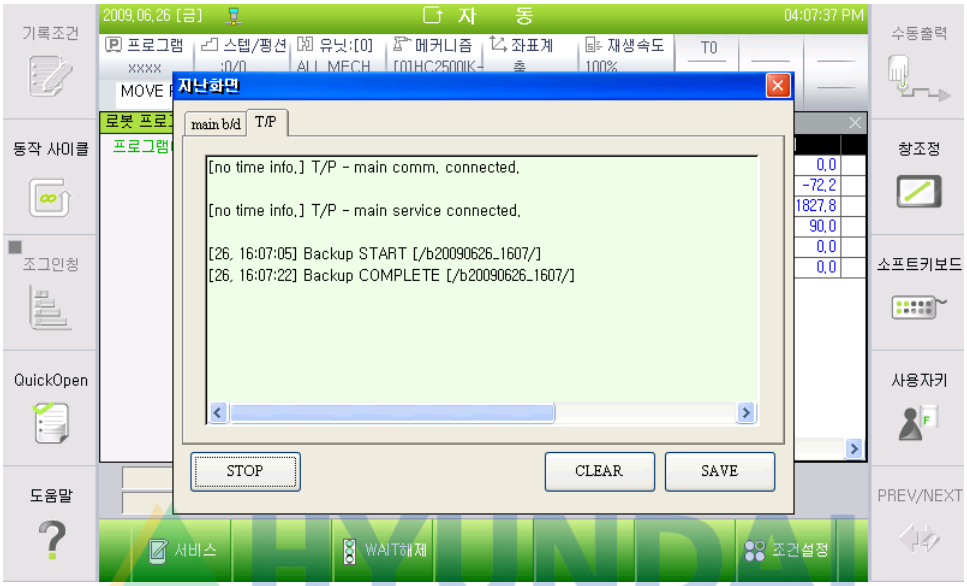

Figure 2.3 Previous Screen of a Teach Pendant

2.3. Recovery

Open menus as follows: [F2: System] – 2: Control Parameter - 11: Automatic Backup and Recovery. Click on the [F1: Recovery] button, then the following screen appears.

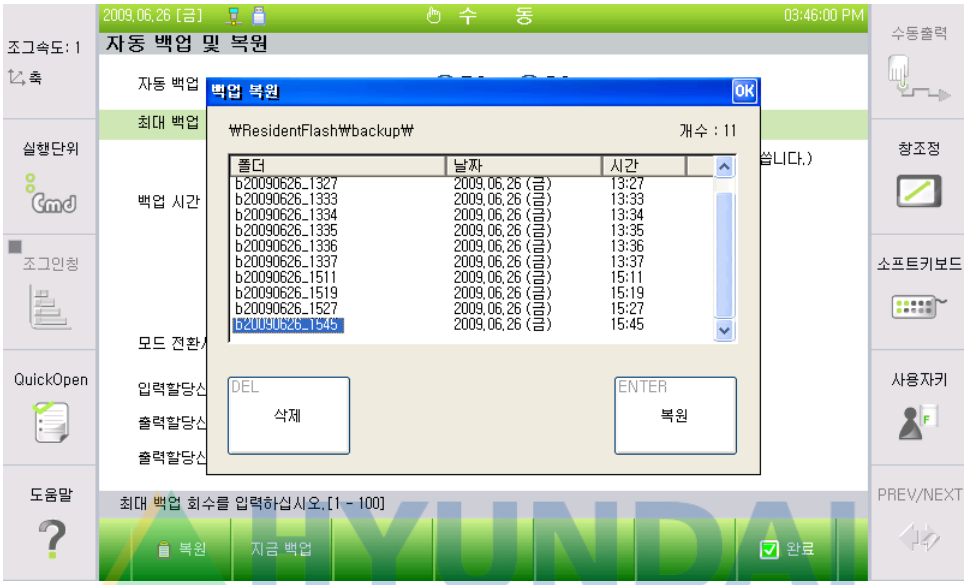

Figure 2.4 Recovery Dialogue Box

The points that may be recovered appear in alignment on the list box, based on the backup time. The undermost item is the latest backed-up file point.
Put a cursor on any item and press the [DEL: delete] button; then receive the user's approval before clearing the selected recovery point.
Move a cursor to select any item and press the [ENTER : recovery] key; then the following message box appears. (The recovery may be allowed when the motor is switched off.)

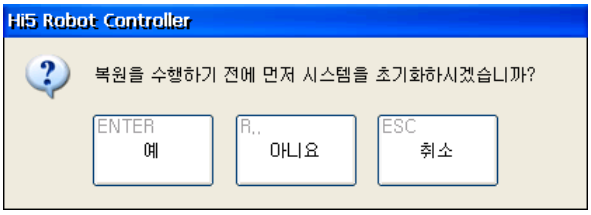

Figure 2.5 Check for System Initialization

The user is asked whether to initialize (format) the system first before the start of the recovery. If the user clicks on ‘Yes’, the format is performed before recovery; if the user clicks on ‘No’, the recovery is cancelled. (If the user does not format the system, part of files of the system still remain after recovery and may cause confusion to operations; therefore, please click on ‘Yes’ if possible.)
When ‘Yes’ or ‘No’ is selected, the recovery starts. Any operations are impossible during the recovery process.

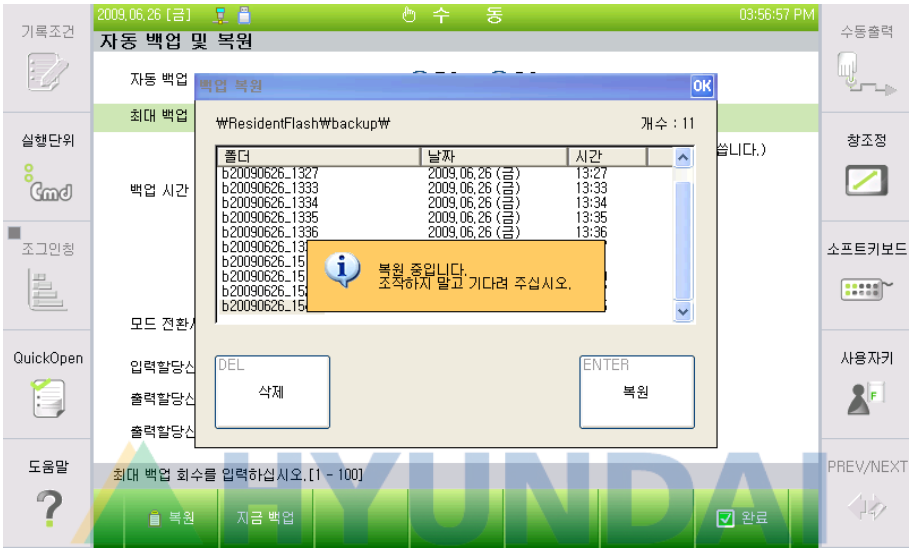

Figure 2.6 Recovery in Progress

When the recovery has been completed, the following message appears and any operations are impossible. Resupplying power enables the normal use.

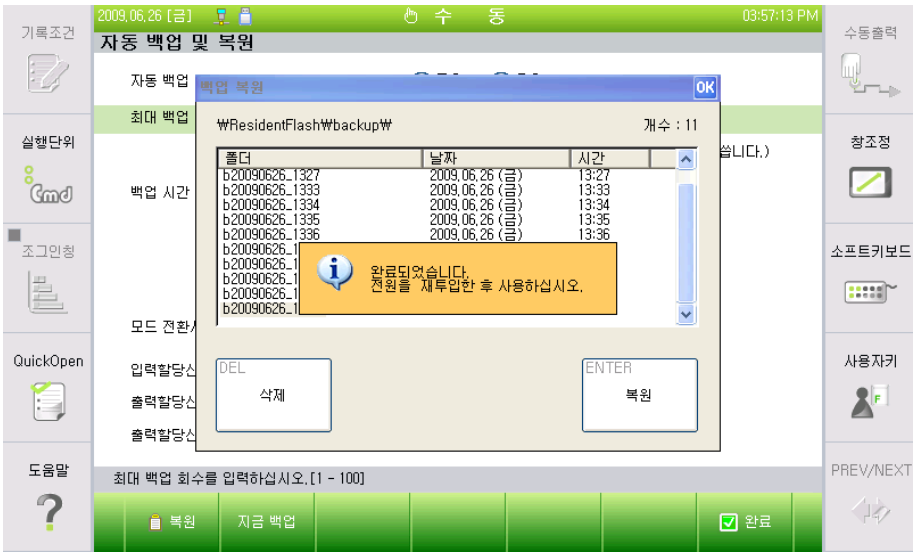

Figure 2.7 Completed Recovery

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